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AUTOMOTIVE SERIES CAPACITORS

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ALUMINUM ELECTROLYTIC CAPACITORS

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METALLIZED FILM CAPACITORS

Remark:

THB Grade IIB (85°C 85%RH, Apply Rated Voltage for 500 Hours)

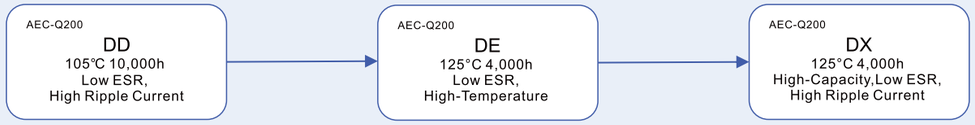
THB Grade IIIB (85°C 85%RH, Apply Rated Voltage for 1000 Hours)

THB 2000H (85°C 85%RH, Apply Rated Voltage for 2000 Hours)

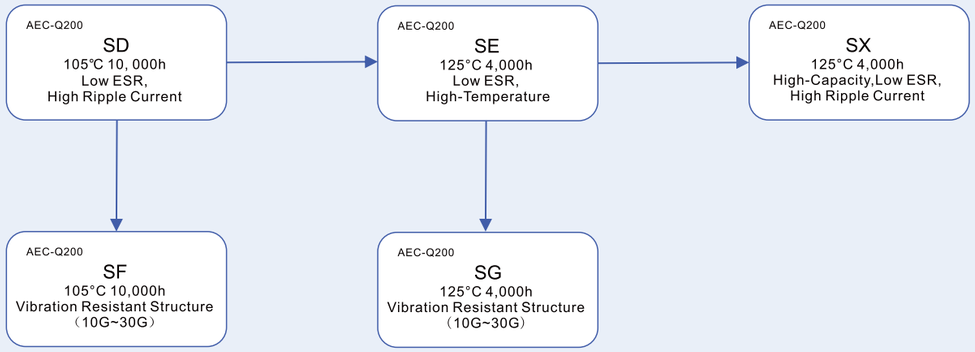
Group Chart

CONDUCTIVE POLYMER HYBRID ALUMINUM ELECTROLYTIC CAPACITORS

RADIAL TYPE

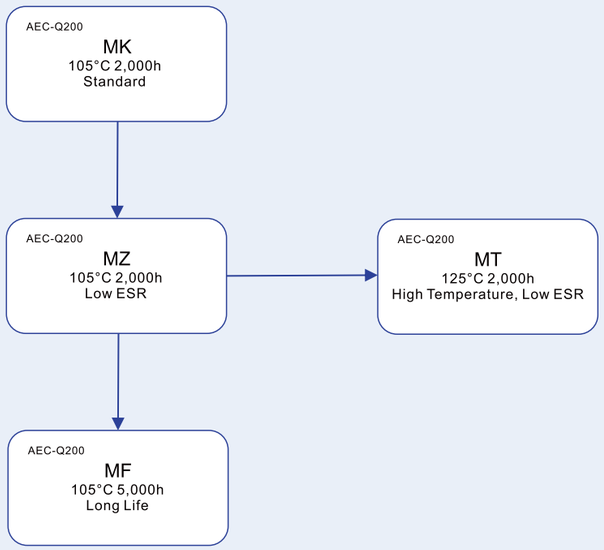


SMD TYPE



ALUMINUM ELECTROLYTIC CAPACITORS

SMD TYPE



RADIAL TYPE

105℃ Low Impedance/High Ripple(10 to 100V)

AEC-Q200
RG
2,000 ~ 8,000h

For Airbag

AEC-Q200
BG
5,000h

105℃ High Ripple/Long Life(160V and more)

AEC-Q200
RH
3,000h

AEC-Q200
HF
5,000 ~ 10,000h

AEC-Q200
HL
10,000 ~ 12,000h

125℃ High Temperature

AEC-Q200
BH
3,000h

SNAP-IN TYPE

105℃ Long Life

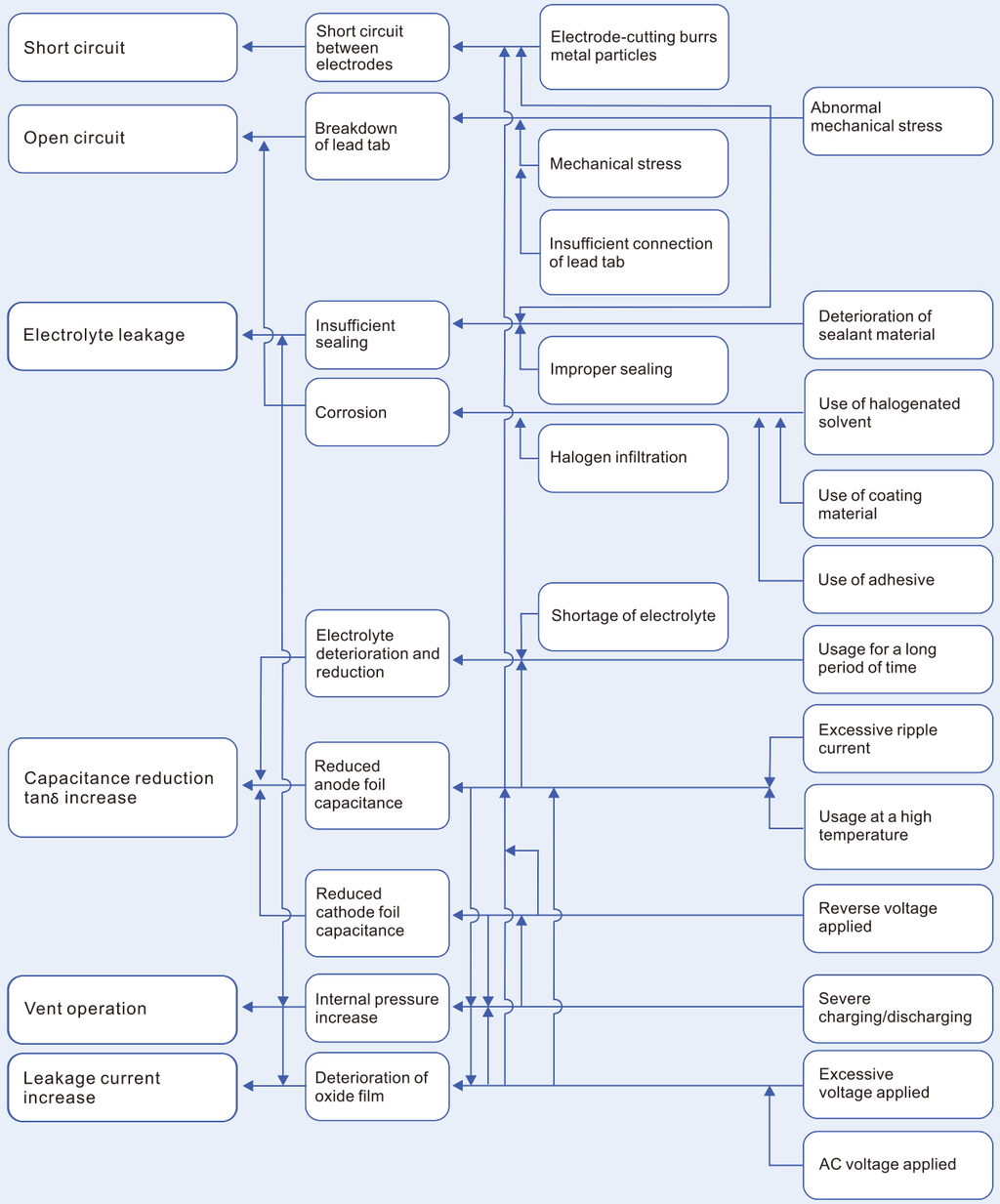
AEC-Q200
LM
3,000h
General Purpose

AEC-Q200
LT
5,000h
High Reliability

Failure Modes

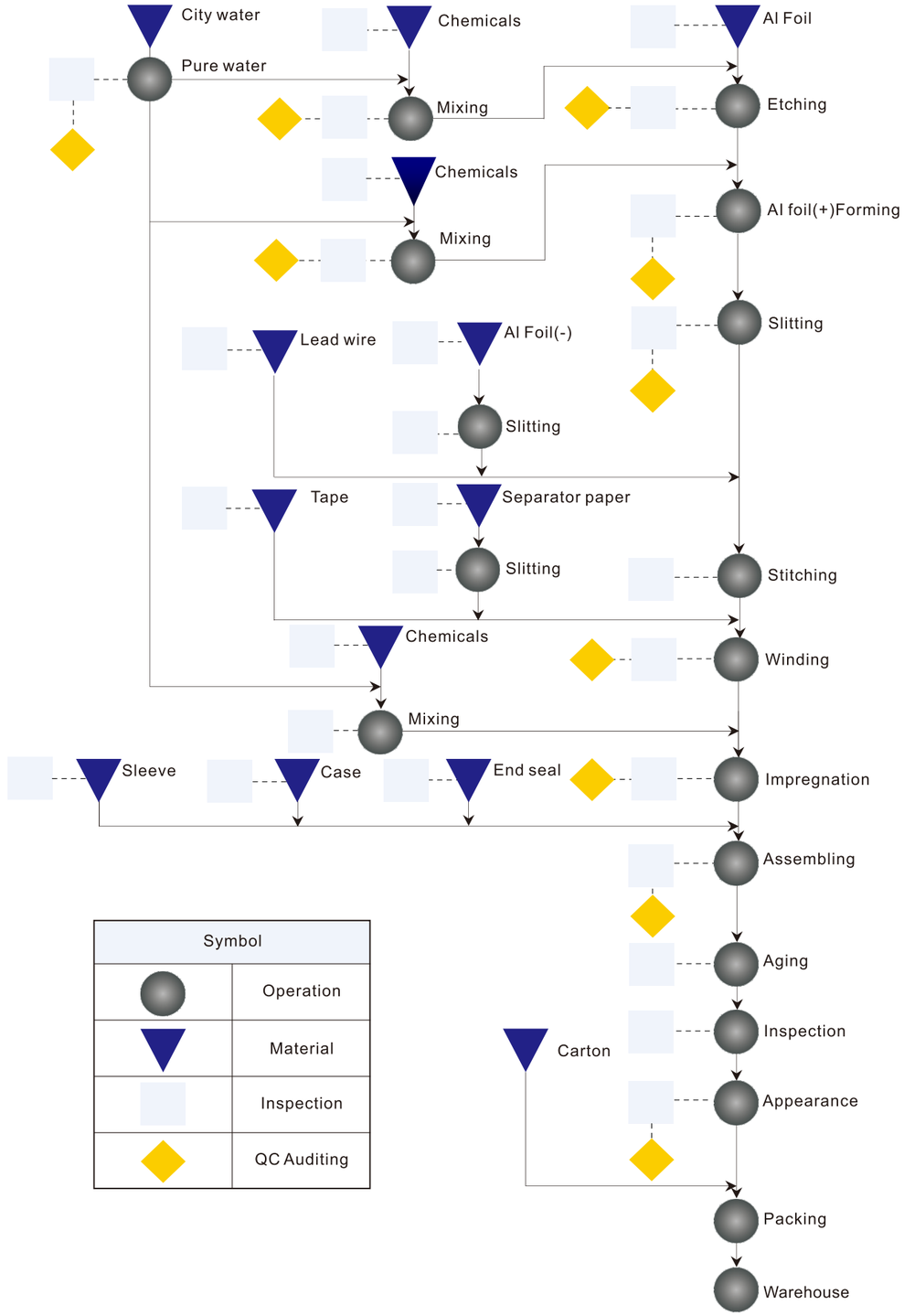
Aluminum Electrolytic Capacitors Show Various Failure Modes in Different Applications

Failure mode	Failure mechanism	Causes	
		Production factor	Application factor



Flow Chart

Aluminum Electrolytic Capacitors Flow Chart



Application Guidelines for Conductive Polymer Hybrid Aluminum Electrolytic Capacitors

Conductive polymer hybrid aluminum electrolytic capacitors (from now on referred to as capacitors) use high-conductivity solid electrolytes to maximize their strength, The circuits and specifications described in this catalog are intended to illustrate the operation and use of our products. Please note that we cannot guarantee the operation of the equipment and system when used by the customer.You are ultimately responsible for determining if the characteristies of our products, as deseribed in the specifications, are applicable to your equipment and system.To prevent malfunctions that could lead to personal or fire accidents, it is important to incorporate redundancy design, false operation prevention design, and other safety measures.

1. Designing Device Circuits

1) Choose capacitors that match the installation and operating conditions, and ensure that the application meets the performance limits outlined in this catalog or the product specifications.

2) Polarity

Conductive polymer hybrid aluminum electrolytic capacitors are polarized. Do not apply reverse voltage or AC voltage to polarized capacitors. Reverse polarity will cause a short circuit or venting. Refer to the catalog, the dimensional drawing in the product specifications, or the polarity marking on the capacitor body before use.

3) Operating voltage

Do not apply a DC voltage that exceeds the rated voltage. The peak voltage of a superimposed AC voltage (ripple voltage) on the DC voltage must not exceed the rated voltage. If the capacitor is used within the operating temperature range and below the rated voltage, no voltage derating is required regardless of ambient temperature. A surge voltage value, that exceeds the rated voltage, is prescribed in the catalogs, but it is a restricted condition, for very short periods of time.

4) Ripple current

Do not apply excessive current (current exceeding the rated ripple current). Excessive ripple current can cause internal heat expansion, shortened life, safety valve operation, short circuit, and other failures.When using capacitors under conditions below the rated ripple current, it is also possible to apply reverse voltage if the DC bias voltage is too low. Be sure to use the capacitor without applying reverse voltage.The rated ripple current is specified at a specific ripple frequency. The rated ripple current at different frequencies must be calculated by multiplying the rated ripple current at the original frequency by the frequency multipliers for each product series.

5) Category temperature

Do not use the capacitors at high temperatures (temperatures exceeding the upper operating limit).Capacitors used outside the category temperature range will considerably shorten the lifespan or cause the capacitor to vent. To ensure optimal performance, not limited to ambient temperature, it is important to check the temperature inside the machine, including radiant heat from heating elements (such as transistors and resistors) and heat generated by the ripple current. Lowering the temperature will extend the lifespan of the capacitor. Please do not install a heating element on the back of the capacitor.

6) Life expectancy

Select capacitors that meet the device's service life requirements.Please note that the result calculated by the life formula is not a guaranteed value. When designing for longevity, select capacitors with a sufficient margin over the estimated value. Additionally, if the result calculated by the estimated life formula exceeds 15 years, the maximum lifespan is capped at 15 years.

7) Charge and discharge

Avoid using general-purpose capacitors in circuits that undergo rapid charging and discharging. Please consult us for capacitors to be used in circuits that are subject to repeated rapid charging and discharging. Take caution with inrush current. A protection circuit is recommended. Capacitors used in charging and discharging circuits with large voltage differences or in short-cycle circuits with repeated rapid charging and discharging may be damaged due to reduced electrostatic capacitance and internal heat generation.

8）Leakage current

During reflow soldering, thermal stress can cause an increase in leakage current. However, if the voltage is loaded within the operating temperature range, the leakage current gradually decreases due to self-healing. Furthermore, the closer the temperature gets to the upper operating limit and the rated voltage, the faster the leakage current decreases.

The causes of an increase in leakage current are as follows:

①Welding

②Perform tests such as high-temperature no-load, high temperature and high humidity, and thermal shock.

9）Failure modes of capacitors

Non-solid aluminum electrolytic capacitors are parts that have a life expectancy and generally experience open circuit type failures. Differences in products and conditions of use may both lead to malfunctions such as venting (For Φ10mm capacitors).However, when capacitors are used under load conditions such as overvoltage and overcurrent that exceed the guaranteed range, short-circuit failure may occur.The type of fault varies depending on the operating conditions.

10）Insulation

The aluminum case of the capacitor is not guaranteed to be insulated. The outer coating/packaging layer is for identification purposes only and does not provide electrical insulation. Electrical insulation should be applied between the capacitor case and the cathode terminal, as well as between the anode terminal and the printed circuit board.

11）Conditions

Do not use/expose capacitors to the following conditions.

①Water, salty water,oil or dewy conditions.

②Direct sunlight.

③Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine and its compounds, bromine and its compounds, ammonia, etc.

④Ozone, ultraviolet rays or radiation.

⑤Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or the product specification.

12）Mounting

The electrolytic paper and conductive electrolyte in a non-solid aluminum electrolytic capacitor are flammable. Leaking electrolyte on a circuit board can gradually erode the copper traces, possibly causing smoke or burning due to copper traces short-circuit. Please check the following points when designing a PC board.

①Leave at least 2 mm of free space above the vent to allow the vent to work properly.

②Do not place any wires or copper traces over the vent of the capacitor.

③Avoid placing heat-generating objects near a capacitor or on the back of the PCB (under the capacitor).

④For a surface mount capacitor, design the copper pads of the PC board in accordance with the catalog or the product specifications.

⑤For plug-in capacitors, make sure the capacitor terminal spacing matches the PCB hole spacing.

⑥Do not place any copper traces under the seal side of a capacitor. If the electrolyte leaks out, the copper traces will be shorted, and leakage traces or migrating currents may occur. When designing the wiring around the capacitor, make sure that the wire spacing is at least 1mm (2mm or more if conditions permit).

⑦When designing double-sided printed circuit boards, do not place an additional hole or create a through-hole to connect the front and back of the board under the capacitor.

⑧When designing double-sided printed circuit boards, be careful not to place copper traces in the capacitor body mounting area.

13) Special safety applications

When using this product for applications involving personal safety, applications that may cause damage to personal safety or property due to equipment failure/malfunction/defects, or the following specific applications that may have a significant impact on society, please consult us first. ① Aerospace equipment ②Nuclear energy equipment ③Medical equipment ④ Transportation equipment (automobiles, trains, ships, etc.) ⑤Transportation control equipment ⑥Disaster prevention and theft prevention equipment ⑦ Public information processing equipment ⑧Submarine equipment ⑨Other special-purpose equipment.

14) Others

①The electrical characteristics of capacitors vary with temperature and frequency. Please consider these factors when designing equipment circuits.

②Capacitors mounted in parallel require the current to flow evenly through each capacitor.

③When 2 capacitors are connected in series, the voltage balance is taken into account and the voltage divider can be connected in parallel with the capacitors.

2. Installing Capacitors

1) Installing

①Do not reuse capacitors that have been assembled and electrified.

②The capacitor may generate regenerative voltage. Discharge the capacitor with a resistor of approximately 1kΩ before use.

③If the capacitor is stored for a long time beyond the period specified in the product catalog or specification under conditions exceeding room temperature of 35 ℃ and humidity of 75% RH, the leakage current of the capacitor may increase. At this time, please apply voltage treatment through a resistance of about 1k Ω.

④Check the rated specifications (electrostatic capacitance and rated voltage) of the capacitor before installation.

⑤Check the polarity of the capacitor prior to installation.

⑥Do not use capacitors that have fallen to the ground.

⑦Do not deform the capacitor during installation.

⑧Before installing the capacitors, check that the lead spacing of the capacitor matches the hole spacing in the PCB.

⑨Do not apply mechanical force beyond the limits specified in the catalog or product specifications of the capacitors. Also note that the capacitors may be damaged by mechanical shocks caused by the adsorption, mounting, or position alignment of an automatic mounting machine.

2) Soldering and heat resistance

①When soldering with a soldering iron, check the following.

-Soldering should be performed at a temperature of 380±10°C at the tip of the soldering iron for 3±0.5 seconds.

-The tip of the soldering iron should not touch the capacitor.

②When performing wave soldering(also known as flow soldering), confirm the following.

-Do not immerse the main body of the aluminum electrolytic capacitor in molten solder when soldering. Use a printed circuit board as a barrier and solder only the surface of the PCB on the back side of the side where the capacitor is placed.

-Soldering conditions must not exceed those specified in catalogs or specifications.

-Flux should be applied only to the terminals.

-When soldering, take care to prevent other parts from falling over and coming into contact with the capacitor.

③Check the following when performing reflow soldering.

-Reflow soldering conditions (preheat, solder temperature, and dip time) should be within the limits specified in the catalogs or product specifications.

-Reflow cycles are specified in the catalog and specifications.

④Do not reuse the installed capacitor after disassembly.

⑤Please note that wave soldering is not allowed for all types except the radial type capacitor.

⑥Please note that reflow soldering is not allowed for all types except the SMD type capacitor.

3) Handling after soldering

Do not apply mechanical stress to the capacitor after soldering it to the PCB.

①Do not tilt, drop, or twist the capacitor body after soldering the capacitors to the circuit board.

②Do not grab the body of the capacitor to carry the circuit board.

③Do not hit the capacitor after soldering it to the PC board.

When stacking the assembly board, make sure that other components do not touch the aluminum electrolytic capacitors.

④Do not drop PC boards with installed capacitors.

4) PC board cleaning

①Do not clean capacitors with the following agents.

Halogenated solvents	→Capacitor failure due to electrochemical corrosion.
Alkaline solvents	→Corrosion (dissolution) of aluminum case
Terpene, petroleum solvents	→Deterioration of sealing rubber plug
Xylene, toluene	→Deterioration of sealing rubber plug
Acetone	→Labeling disappears

If cleaning is required, do not exceed the conditions specified in the catalog and specifications. Please pay special attention to the conditions for ultrasonic cleaning.

②Check the following points when cleaning capacitors.

-Pay attention to the contamination management of the cleaning agent (conductivity, pH, specific gravity, water content, etc.).

-After cleaning the capacitors, do not store them in cleaning solution or sealed containers. In addition, please dry the aluminum electrolytic capacitors sufficiently by blowing them with hot air (below the upper operating temperature) for more than 10 minutes to avoid the residue of cleaning solution on the PCB and electrolytic capacitors. Generally, aluminum electrolytic capacitors react easily with halogen ions (especially chloride ions), and the degree of reaction varies depending on the electrolyte used and the packaging material, etc. However, when a certain amount of halogen ions intrude into the interior, it can lead to corrosive reactions during use and cause destructive failures such as a large increase in the leakage current, heat generation, and the operation of the safety vent and open circuit.

5) Adhesives and coating agent

①Do not use adhesives or coating materials that contain halogenated solvents.

②Before the use of any adhesive or coating material, be sure of the following.

Remove flux and dust residue between the rubber seal and the printed circuit board.

Dry and remove any cleaning agent residue before applying adhesive and coating materials to the capacitors. Do not cover the entire surface of the rubber seal with adhesive or coating materials.

Please contact us for thermosetting conditions for adhesives and coatings.

Covering the entire surface of the capacitor rubber seal with resin may cause a hazardous condition because the internal pressure cannot be completely released. In addition, a large amount of halogen ions in the adhesive and coating agent will cause the capacitors to fail because the halogen ions penetrate the rubber seal into the inside of the capacitor.

Note that certain types of solvents used in adhesives and coatings can cause changes to the surface of the capacitor.

3. Precautions in application operation

1) Do not touch a capacitor directly with bare hands.

2) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill conductive liquid such as acid or alkaline solution over the capacitor.

3) Verify the circuit's installation environment for capacitors.
Do not use capacitors in circumstances where they would be subject to exposure to the following substances:

①Water, oil, or dewy conditions.

②Direct sunlight.

③Ozone, ultraviolet rays, or radiation.

④Toxic gases such as hydrogen sulfide, sulfite, nitrite, chlorine and its compounds, bromine and its compounds, ammonia, etc .

⑤Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or product specification.

4. Maintenance Inspection

1) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Also, do not apply any mechanical stress to the terminals of the capacitors.

2) The following items should be checked during the periodic inspections.

①Significant damage in appearance: venting and electrolyte leakage.

②Electrical characteristics: leakage current, capacitance, tanδ, and other characteristics prescribed in the catalog or product specifications.

We recommend replacing the capacitors if the parts are out of specification.

5. Emergency

1) The capacitor of a certain size is equipped with a safety vent to reduce abnormal pressure.
If gas overflows during the operation of the safety vent of the capacitor used in the equipment, immediately turn off the power switch or unplug the power plug of the equipment from the receptacle.If the power supply is not disconnected, the circuit will be damaged by a short circuit of the capacitor, or the gas will liquefy and the circuit will be short-circuited, and in the worst case, it may cause secondary disasters such as the burning of equipment.The gas that comes out of the safety vent on the capacitor is electrolyte vapor, not smoke.

2) When the safety vent of the capacitor is activated, hot gas over 100°C will be emitted, do not approach it with your face.If the emitted gas accidentally enters your eyes or is inhaled, immediately wash your eyes with water and rinse your mouth. If the gas gets on your skin, wash it with soap and water.

6. Storage

1) Do not store capacitors in high temperature or high humidity environments. Store capacitors indoors at a temperature of 5 to 35°C and a relative humidity of 75% or less..
The storage period is, in principle, 1 year from the date of production.
2) Please keep capacitors in the original package.
3) Avoid storing the capacitors under such conditions:

①With water, high temperature, high humidity, or dewy conditions.

②With oil or gaseous oil component conditions.

③With saltwater or salt content conditions.

④With acidic toxic gas conditions (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, bromine, methyl bromide, etc.).

⑤With alkaline toxic gas conditions such as ammonia.

⑥With acidic or alkaline solvent conditions

⑦With direct sunlight, ozone, ultraviolet rays, or radiation conditions.

⑧Do not store the capacitors in an environment where there is a risk of vibration or mechanical shock.

7. Disposal Considerations

When disposing of capacitors, please send them to a professional industrial waste disposal facility for incineration or landfill treatment.

Please incinerate at a high temperature (800°C or higher). Burning at low temperatures will generate harmful gases such as halogen gases. To prevent capacitors from exploding, incinerate them after punching holes in them or crushing them thoroughly.

8. AEC-Q200

AEC is the acronym for the Automotive Electronics Council (AEC), which was founded by major U.S. automakers and electronic component manufacturers and is now an industry group consisting of component manufacturers such as Denso. It is responsible for standardizing reliability tests and certification standard tests for electronic components.

AEC-Q200 is a reliability test standard for certifying passive components, which specifies the test items and test quantities for each type of component. It is also the reliability test standard for our main product "Aluminum Electrolytic Capacitors".

Aishi can provide the test results of aluminum electrolytic capacitors based on the AEC-200 standard upon request. If the automotive customers have test requirements beyond the scope of the AEC-Q200 standard, please contact us separately.

Our company will make the judgment of "conformance" and "usability" for the customer's product. However, for individual customers and products with specific specifications, customers are still required to conduct evaluation tests through the "Reliability Test Program".
For details, please inquire separately.

9. RoHS & REACH

1) Our products comply with the RoHS Directive and other regulations on environmentally hazardous substances.
(Individual products may contain exempted restricted substances.)
Please contact us regarding compliance with specific regulations.

2) Our products comply with the REACH regulation and other regulations on environmentally hazardous substances.
(Individual products may contain exempted restricted substances.)

10. Catalog

Specifications in the catalog may be subject to change without notice. Please note that the data in the catalog is representative of values only and does not guarantee performance.

Application Guidelines for Aluminum Electrolytic Capacitors

Designing Device Circuits

1. Select the capacitors to suit the installation and operating conditions, and use the capacitors to meet the performance limits prescribed in this catalog or the product specifications.

2. Polarity

Aluminum Electrolytic Capacitors are polarized.
Apply neither reverse voltage nor AC voltage to polarized capacitors. Using reversed polarity causes a short circuit, or venting. Before use, refer to the catalog, product specifications or capacitor body to identify the polarity marking. (The shape of the rubber seal does not represent the directional rule for polarity.) Use a bi-polar type of non-solid aluminum electrolytic capacitor for a circuit where the polarity is occasionally reversed. However, note that even a bi-polar aluminum electrolytic capacitor must not be used for AC voltage applications.

3. Operating voltage

Do not apply a DC voltage that exceeds the rated voltage. The peak voltage of a superimposed AC voltage (ripple voltage) on the DC voltage must not exceed the rated voltage.
A surge voltage value, that exceeds the rated voltage, is prescribed in the catalogs, but it is a restricted condition, for very short periods of time.

4. Ripple current

The rated ripple current has been specified at a certain ripple frequency. The rated ripple current at several frequencies must be calculated by multiplying the rated ripple current at the original frequency using the frequency multipliers for each product series.

5. Category temperature

Capacitors used outside the category temperature range will considerably shorten the lifespan or cause the capacitor to vent.
The relation between the lifetime of aluminum electrolytic capacitors and ambient temperature follows Arrhenius' rule that the lifetime is approximately halved with each 10°C rise in ambient temperature.

6. Life expectancy

Select capacitors that meet the device's service life requirements.

7. Charge and discharge

Do not use capacitors in circuits where heavy charge and discharge cycles are frequently repeated. Frequent and sharp heavy discharging cycles will decrease capacitance and damage to the capacitors due to generated heat. Specified capacitors can be designed to endure such a condition. Rapid charging/discharging may be repeated in a circuit where the ripple voltage at the two terminals of the aluminum electrolytic capacitor fluctuates greatly. If the variation range of voltage exceeds 70Vp-p, please consult us.

8. Failure modes of capacitors

Non-solid aluminum electrolytic capacitors, in general, have a lifetime that ends in an open circuit, the period is dependent upon temperature.
Consequently, the lifetime of capacitors can be extended by reducing the ambient temperature and/or ripple current.

9. Insulation

a) Electrically isolate the following parts of a capacitor from the negative terminal, the positive terminal and the circuit traces.
- The outer can case of a non-solid aluminum electrolytic capacitor.
- The dummy terminal of a non-solid aluminum electrolytic capacitor, which is designed for mounting stability.

b) The outer sleeve of a capacitor is not assured as an insulator (Except for screw type). For applications that require an insulated outer sleeve, a custom-designed capacitor is recommended.

10. Conditions

Do not use/expose capacitors to the following conditions.

a) Oil, water, salty water. Avoid storage in damp locations.

b) Direct sunlight.

c) Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine or its compounds, and ammonium.

d) Ozone, ultraviolet rays, or radiation.

e) Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or the product specification.

11. Mounting

a) The electrolytic paper and the electrolytic-conductive electrolyte in a non-solid aluminum electrolytic capacitor are flammable. Leaking electrolyte on a printed circuit board can gradually erode the copper traces, possibly causing smoke or burning by short-circuiting the copper traces.

Verify the following points when designing a PC board.
- Provide the appropriate hole spacing on the PC board to match the terminal spacing of the capacitor.
- Make the following open space over the vent so that the vent can operate correctly.

Case diameter	Clearance
φ6.3 toφ16mm	2mm minimum
φ18 toφ35mm	3mm minimum
φ40mm or more	5mm minimum

- Do not place any wires or copper traces over the vent of the capacitor.
- Installing a capacitor with the vent facing the PC board needs an appropriate ventilation hole in the PC board.
- Do not pass any copper traces beneath the seal side of a capacitor. The trace must pass 1 or 2mm to the side of the capacitor.
- Avoid placing any heat-generating objects adjacent to a capacitor or even on the reverse side of the PC board.
- Do not pass anything via holes or underneath a capacitor.
- In designing double-sided PC boards, do not locate any copper trace under the seal side of a capacitor.

b) Do not mount the terminal side of a screw mount capacitor downwards. If a screw terminal capacitor is mounted on its side, make sure the positive terminal is higher than the negative terminal.

Do not fasten the screws of the terminals and the mounting damps over the specified torque prescribed in the catalog or the product specification.

c) For a surface mount capacitor, design the copper pads of the PC board in accordance with the catalog or the product specifications.

12. Others

a) The electrical characteristics of capacitors vary in respect to temperature, frequency and service life. Design the device circuits by taking these changes into account

b) Capacitors mounted in parallel need the current to flow equally through the individual capacitors.

c) Capacitors mounted in series require resistors in parallel with the individual capacitors to balance the voltage.

d) Using capacitors for applications that always consider safety. Consult with our factory before use in applications which can affect human life. (space equipment, aerial equipment, nuclear equipment, medical equipment, vehicle control equipment, etc.) Please note that the product which is designed only for specific usage can not be used for other purposes.(ex.Photo flash type, etc.)

Installing Capacitors

1. Installing

a) Used capacitors are not reusable, except in the case that the capacitors are detached from a device for periodic inspection to measure their electrical characteristics.

b) If the capacitors have self-charged, discharge the capacitors through a resistor of approximately 1kΩ before use.

c) If capacitors are stored at a temperature of 35°C or more and more than 75% RH, the leakage current may increase. In this case, they can be reformed by applying the rated voltage through a resistor of approximately 1kΩ.

d) Verify the rated capacitance and voltage of the capacitors when installing.

e) Verify the polarity of the capacitors.

f) Do not use the capacitors if they have been dropped on the floor.

g) Do not deform the cases of capacitors.

h) Verify that the lead spacing of the capacitor fits the hole spacing in the PC board before installing the capacitors. Some standard preformed leads are available.

i) For pin terminals or snap-in terminals, insert the terminals into PC board and press the capacitor downward until the bottom of the capacitor body reaches PC board surface.

j) Do not apply any mechanical force in excess of the limits prescribed in the catalogs or the product specifications of the capacitors. Also, note the capacitors may be damaged by mechanical shocks caused by the vacuum/insertion head, component checker or centering operation of an automatic mounting or insertion machine.

2. Soldering and heat resistance

a) When soldering with a soldering iron

- Soldering conditions (temperature and time) should be within the limits prescribed in the catalogs or the product specifications.
- If the terminal spacing of a capacitor does not fit the terminal hole spacing of the PC board, reform the terminals in a manner to minimize mechanical stress on the capacitor body.
- Remove the capacitors from the PC board, after the solder is completely melted, reworking by using a soldering iron minimizes the mechanical stress to the capacitors.
- Do not touch the capacitor body with the hot tip of the soldering iron.

b) Flow soldering (Wave soldering)

- Do not dip the body of a capacitor into the solder bath, only dip the terminals in. The soldering must be done on the reverse side of the PC board.
- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalogs or the product specifications.
- Do not apply flux to any part of capacitors other than their terminals.
- Make sure the capacitors do not come into contact with any other components while soldering.

c) Reflow soldering

- Soldering conditions (preheat, solder temperature and dipping time) should be within the limits prescribed in the catalogs or the product specifications.
- When setting the temperature infrared heaters, consider that the infrared absorption causes the material to be discolored and change in appearance.
- Do not solder capacitors more than once using reflow. If needed, be sure to consult us first.
- Make sure capacitors do not come into contact with copper traces.

d) Do not re-use surface mount capacitors that have already been soldered. In addition, when installing a new capacitor onto the assembly board to rework, remove old residual flux from the surface of the PC board, and then use a soldering iron within the prescribed conditions.

e) Confirm whether reflow soldering is applicable for the capacitors before operation.

3. Handling after soldering

Do not apply any mechanical stress to the capacitor after soldering onto the PC board.

a) Do not lean or twist the body of the capacitor after soldering the capacitors onto the PC board.

b) Do not use the capacitors for lifting or carrying the assembly board.

c) Do not hit or poke the capacitor after soldering to the PC board.

When stacking the assembly board, be careful that other components do not touch the aluminum electrolytic capacitors.

d) Do not drop the assembly board.

4. Cleaning PC board

a) Do not wash capacitors by using the following cleaning agents.

- Halogenated solvents: cause capacitors to fail due to corrosion.
- Alkali system solvents: corrode (dissolve) an aluminum case.
- Petroleum and terpene system solvents: cause the rubber seal material to deteriorate.
- Xylene: causes the rubber seal material to deteriorate.
- Acetone: erases the marking. Solvent-proof capacitors are only suitable for washing within the cleaning conditions prescribed in the catalogs or the product specifications. In particular, ultrasonic cleaning will accelerate damaging capacitors.

b) Verify the following points when cleaning capacitors.

- Monitor conductivity, pH, specific gravity, and the water content of cleaning agents. Contamination adversely affects these characteristics.
- Be sure not to keep the capacitors in an atmosphere containing the cleaning agent or in an air tight container.

In addition, please dry the solvent sufficiently on the PC board and the capacitor with an air knife (temperature should be less than the maximum rated category temperature of the capacitor) over 10 minutes. Aluminum electrolytic capacitors can be characteristically and catastrophically damaged by halogen ions, particularly by chlorine ions, though the degree of the damage mainly depends upon the characteristics of the electrolyte and rubber seal material. When halogen ions come into contact with the capacitors, the foil corrodes when voltage is applied. This corrosion causes extremely high leakage current, which in turn, causes venting and an open circuit.

5. Precautions for using adhesives and coating

a) Do not use any adhesive and coating materials containing halogenated solvent.

b) Verify the following before using adhesive and coating material.

- Remove flux and dust leftover between the rubber seal and the PC board before applying adhesive or coating materials to the capacitor.
- Dry and remove any residual cleaning agents before applying adhesive and coating materials to the capacitors. Do not cover the whole surface of the rubber seal with the adhesive or coating materials.
- For permissible heat conditions for curing adhesives or coating materials, follow the instructions in the catalogs or the product specifications of the capacitors.
- Covering the whole surface of the capacitor rubber seal with resin may result in a hazardous condition because the inside pressure cannot be released completely. Also, a large amount of halogen ions in resins will cause the capacitors to fail because the halogen ions penetrate into the rubber seal and the inside of the capacitor.
- Some of the coating material cannot be cured over the capacitor. Please note that loose luster and whitening on the surface of the outer sleeve might be caused by the kind of solvents used for mounting adhesives and coating agents.

6.Fumigation

In many cases when exporting or importing electronic devices, such as capacitors, wooden packaging is used. In order to control insects, most often, it becomes necessary to fumigate the shipments. Precautions during "Fumigation" using halogenated chemicals such as Methyl Bromide must be taken. Halogen gas can penetrate packaging materials used, such as cardboard boxes and vinyl bags. Penetration of the halogenated gas can cause corrosion of electrolytic capacitors.

The Operation of Devices

a) Do not touch a capacitor directly with bare hands.

b) Do not short-circuit the terminal of a capacitor by letting it come into contact with any conductive object. Also, do not spill conductive liquid such as acid or alkaline solution over the capacitor.

c) Do not use capacitors in circumstances where they would be subject to exposure to the following substances:

- Oil, water, salty water, or damp location.
- Direct sunlight.
- Toxic gases such as hydrogen sulfide, sulfurous acid, nitrous acid,chlorine or its compounds, and ammonium.
- Ozone, ultraviolet rays, or radiation.
- Severe vibration or mechanical shock conditions beyond the limits prescribed in the catalogs or product specification.

Maintenance Inspection

a) Make periodic inspections of capacitors that have been used in industrial applications. Before inspection, turn off the power supply and carefully discharge the electricity in the capacitors. Verify the polarity when measuring the capacitors with a volt-ohm meter. Also, do not apply any mechanical stress to the terminals of the capacitors.

b) The following items should be checked during the periodic inspections.

- Significant damage in appearance: venting and electrolyte leakage.
- Electrical characteristics: leakage current, capacitance, tanδ, and other characteristics prescribed in the catalog or product specifications.

We recommend replacing the capacitors if the parts are out of specification.

In Case of Venting

a) If a non-solid aluminum electrolytic capacitor expels gas when venting, it will discharge odors or smoke, or burn in the case of a short-circuit failure. Immediately turn off or unplug the main power supply of the device.

b) When venting, a non-solid aluminum electrolytic capacitor blows out gas with a temperature of over 100°C. (A solid aluminum electrolytic capacitor discharges decomposition gas or burning gas while the outer resin case is burning.) Never expose the face close to a venting capacitor.

If your eyes inadvertently become exposed to the spouting gas or you inhale it, immediately flush the open eyes with large amounts of water and gargle with water respectively. If electrolyte is on the skin, wash the electrolyte away from the skin with soap and plenty of water. Do not lick the electrolyte of non-solid aluminum electrolytic capacitors.

Storage

We recommend the following conditions for storage.

a) Do not store capacitors at a high temperature or in high humidity. Store the capacitors indoors at a temperature of 5 to 35°C and a relative humidity of 75% or below.

b) Store the capacitors in places free from water, oil or salt water.

c) Store the capacitors in places free from toxic gases (hydrogen sulfide, sulfurous acid, chlorine, ammonium, etc.)

d) Store the capacitors in places free from ozone, ultraviolet rays or radiation.

e) Keep capacitors in the original package.

Disposal

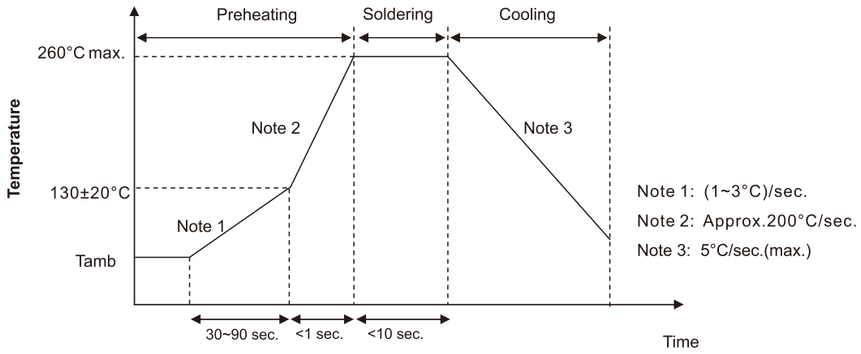
Please consult with a local industrial waste disposal specialist when disposing of aluminum electrolytic capacitors.

Catalog

Specifications in the catalog may be subject to change without notice. Please consult us first before use. Hunan Aihua Group reserves the right to the final interpretation of all content.

Soldering Recommendation

Wave Soldering(Radial Lead Type)

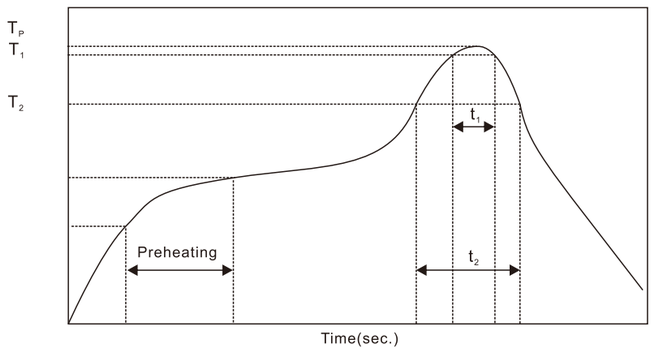


Note 1: (1~3°C)/sec.
Note 2: Approx.200°C/sec.
Note 3: 5°C/sec.(max.)

Reflow Soldering

• (For Polymer Hybrid SMD Type)

Recommended Reflow Profile

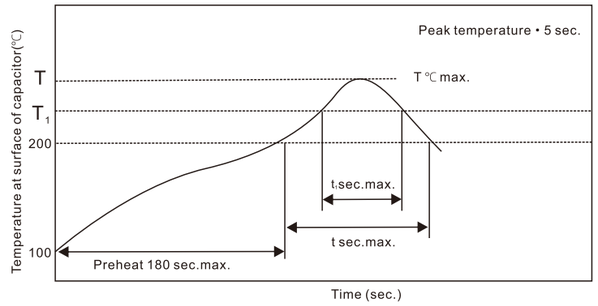


Preheating	Tp	T_1	T_2	t_1	t_2	Reflow cycle
150℃ ~ 180℃ ≤90s	250℃	245℃	217℃	≤30s	≤90s	1
150℃ ~ 180℃ ≤90s	245℃	240℃	217℃	≤20s	≤70s	2

• (For Liquid SMD Type)

Case size: φ6.3~ φ10mm:

• Temperature at surface of capacitor shall not exceed T°C.
• The duration for over 200°C temperature and T_1°C at surface of capacitor shall not exceed t and t_1 seconds,respectively.
• Preheat shall be done at 100°C to 200°C and for Maximum 180 seconds.



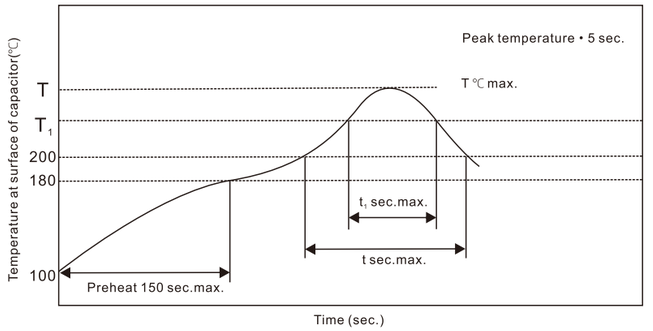
Case size (mm)	T(℃) ①	T1(℃) ②	t(sec.) ②	t1(sec.) ③	Reflow cycle
Φ6.3	250	230	90	40	1
Φ8	240	230	90	30	1
Φ10	240	230	60	30	1

① Peak temperature
② The duration over 200°C (max.)
③ The duration over T_1°C

■ Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

Case size:φ12.5~φ18mm:

• Temperature at surface of capacitor shall not exceed T°C.
• The duration for over 200°C temperature and T1°C at surface of capacitor shall not exceed t and t_1 seconds, respectively.
• Preheat shall be done at 100°C to 180°C and for Maximum 150 seconds.



Case size (mm)	Rated Voltage (Vdc)	T(℃) ①	T1(℃) ②	t(sec.) ②	t1(sec.) ③	Reflow cycle
Φ12.5~Φ18	≤100	240	230	60	30	1
	≥120	230	220	60	30	

① Peak temperature
② The duration over 200°C (max.)
③ The duration over T_1°C

■ Please contact us if capacitors are subject to the conditions other than the allowable range of reflow.

●Part Numbering System(Conductive polymer hybrid capacitors)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

- Special requirement code⑨
- Marking code⑧
- Terminal code⑦
- Size code⑥
- Capacitance code⑤
- Capacitance tolerance code④
- Voltage code③
- Series code②
- Category code①

① Category code

Type	Code
	1
Conductive polymer hybrid aluminum electrolytic capacitor	H

② Series code

Series name		Code	
		2	3
Radial Type	DD	D	D
	DE	D	E
	DX	D	X
SMD Type	SD	S	D
	SE	S	E
	SF	S	F
	SG	S	G
	SX	S	X

③ Voltage code

WV (V)	Code	
	4	5
16	1	C
25	1	E
35	1	V
50	1	H
63	1	J

④ Capacitance tolerance code

Tol. (%)	Code
	6
-20~+20	M

⑤ Capacitance code

Cap (μF)	Code		
	7	8	9
22	2	2	0
33	3	3	0
47	4	7	0
56	5	6	0
68	6	8	0
100	1	0	1
150	1	5	1
180	1	8	1
220	2	2	1
270	2	7	1
330	3	3	1
470	4	7	1
560	5	6	1
680	6	8	1
820	8	2	1
1000	1	0	2

⑥ Size code

ΦD (mm)	Code
	10
6.3	E
8	F
10	G

L (mm)	Code	
	11	12
6	0	6
7.7	7	C
8	0	8
9.5	9	R
10.5	A	R
11	1	1
12	1	2
12.5	C	R
16.5	G	R
16	1	6

⑦ Terminal code

Specification	Code		
	13	14	15
Bulk(Radial type)	O	0	0
Taping (SMD type)	E	0	0

⑧ Marking code

Marking	Code
	16
Red	R
Sky-blue	S

⑨Special code

Special	Code			
	17	18	19	20
Standard four-wheeler products	A	X	X	V

●Part Numbering System(Aluminum electrolytic capacitors)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

- Sleeve/Marking code⑧
- Terminal code⑦
- Size code⑥
- Capacitance code⑤
- Capacitance tolerance code④
- Voltage code③
- Series code②
- Category code①

① Category code

Type	Code
	1
Aluminum Electrolytic Capacitor	E
Automotive Aluminum Electrolytic Capacitor	A

② Series code

Series name	Code	
	2	3
MK	M	K
MZ	M	Z
MF	M	F
MT	M	T
RH	R	H
HF	H	F
HL	H	L
RG	R	G
BG	B	G
BH	B	H
LM	L	M
LT	L	T

③ Voltage code

WV (V)	Code	
	4	5
2.5	0	E
3	0	D
4	0	G
6.3	0	J
6.8	0	C
7	0	Q
7.5	0	A
10	1	A
12	1	T
16	1	C
25	1	E
35	1	V
40	1	G
50	1	H
63	1	J
80	1	B
100	1	K
160	2	C
180	2	L
200	2	D
220	2	N
250	2	E
275	3	M
315	2	F
350	2	V
380	2	P
400	2	G
420	2	T
450	2	W
475	3	D
500	2	H
550	2	J
600	2	K

④ Capacitance tolerance code

Tol. (%)	Code
	6
-10~+10	K
-20~+20	M
-10~+30	Q
-10~+20	V
0~+20	A
-5~+20	C
-10~-20	B
-5~+5	D
0~+10	E
-5~-20	F
-15~+5	N
0~+30	3

⑤ Capacitance code

Cap (μF)	Code		
	7	8	9
0.1	R	1	0
0.22	R	2	2
0.33	R	3	3
0.47	R	4	7
0.68	R	6	8
1	0	1	0
2.2	2	R	2
3.3	3	R	3
4.7	4	R	7
6.8	6	R	8
10	1	0	0
22	2	2	0
33	3	3	0
47	4	7	0
68	6	8	0
100	1	0	1
220	2	2	1
330	3	3	1
470	4	7	1
680	6	8	1
1000	1	0	2
2200	2	2	2
3300	3	3	2
4700	4	7	2
6800	6	8	2
10000	1	0	3
22000	2	2	3
33000	3	3	3
68000	6	8	3

⑥ Size code

ΦD (mm)	Code
	10
4	C
5	D
6.3	E
8	F
10	G
11	H
12	J
12.5	W
13	K
14	X
16	L
18	M
19	Z
20	N
22	O
25	P
30	Q
35	R
40	Y
51.6	S
64.3	T
76.9	U
91	V
100	A

L(SMD) (mm)	Code	
	11	12
5.2	5	5
5.7	6	0
5.8	6	1
6.3	6	6
7.0	7	3
7.7	8	0
8.0	8	3
8.7	9	0
9.5	9	5
10	A	0
10.5	B	0
11	B	5
11.5	C	0
12	C	5
12.5	D	0
13	D	5
13.5	E	0
16	G	5
16.5	H	0
18	J	5
18.5	K	0
19	K	5
19.5	L	0
20	L	5
20.5	M	0
21	M	5
21.5	N	0

L(other) (mm)	Code	
	11	12
5	0	5
7	0	7
11	1	1
12	1	2
12.5	1	B
13	1	3
16	1	6
20	2	0
25	2	5
30	3	0
35	3	5
40	4	0
46	4	6
50	5	0
60	6	0
80	8	0
100	A	0
115	B	5
120	C	0
130	D	0
140	E	0
160	G	0
200	K	0
220	M	0
236	N	6
250	P	0

⑦ Terminal code

Specification	Code		
	13	14	15
Bulk packing	O	-	-
Platform rubber& Straight Taping	D	0	0
φ4~8 Taping F=5.0mm	P	5	0
φ10~12.5 Taping F=5.0mm	B	5	0
Lead Cut L=3.5mm	C	3	5
Lead Cut L=11.0mm	C	B	O
Lead Forming&Cut L=4.5mm	F	-	-
Kink&Cut L=4.5mm	J	-	-
Snap-in type Terminal 4.0mm in length	K	-	-
Three Terminal	T	-	-
Ring clip mounting standard design	A	0	0
Ring clip mounting special design	S	-	-
Snap-in type L-terminal	L	-	-

⑧ Sleeve/Marking code

Sleeve	Code
	16
PVC	C
PET	T

Marking	Code
	16
Dark blue	B
Bright Red	R
Sky-blue	S
Light blue	T
Pink	Z
Black	H
Purple-blue	V
Red	O
EVA/PO	A

Lead Forming

Taping Specifications

Fig.1 code: X

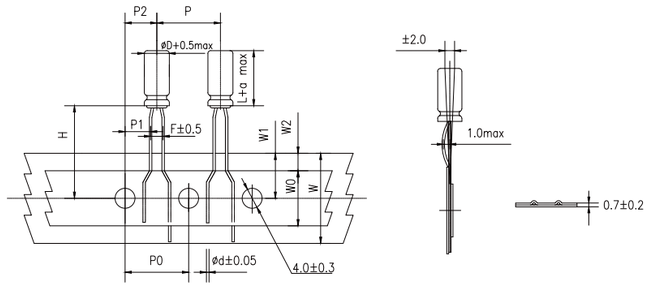


Fig.2 code: B

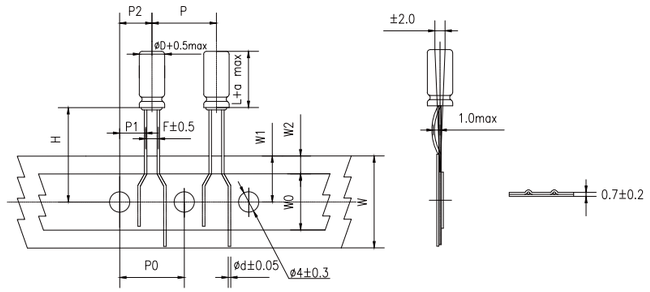


Fig.3 code: B

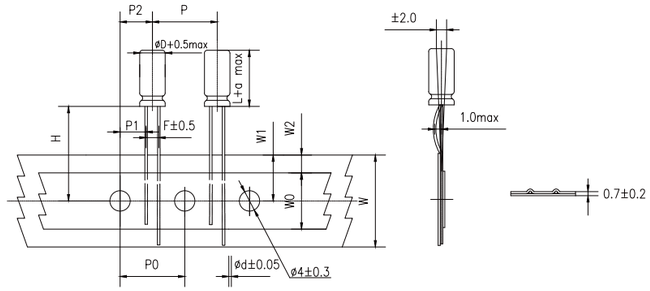
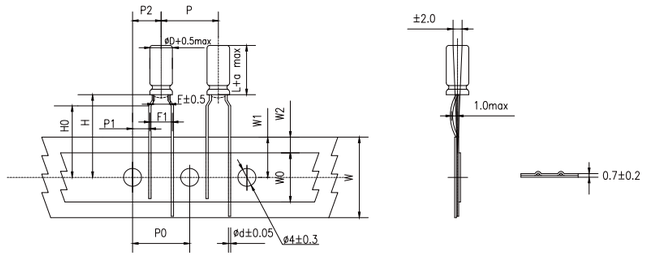


Fig.4 code: P



Lead Forming

Specification Fig.1 & Fig.2 & Fig.3

(mm)

Items	Symbol	Case size												Tolerance
		4×5 4×7		5×5 5×7		5×11		6.3×5	6.3×7 6.3×9 6.3×11 6.3×12	8×5/7 8×9/11 8×11.5 8×12	8×16 8×20	10×9 10×12 10×13/16 10×20/25	12.5×16 12.5×20 13×20	
Pin Code		X	B	X	B	X	B	B	B	B	B	B	B	
Lead wire diameter	Φd	0.45		0.45		0.5		0.45	0.5	0.5	0.5/0.6	0.6	0.6	±0.05
Pitch of capacitor body	P	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	15	±1.0
Pitch of hole center	P0	12.7		12.7		12.7		12.7	12.7	12.7	12.7	12.7	15	±0.2
Distance from hole center to lead	P1	5.1	5.6	5.1	5.35	5.1	5.35	5.1	5.1	4.6	4.6	3.85	5.0	±0.7
Distance from hole center to body center	P2	6.35		6.35		6.35		6.35	6.35	6.35	6.35	6.35	7.5	±1.0
Lead spacing	F	2.5	1.5	2.5	2.0	2.5	2.0	2.5	2.5	3.5	3.5	5.0	5.0	±0.5
Height of body from tape center	H	18.5		18.5		18.5		18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Base tape width	W	18.0		18.0		18.0		18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0		6.0		6.0		6.0	8.0	8.0	8.0	11.0	11.0	min
Distance between hole center and base tape	W1	9.0		9.0		9.0		9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Distance between base tape and adhesive tape	W2	1.5		1.5		1.5		1.5	1.5	1.5	1.5	1.5	1.5	max

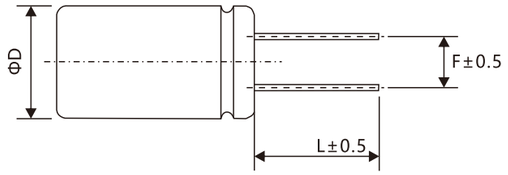
Specification Fig.4

(mm)

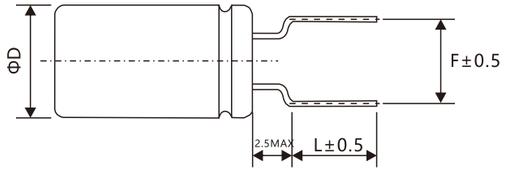
Items	Symbol	Case size								Tolerance
		4×5 4×7	5×5	5×7	5×11	6.3×5	6.3×7 6.3×9	6.3×11 6.3×12	8×5/7 8×9/11 8×11.5/12	8×16 8×20	
Pin Code		P	P	P	P	P	P	P	P	P	
Lead wire diameter	Φd	0.45	0.45	0.45	0.5	0.45	0.5	0.5	0.45/0.5	0.5/0.6	±0.05
Pitch of capacitor body	P	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	±1.0
Pitch of hole center	P0	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	12.7	±0.2
Distance from hole center to lead	P1	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	±0.7
Distance from hole center to body center	P2	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	6.35	±1.0
Lead-to-lead distance	F	1.5	2.0	2.0	2.0	2.5	2.5	2.5	3.5	3.5	±0.5
Lead spacing	F1	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	±0.5
Height of body from tape center	H	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	±0.75
Height of formed lead from tape	H0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	±0.5
Base tape width	W	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	±0.5
Adhesive tape width	W0	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	min
Distance between hole center and base tape	W1	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	+0.75 -0.5
Distance between base tape and adhesive tape	W2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	max

Lead Forming
Lead Forming & Cut

Code:C
RANGE: Φ4~Φ18



Code:F
RANGE: Φ4~Φ8

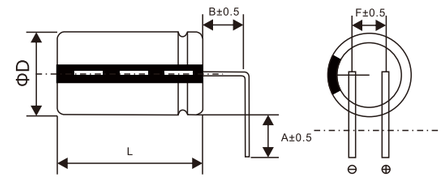


(mm)

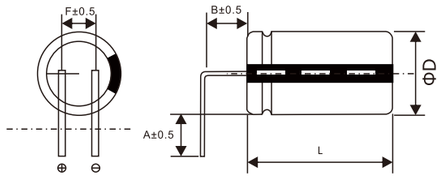
ΦD	F	L	ΦD	F	L
4	1.5	3.0~12.0	4	5.0	3.5, 4.5, 5.0, 7.0
5	2.0	3.0~12.0	5	5.0	3.5, 4.5, 5.0, 7.0
6.3	2.5	3.0~12.0	6.3	5.0	3.5, 4.5, 5.0, 7.0
8	3.5	3.0~12.0	8	5.0	3.5, 4.5, 5.0, 7.0
10	5.0	3.0~12.0	-	-	-
12.5	5.0	3.0~12.0	-	-	-
16	7.5	3.0~12.0	-	-	-
18	7.5	3.0~12.0	-	-	-

Code:R/L
RANGE: Φ10~Φ18

Right horizontal forming



Left horizontal forming



(mm)

ΦD	F	A	B
10~12.5	5.0	2.5, 3.0, 3.5, 4.0, 4.5, 5.0	1.5, 2.5
16~18	7.5	2.5, 3.0, 3.5, 4.0, 4.5, 5.0	1.5, 2.5

Conductive Polymer Hybrid
Radial Type

DD series

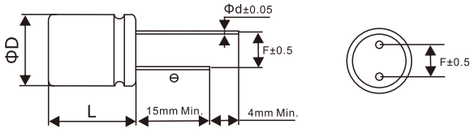
- Endurance: 10,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High Ripple Current

New

SPECIFICATIONS

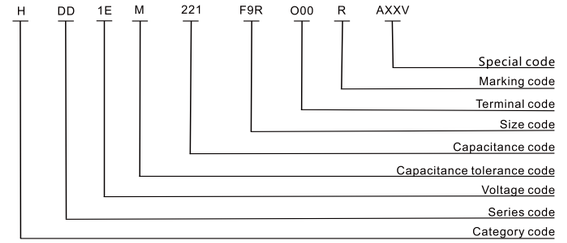
Items	Characteristics	
Category Temperature Range	-55 to +105℃	
Rated Working Voltage Range	25 to 63Vdc	
Nominal Capacitance Range	47~820μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105℃)/ Z(+20℃) ≤1.5 Z(-55℃)/ Z(+20℃) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 10,000 hours at 105℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 105℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L±0.5	d±0.05	F±0.5
F9R	8	9.5	0.6	3.5
G9R	10	9.5	0.6	5.0
G12	10	12	0.6	5.0
G16	10	16	0.6	5.0

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

DD series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	Part Number
25	220	8x9.5	0.12	27	2,300	HDD1EM221F9RO00RAXXV
	470	10x9.5	0.12	20	2,500	HDD1EM471G9RO00RAXXV
	560	10x12	0.12	16	3,500	HDD1EM561G12O00RAXXV
	820	10x16	0.12	14	4,000	HDD1EM821G16O00RAXXV
35	150	8x9.5	0.10	27	2,300	HDD1VM151F9RO00RAXXV
	270	10x9.5	0.10	20	2,500	HDD1VM271G9RO00RAXXV
	330	10x12	0.10	17	3,000	HDD1VM331G12O00RAXXV
	470	10x16	0.10	14	3,600	HDD1VM471G16O00RAXXV
50	68	8x9.5	0.10	25	1,800	HDD1HM680F9RO00RAXXV
	100	10x9.5	0.10	25	2,000	HDD1HM101G9RO00RAXXV
	150	10x12	0.10	19	2,800	HDD1HM151G12O00RAXXV
	220	10x16	0.10	16	3,500	HDD1HM221G16O00RAXXV
63	47	8x9.5	0.08	25	1,700	HDD1JM470F9RO00RAXXV
	82	10x9.5	0.08	27	1,800	HDD1JM820G9RO00RAXXV
	100	10x12	0.08	22	2,500	HDD1JM101G12O00RAXXV
	150	10x16	0.08	16	3,200	HDD1JM151G16O00RAXXV

※Specifications subject to change without notice

DE series

New

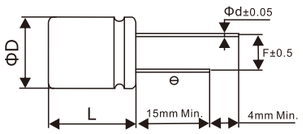
Conductive Polymer Hybrid
Radial Type

- Endurance: 4,000 hours at 125°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High Ripple Current

SPECIFICATIONS

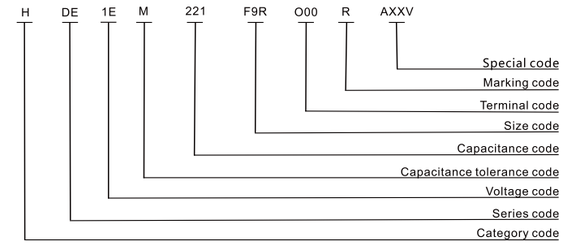
Items	Characteristics	
Category Temperature Range	-55 to +125℃	
Rated Working Voltage Range	25 to 63Vdc	
Nominal Capacitance Range	47~820μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125℃)/ Z(+20℃) ≤1.5 Z(-55℃)/ Z(+20℃) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 4,000 hours at 125℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 125℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L±0.5	d±0.05	F±0.5
F9R	8	9.5	0.6	3.5
G9R	10	9.5	0.6	5.0
G12	10	12	0.6	5.0
G16	10	16	0.6	5.0

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

DE series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	Part Number
25	220	8x9.5	0.12	27	1,600	HDE1EM221F9RO00RAXXV
	470	10x9.5	0.12	20	2,000	HDE1EM471G9RO00RAXXV
	560	10x12	0.12	16	2,900	HDE1EM561G12O00RAXXV
	820	10x16	0.12	14	3,500	HDE1EM821G16O00RAXXV
35	150	8x9.5	0.10	27	1,600	HDE1VM151F9RO00RAXXV
	270	10x9.5	0.10	20	2,000	HDE1VM271G9RO00RAXXV
	330	10x12	0.10	17	2,500	HDE1VM331G12O00RAXXV
	470	10x16	0.10	14	3,200	HDE1VM471G16O00RAXXV
50	68	8x9.5	0.10	30	1,250	HDE1HM680F9RO00RAXXV
	100	10x9.5	0.10	25	1,600	HDE1HM101G9RO00RAXXV
	150	10x12	0.10	19	2,250	HDE1HM151G12O00RAXXV
	220	10x16	0.10	16	3,000	HDE1HM221G16O00RAXXV
63	47	8x9.5	0.08	30	1,100	HDE1JM470F9RO00RAXXV
	82	10x9.5	0.08	27	1,400	HDE1JM820G9RO00RAXXV
	100	10x12	0.08	22	2,100	HDE1JM101G12O00RAXXV
	150	10x16	0.08	16	2,800	HDE1JM151G16O00RAXXV

※Specifications subject to change without notice

DX series

New

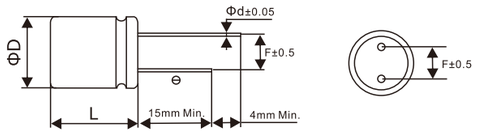
Conductive Polymer Hybrid
Radial Type

- Endurance: 4,000 hours at 125°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High Ripple Current

SPECIFICATIONS

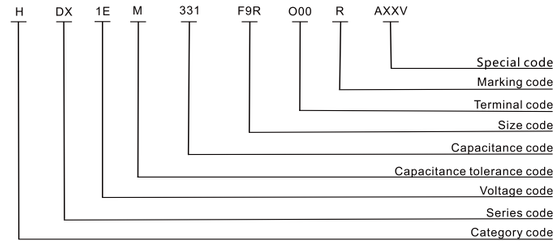
Items	Characteristics	
Category Temperature Range	-55 to +125℃	
Rated Working Voltage Range	25 to 63Vdc	
Nominal Capacitance Range	56~1,000μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125℃)/ Z(+20℃) ≤1.5 Z(-55℃)/ Z(+20℃) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 4,000 hours at 125℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 125℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L±0.5	d±0.05	F±0.5
F9R	8	9.5	0.6	3.5
G9R	10	9.5	0.6	5.0
G12	10	12	0.6	5.0
G16	10	16	0.6	5.0

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

DX series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	Part Number
25	330	8x9.5	0.12	22	2,000	HDX1EM331F9RO00RAXXV
	560	10x9.5	0.12	18	2,800	HDX1EM561G9RO00RAXXV
	680	10x12	0.12	15	3,000	HDX1EM681G12O00RAXXV
	1,000	10x16	0.12	13	4,000	HDX1EM102G16O00RAXXV
35	220	8x9.5	0.10	22	2,000	HDX1VM221F9RO00RAXXV
	330	10x9.5	0.10	18	2,800	HDX1VM331G9RO00RAXXV
	390	10x12	0.10	16	3,500	HDX1VM391G12O00RAXXV
	560	10x16	0.10	13	3,800	HDX1VM561G16O00RAXXV
50	82	8x9.5	0.10	25	1,500	HDX1HM820F9RO00RAXXV
	150	10x9.5	0.10	20	2,000	HDX1HM151G9RO00RAXXV
	180	10x12	0.10	17	2,700	HDX1HM181G12O00RAXXV
	330	10x16	0.10	15	3,600	HDX1HM331G16O00RAXXV
63	56	8x9.5	0.08	27	1,300	HDX1JM560F9RO00RAXXV
	100	10x9.5	0.08	25	2,000	HDX1JM101G9RO00RAXXV
	120	10x12	0.08	19	2,500	HDX1JM121G12O00RAXXV
	180	10x16	0.08	15	3,200	HDX1JM181G16O00RAXXV

※Specifications subject to change without notice

SD series

New

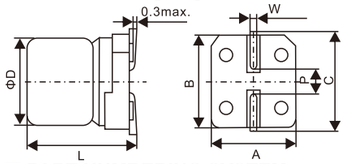
- Endurance: 10,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High Ripple Current

Conductive Polymer Hybrid Surface Mount Type

SPECIFICATIONS

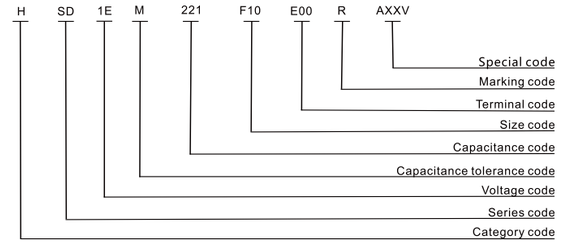
Items	Characteristics	
Category Temperature Range	-55 to +105℃	
Rated Working Voltage Range	16 to 63Vdc	
Nominal Capacitance Range	22~820μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105℃)/ Z(+20℃) ≤1.5 Z(-55℃)/ Z(+20℃) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 10,000 hours at 105℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 105℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L'	A,B±0.2	C±0.2	W	P(Reference value)
E06	6.3	6.0±0.3	6.6	7.2	0.65±0.15	1.9
E7C	6.3	7.7±0.3	6.6	7.2	0.65±0.15	1.9
F10	8	10.0±0.5	8.3	9.0	0.9±0.2	3.1
GAR	10	10.5±0.5	10.3	11.0	0.9±0.2	4.5
GCR	10	12.5±0.5	10.3	11.0	0.9±0.2	4.5
GGR	10	16.5±0.5	10.3	11.0	0.9±0.2	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

SD series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	Part Number
16	100	6.3x6	0.12	50	1,300	HSD1CM101E06E00RAXXV
25	56	6.3x6	0.12	50	1,300	HSD1EM560E06E00RAXXV
	100	6.3x7.7	0.12	30	2,000	HSD1EM101E7CE00RAXXV
	220	8x10	0.12	27	2,300	HSD1EM221F10E00RAXXV
	470	10x10.5	0.12	20	2,500	HSD1EM471GARE00RAXXV
	560	10x12.5	0.12	16	3,500	HSD1EM561GCRE00RAXXV
	820	10x16.5	0.12	14	4,000	HSD1EM821GGRE00RAXXV
35	47	6.3x6	0.10	60	1,300	HSD1VM470E06E00RAXXV
	68	6.3x7.7	0.10	35	2,000	HSD1VM680E7CE00RAXXV
	150	8x10	0.10	27	2,300	HSD1VM151F10E00RAXXV
	270	10x10.5	0.10	20	2,500	HSD1VM271GARE00RAXXV
	330	10x12.5	0.10	17	3,000	HSD1VM331GCRE00RAXXV
	470	10x16.5	0.10	14	3,600	HSD1VM471GGRE00RAXXV
50	33	6.3x7.7	0.10	40	1,400	HSD1HM330E7CE00RAXXV
	68	8x10	0.10	30	1,800	HSD1HM680F10E00RAXXV
	100	10x10.5	0.10	25	2,000	HSD1HM101GARE00RAXXV
	150	10x12.5	0.10	19	2,800	HSD1HM151GCRE00RAXXV
	220	10x16.5	0.10	16	3,500	HSD1HM221GGRE00RAXXV
63	22	6.3x7.7	0.80	80	1,500	HSD1JM220E7CE00RAXXV
	47	8x10	0.80	30	1,700	HSD1JM470F10E00RAXXV
	82	10x10.5	0.80	27	1,800	HSD1JM820GARE00RAXXV
	100	10x12.5	0.80	22	2,500	HSD1JM101GCRE00RAXXV
	150	10x16.5	0.80	16	3,200	HSD1JM151GGRE00RAXXV

※Specifications subject to change without notice

SE series

New

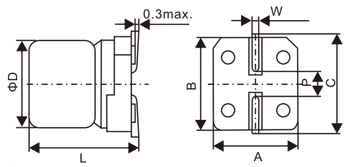
- Endurance: 4,000 hours at 125°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High-Temperature

Conductive Polymer Hybrid Surface Mount Type

SPECIFICATIONS

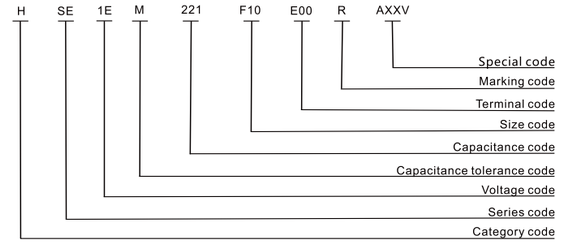
Items	Characteristics	
Category Temperature Range	-55 to +125℃	
Rated Working Voltage Range	16 to 63Vdc	
Nominal Capacitance Range	22~820μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125°C)/ Z(+20°C) ≤1.5 Z(-55°C)/ Z(+20°C) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 4,000 hours at 125℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 125℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L'	A,B±0.2	C±0.2	W	P(Reference value)
E06	6.3	6.0±0.3	6.6	7.2	0.65±0.15	1.9
E7C	6.3	7.7±0.3	6.6	7.2	0.65±0.15	1.9
F10	8	10.0±0.5	8.3	9.0	0.9±0.2	3.1
GAR	10	10.5±0.5	10.3	11.0	0.9±0.2	4.5
GCR	10	12.5±0.5	10.3	11.0	0.9±0.2	4.5
GGR	10	16.5±0.5	10.3	11.0	0.9±0.2	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

SE series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	Part Number
16	100	6.3x6	0.12	50	900	HSE1CM101E06E00RAXXV
25	56	6.3x6	0.12	50	900	HSE1EM560E06E00RAXXV
	100	6.3x7.7	0.12	30	1,400	HSE1EM101E7CE00RAXXV
	220	8x10	0.12	27	1,600	HSE1EM221F10E00RAXXV
	470	10x10.5	0.12	20	2,000	HSE1EM471GARE00RAXXV
	560	10x12.5	0.12	16	2,900	HSE1EM561GCRE00RAXXV
	820	10x16.5	0.12	14	3,500	HSE1EM821GGRE00RAXXV
35	47	6.3x6	0.10	60	900	HSE1VM470E06E00RAXXV
	68	6.3x7.7	0.10	35	1,400	HSE1VM680E7CE00RAXXV
	150	8x10	0.10	27	1,600	HSE1VM151F10E00RAXXV
	270	10x10.5	0.10	20	2,000	HSE1VM271GARE00RAXXV
	330	10x12.5	0.10	17	2,500	HSE1VM331GCRE00RAXXV
	470	10x16.5	0.10	14	3,200	HSE1VM471GGRE00RAXXV
50	33	6.3x7.7	0.10	40	1,100	HSE1HM330E7CE00RAXXV
	68	8x10	0.10	30	1,250	HSE1HM680F10E00RAXXV
	100	10x10.5	0.10	25	1,600	HSE1HM101GARE00RAXXV
	150	10x12.5	0.10	19	2,250	HSE1HM151GCRE00RAXXV
	220	10x16.5	0.10	16	3,000	HSE1HM221GGRE00RAXXV
63	22	6.3x7.7	0.08	80	900	HSE1JM220E7CE00RAXXV
	47	8x10	0.08	30	1,100	HSE1JM470F10E00RAXXV
	82	10x10.5	0.08	27	1,400	HSE1JM820GARE00RAXXV
	100	10x12.5	0.08	22	2,100	HSE1JM101GCRE00RAXXV
	150	10x16.5	0.08	16	2,800	HSE1JM151GGRE00RAXXV

※Specifications subject to change without notice

SF series

New

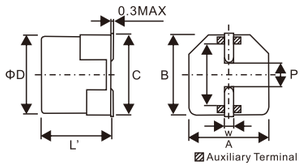
- Endurance: 10,000 hours at 105°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High Ripple Current
- Vibration Resistant Structure(10G~30G)

Conductive Polymer Hybrid Surface Mount Type

SPECIFICATIONS

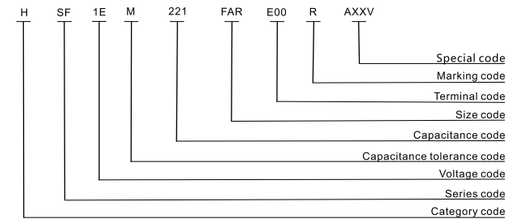
Items	Characteristics	
Category Temperature Range	-55 to +105℃	
Rated Working Voltage Range	25 to 63Vdc	
Nominal Capacitance Range	22~560μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+105℃)/ Z(+20℃) ≤1.5 Z(-55℃)/ Z(+20℃) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 10,000 hours at 105℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 105℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L'	A,B±0.2	C±0.2	W	P(Reference value)
E08	6.3	8±0.3	6.6	7.2	0.65±0.15	1.9
FAR	8	10.5±0.5	8.3	9.0	0.9±0.2	3.1
GAR	10	10.5±0.5	10.3	11.0	0.9±0.2	4.5
GCR	10	12.5±0.5	10.3	11.0	0.9±0.2	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

SF series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	GAR
25	100	6.3x8	0.12	30	2,000	HSF1EM101E08E00RAXXV
	220	8x10.5	0.12	27	2,300	HSF1EM221FARE00RAXXV
	470	10x10.5	0.12	20	2,500	HSF1EM471GARE00RAXXV
	560	10x12.5	0.12	16	3,500	HSF1EM561GCRE00RAXXV
35	68	6.3x8	0.10	35	2,000	HSF1VM680E08E00RAXXV
	150	8x10.5	0.10	27	2,300	HSF1VM151FARE00RAXXV
	270	10x10.5	0.10	20	2,500	HSF1VM271GARE00RAXXV
	330	10x12.5	0.10	17	3,000	HSF1VM331GCRE00RAXXV
50	33	6.3x8	0.10	40	1,400	HSF1HM330E08E00RAXXV
	68	8x10.5	0.10	30	1,800	HSF1HM680FARE00RAXXV
	100	10x10.5	0.10	25	2,000	HSF1HM101GARE00RAXXV
	150	10x12.5	0.10	19	2,800	HSF1HM151GCRE00RAXXV
63	22	6.3x8	0.08	80	1,500	HSF1JM220E08E00RAXXV
	47	8x10.5	0.08	30	1,700	HSF1JM470FARE00RAXXV
	82	10x10.5	0.08	27	1,800	HSF1JM820GARE00RAXXV
	100	10x12.5	0.08	22	2,500	HSF1JM101GCRE00RAXXV

※Specifications subject to change without notice

SG series

New

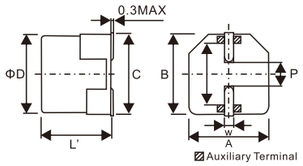
- Endurance: 4,000 hours at 125°C
- Compliant to AEC-Q200
- RoHS Compliant
- Low ESR, High-Temperature
- Vibration Resistant Structure(10G~30G)

Conductive Polymer Hybrid Surface Mount Type

SPECIFICATIONS

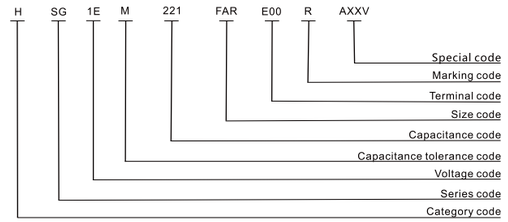
Items	Characteristics	
Category Temperature Range	-55 to +125℃	
Rated Working Voltage Range	25 to 63Vdc	
Nominal Capacitance Range	22~560μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃, 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125℃)/ Z(+20℃) ≤1.5 Z(-55℃)/ Z(+20℃) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 4,000 hours at 125℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 125℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L'	A,B±0.2	C±0.2	W	P(Reference value)
E08	6.3	8±0.3	6.6	7.2	0.65±0.15	1.9
FAR	8	10.5±0.5	8.3	9.0	0.9±0.2	3.1
GAR	10	10.5±0.5	10.3	11.0	0.9±0.2	4.5
GCR	10	12.5±0.5	10.3	11.0	0.9±0.2	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

SG series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	GAR
25	100	6.3x8	0.12	30	1,400	HSG1EM101E08E00RAXXV
	220	8x10.5	0.12	27	1,600	HSG1EM221FARE00RAXXV
	470	10x10.5	0.12	20	2,000	HSG1EM471GARE00RAXXV
	560	10x12.5	0.12	16	2,900	HSG1EM561GCRE00RAXXV
35	68	6.3x8	0.10	35	1,400	HSG1VM680E08E00RAXXV
	150	8x10.5	0.10	27	1,600	HSG1VM151FARE00RAXXV
	270	10x10.5	0.10	20	2,000	HSG1VM271GARE00RAXXV
	330	10x12.5	0.10	17	2,500	HSG1VM331GCRE00RAXXV
50	33	6.3x8	0.10	40	1,100	HSG1HM330E08E00RAXXV
	68	8x10.5	0.10	30	1,250	HSG1HM680FARE00RAXXV
	100	10x10.5	0.10	25	1,600	HSG1HM101GARE00RAXXV
	150	10x12.5	0.10	19	2,250	HSG1HM151GCRE00RAXXV
63	22	6.3x8	0.08	80	900	HSG1JM220E08E00RAXXV
	47	8x10.5	0.08	30	1,100	HSG1JM470FARE00RAXXV
	82	10x10.5	0.08	27	1,400	HSG1JM820GARE00RAXXV
	100	10x12.5	0.08	22	2,100	HSG1JM101GCRE00RAXXV

※Specifications subject to change without notice

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

SX series

New

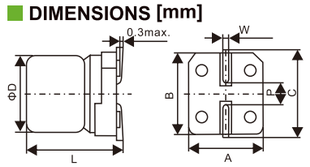
- Endurance: 4,000 hours at 125°C
- Compliant to AEC-Q200
- RoHS Compliant
- High-Capacity,Low ESR, High Ripple Current

Conductive Polymer Hybrid Surface Mount Type

SPECIFICATIONS

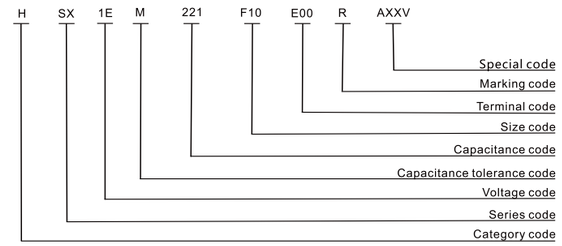
Items	Characteristics	
Category Temperature Range	-55 to +125℃	
Rated Working Voltage Range	16 ~ 63Vdc	
Nominal Capacitance Range	56~1,000μF	
Capacitance Tolerance	±20%(M)	(at 20℃, 120Hz)
Leakage Current	LC=0.01CV or 3(μA), whichever is greater	(20℃， 2 minutes)
	I: Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)	
Dissipation Factor (tan δ)	Value in the characteristics table	
Temperature Characteristics (Impedance Ratio at 100kHz)	Z(+125°C)/ Z(+20°C) ≤1.5 Z(-55°C)/ Z(+20°C) ≤2.0	
Endurance	After applying rated working voltage with rated ripple current for 4,000 hours at 125℃±2℃, the capacitors shall meet the following requirements after recovery from heat.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value
High Temperature (No-Load)	The requirements for the Endurance characteristics listed above shall be satisfied when the capacitors are recovered from heat after storing them for 1,000 hours under continuous no-load at 125℃±2℃.	
Humidity Resistance(On-Load)	After applying rated voltage for 1,000 hours at 85℃±2℃ and 85~90%RH, the capacitors shall meet the following requirements.	
	Appearance	No significant damage
	Capacitance Change	≤±30% of the initial value
	Dissipation Factor	≤200% of the initial specified value
	ESR	≤200% of the initial specified value
	Leakage Current	≤the initial specified value

DIMENSIONS [mm]



Size code	φD'	L'	A,B±0.2	C±0.2	W	P(Reference value)
E06	6.3	6.0±0.3	6.6	7.2	0.65±0.15	1.9
E7C	6.3	7.7±0.3	6.6	7.2	0.65±0.15	1.9
F10	8	10.0±0.5	8.3	9.0	0.9±0.2	3.1
GAR	10	10.5±0.5	10.3	11.0	0.9±0.2	4.5
GCR	10	12.5±0.5	10.3	11.0	0.9±0.2	4.5
GGR	10	16.5±0.5	10.3	11.0	0.9±0.2	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Frequency(Hz)	120≤f < 1k	1k≤f < 10k	10k≤f < 100k	100k≤f < 300k
Coefficient	0.05	0.30	0.70	1

SX series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦDxL(mm)	tanδ (@120Hz)	ESR (mΩ@100kHz)	Rated Current (mA@100kHz)	Part Number
16	150	6.3x6	0.12	45	1,080	HSX1CM151E06E00RAXXV
25	100	6.3x6	0.12	45	1,300	HSX1EM101E06E00RAXXV
	150	6.3x7.7	0.12	25	1,800	HSX1EM151E7CE00RAXXV
	330	8x10	0.12	22	2,000	HSX1EM331F10E00RAXXV
	560	10x10.5	0.12	18	2,800	HSX1EM561GARE00RAXXV
	680	10x12.5	0.12	15	3,000	HSX1EM681GCRE00RAXXV
	1,000	10x16.5	0.12	13	4,000	HSX1EM102GGRE00RAXXV
35	68	6.3x6	0.10	50	1,200	HSX1VM680E06E00RAXXV
	100	6.3x7.7	0.10	30	1,700	HSX1VM101E7CE00RAXXV
	220	8x10	0.10	22	2,000	HSX1VM221F10E00RAXXV
	330	10x10.5	0.10	18	2,800	HSX1VM331GARE00RAXXV
	390	10x12.5	0.10	16	3,500	HSX1VM391GCRE00RAXXV
	560	10x16.5	0.10	13	3,800	HSX1VM561GGRE00RAXXV
50	82	8x10	0.10	25	1,500	HSX1HM820F10E00RAXXV
	150	10x10.5	0.10	20	2,000	HSX1HM151GARE00RAXXV
	180	10x12.5	0.10	17	2,700	HSX1HM181GCRE00RAXXV
	330	10x16.5	0.10	15	3,600	HSX1HM331GGRE00RAXXV
63	56	8x10	0.08	27	1,300	HSX1JM560F10E00RAXXV
	100	10x10.5	0.08	25	2,000	HSX1JM101GARE00RAXXV
	120	10x12.5	0.08	19	2,500	HSX1JM121GCRE00RAXXV
	180	10x16.5	0.08	15	3,200	HSX1JM181GGRE00RAXXV

※Specifications subject to change without notice

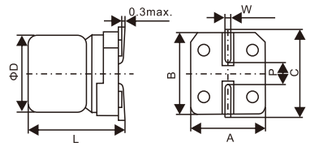
MK series

- Endurance: 2,000 hours at 105°C
- Lead free reflow soldering is available
- Available for high-density mounting
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

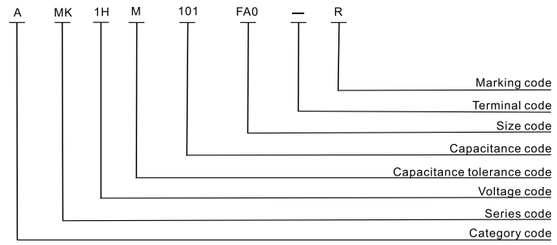
Items	Characteristics						
Category Temperature Range	-55 to +105℃						
Rated Working Voltage Range	10~50Vdc						
Capacitance Tolerance	±20%(M)						(at 20℃, 120Hz)
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V)						(at 20℃ after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	10	16	25	35	50	
	Dissipation Factor (max.)	0.24	0.20	0.16	0.14	0.12	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000 μF increase.						(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	10	16	25	35	50	
	Z(-25℃)/Z(+20℃)	3	2	2	2	2	
	Z(-40℃)/Z(+20℃)	6	4	3	3	3	
	Z(-55℃)/Z(+20℃)	8	6	4	3	3	(at120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20℃ after DC voltage is applied for a specified period of time at 105℃.						
	Load Life	2,000 hours					
	Capacitance Change	≤±30% of the initial value					
	Dissipation Factor	≤300% of the initial specified value					
	Leakage Current	≤The initial specified value					
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after leaving them under no load at 105℃ for 1,000 hours.						
	Capacitance Change	≤±30% of the initial value					
	Dissipation Factor	≤300% of the initial specified value					
	Leakage Current	≤500% of the initial specified value					

DIMENSIONS [mm]



Size code	D	L	A	B	C	W	P
E80	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
FA0	8	10	8.3	8.3	9.0	0.7~1.1	3.1
GA0	10	10	10.3	10.3	11.0	0.7~1.1	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(Vdc) \ Freq.(Hz)	120	1k	10k	100k
10~50	0.50	0.80	0.90	1.00

Surface Mount Type

MK series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size Code	Impedance (Ωmax/20℃,100kHz)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
10	220	E80	0.60	280	AMK1AM221E80D00R
	470	FA0	0.30	450	AMK1AM471FA0D00R
	1,000	GA0	0.15	670	AMK1AM102GA0D00R
16	100	E80	0.60	280	AMK1CM101E80D00R
	330	FA0	0.30	450	AMK1CM331FA0D00R
	470	GA0	0.15	670	AMK1CM471GA0D00R
25	100	E80	0.60	280	AMK1EM101E80D00R
	220	FA0	0.30	450	AMK1EM221FA0D00R
	330	FA0	0.30	450	AMK1EM331FA0D00R
	470	GA0	0.15	670	AMK1EM471GA0D00R
35	68	E80	0.60	280	AMK1VM680E80D00R
	100	E80	0.60	280	AMK1VM101E80D00R
	220	FA0	0.30	450	AMK1VM221FA0D00R
	330	GA0	0.15	670	AMK1VM331GA0D00R
50	47	E80	0.80	170	AMK1HM470E80D00R
	100	FA0	0.60	300	AMK1HM101FA0D00R
	220	GA0	0.30	500	AMK1HM221GA0D00R

※Specifications subject to change without notice

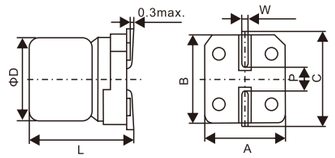
MZ series

- Endurance: 2,000 hours at 105°C
- Low ESR
- Lead-free reflow soldering is available
- Available for high-density mounting
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

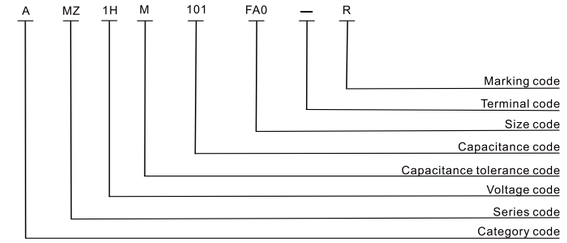
Items	Characteristics										
Category Temperature Range	-55 to +105℃										
Rated Working Voltage Range	6.3~100Vdc										
Capacitance Tolerance	±20%(M)										(at 20℃, 120Hz)
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V)										(at 20℃ after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	6.3	10	16	25	35	50	63	80	100	
	Dissipation Factor (max.)	0.30	0.24	0.20	0.16	0.14	0.12	0.12	0.12	0.10	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000 μF increase.										(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	6.3	10	16	25	35	50	63	80	100	
	Z(-25℃)/Z(+20℃)	4	3	2	2	2	2	2	2	2	
	Z(-40℃)/Z(+20℃)	8	6	4	3	3	3	3	3	3	
	Z(-55℃)/Z(+20℃)	10	8	6	4	3	3	3	3	3	(at120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20℃ after DC voltage is applied for a specified period of time at 105℃.										
	Load Life	2,000 hours									
	Capacitance Change	≤±30% of the initial value									
	Dissipation Factor	≤300% of the initial specified value									
	Leakage Current	≤The initial specified value									
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after leaving them under no load at 105℃ for 1,000 hours.										
	Capacitance Change	≤±30% of the initial value									
	Dissipation Factor	≤300% of the initial specified value									
	Leakage Current	≤300% of the initial specified value									

DIMENSIONS [mm]



Size code	D	L	A	B	C	W	P
E61	6.3	5.8	6.6	6.6	7.2	0.5~0.8	1.9
E80	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
FA0	8	10	8.3	8.3	9.0	0.7~1.1	3.1
GA0	10	10	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16	13.0	13.0	13.7	1.0~1.3	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(Vdc) \ Freq.(Hz)	120	1k	10k	100k
6.3~100	0.50	0.80	0.90	1.00

Surface Mount Type

MZ series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size Code	Impedance (Ωmax/20℃,100kHz)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
6.3	100	E61	0.44	210	AMZ0JM101E61D00R
	220	E61	0.44	210	AMZ0JM221E61D00R
	220	E80	0.34	280	AMZ0JM221E80D00R
	330	E80	0.34	280	AMZ0JM331E80D00R
	470	FA0	0.16	600	AMZ0JM471FA0D00R
	1,000	FA0	0.16	600	AMZ0JM102FA0D00R
	1,500	GA0	0.08	850	AMZ0JM152GA0D00R
10	100	E61	0.44	210	AMZ1AM101E61D00R
	150	E61	0.44	210	AMZ1AM151E61D00R
	220	E80	0.34	280	AMZ1AM221E80D00R
	470	E80	0.34	280	AMZ1AM471E80D00R
	470	FA0	0.16	600	AMZ1AM471FA0D00R
	680	FA0	0.16	600	AMZ1AM681FA0D00R
	1,000	GA0	0.08	850	AMZ1AM102GA0D00R
16	47	E61	0.44	210	AMZ1CM470E61D00R
	100	E61	0.44	210	AMZ1CM101E61D00R
	100	E80	0.34	280	AMZ1CM101E80D00R
	220	E80	0.34	280	AMZ1CM221E80D00R
	330	FA0	0.16	600	AMZ1CM331FA0D00R
	470	FA0	0.16	600	AMZ1CM471FA0D00R
	680	GA0	0.08	850	AMZ1CM681GA0D00R
25	47	E61	0.44	210	AMZ1EM470E61D00R
	100	E61	0.44	210	AMZ1EM101E61D00R
	100	E80	0.34	280	AMZ1EM101E80D00R
	220	E80	0.34	280	AMZ1EM221E80D00R
	220	FA0	0.16	600	AMZ1EM221FA0D00R
	330	FA0	0.16	600	AMZ1EM331FA0D00R
	470	GA0	0.08	850	AMZ1EM471GA0D00R
	560	GA0	0.08	850	AMZ1EM561GA0D00R
	820	GA0	0.06	1,190	AMZ1EM821GA0D00R
35	33	E61	0.44	210	AMZ1VM330E61D00R
	47	E61	0.44	210	AMZ1VM470E61D00R
	68	E80	0.34	280	AMZ1VM680E80D00R
	100	E80	0.34	280	AMZ1VM101E80D00R
	220	FA0	0.16	600	AMZ1VM221FA0D00R
	330	FA0	0.16	600	AMZ1VM331FA0D00R
	330	GA0	0.08	850	AMZ1VM331GA0D00R
	470	GA0	0.08	850	AMZ1VM471GA0D00R
	560	GA0	0.06	1,190	AMZ1VM561GA0D00R
50	10	E61	0.88	165	AMZ1HM100E61D00R
	22	E61	0.88	165	AMZ1HM220E61D00R
	33	E80	0.68	195	AMZ1HM330E80D00R
	47	E80	0.68	195	AMZ1HM470E80D00R
	47	FA0	0.34	350	AMZ1HM470FA0D00R
	100	FA0	0.34	350	AMZ1HM101FA0D00R
	100	GA0	0.18	670	AMZ1HM101GA0D00R
	220	GA0	0.18	670	AMZ1HM221GA0D00R
	330	GA0	0.12	900	AMZ1HM331GA0D00R
63	47	FA0	0.7	250	AMZ1JM470FA0D00R
	100	GA0	0.45	400	AMZ1JM101GA0D00R
	220	WE0	0.19	880	AMZ1JM221WE0D00R
	330	WG5	0.17	1,000	AMZ1JM331WG5D00R
80	47	FA0	1.3	130	AMZ1BM470FA0D00R
	100	GA0	0.7	200	AMZ1BM101GA0D00R
	150	WE0	0.22	810	AMZ1BM151WE0D00R
	220	WG5	0.17	1,000	AMZ1BM221WG5D00R
100	33	FA0	1.3	130	AMZ1KM330FA0D00R
	47	GA0	0.7	200	AMZ1KM470GA0D00R
	100	WE0	0.28	740	AMZ1KM101WE0D00R
	150	WG5	0.21	900	AMZ1KM151WG5D00R

※Specifications subject to change without notice

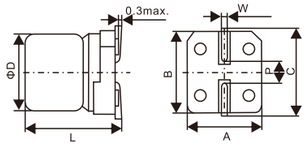
MF series

- Endurance: 5,000 hours at 105°C
- Lead free reflow soldering is available
- Available for high-density mounting
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

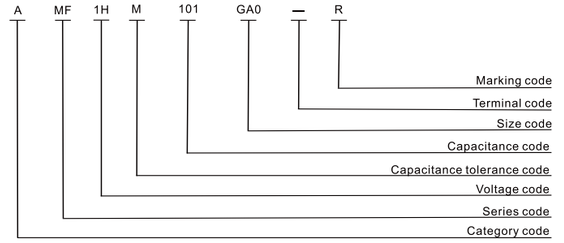
Items	Characteristics							
Category Temperature Range	-55 to +105℃							
Rated Working Voltage Range	10~50Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃, 120Hz)
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V)							(at 20℃ after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	10	16	25	35	50		
	Dissipation Factor (max.)	0.30	0.26	0.16	0.14	0.14		
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000 μF increase.							(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	10	16	25	35	50		
	Z(-25℃)/Z(+20℃)	3	2	2	2	2		
	Z(-40℃)/Z(+20℃)	6	4	3	3	3		
	Z(-55℃)/Z(+20℃)	8	6	4	3	3		(at120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20℃ after DC voltage is applied for a specified period of time at 105℃.							
	Load Life	5,000 hours						
	Capacitance Change	≤±30% of the initial value						
	Dissipation Factor	≤300% of the initial specified value						
	Leakage Current	≤The initial specified value						
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after leaving them under no load at 105℃ for 1,000 hours.							
	Capacitance Change	≤±30% of the initial value						
	Dissipation Factor	≤300% of the initial specified value						
	Leakage Current	≤500% of the initial specified value						

DIMENSIONS [mm]



Size code	D	L	A	B	C	W	P
FA0	8	10	8.3	8.3	9.0	0.7~1.1	3.1
GA0	10	10	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16	13.0	13.0	13.7	1.0~1.3	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(Vdc) \ Freq.(Hz)	120	1k	10k	100k
10~50	0.50	0.80	0.90	1.00

Surface Mount Type

MF series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size Code	Impedance (Ωmax/20℃,100kHz)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
10	220	FA0	0.20	450	AMF1AM221FA0D00R
	330	FA0	0.20	450	AMF1AM331FA0D00R
	470	GA0	0.15	670	AMF1AM471GA0D00R
16	220	FA0	0.20	450	AMF1CM221FA0D00R
	330	FA0	0.20	450	AMF1CM331FA0D00R
	470	GA0	0.15	670	AMF1CM471GA0D00R
25	100	FA0	0.20	450	AMF1EM101FA0D00R
	220	FA0	0.20	450	AMF1EM221FA0D00R
	220	GA0	0.15	670	AMF1EM221GA0D00R
	330	GA0	0.15	670	AMF1EM331GA0D00R
	1,000	WE0	0.09	1,060	AMF1EM102WE0D00R
	1,300	WG5	0.08	1,180	AMF1EM132WG5D00R
35	100	FA0	0.20	450	AMF1VM101FA0D00R
	220	FA0	0.20	450	AMF1VM221FA0D00R
	220	GA0	0.15	670	AMF1VM221GA0D00R
	330	GA0	0.15	670	AMF1VM331GA0D00R
	680	WE0	0.09	1,060	AMF1VM681WE0D00R
	820	WG5	0.08	1,180	AMF1VM821WG5D00R
50	47	FA0	0.34	350	AMF1HM470FA0D00R
	100	FA0	0.34	350	AMF1HM101FA0D00R
	100	GA0	0.18	670	AMF1HM101GA0D00R
	220	GA0	0.18	670	AMF1HM221GA0D00R
	330	WE0	0.12	900	AMF1HM331WE0D00R
	470	WG5	0.10	1,090	AMF1HM471WG5D00R

※Specifications subject to change without notice

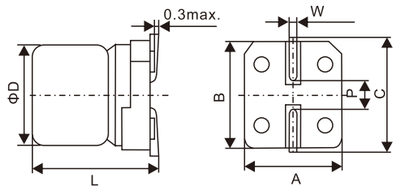
MT series

- Endurance: 2,000 hours at 125°C
- Low ESR
- Lead free reflow soldering is available
- Available for high-density mounting
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

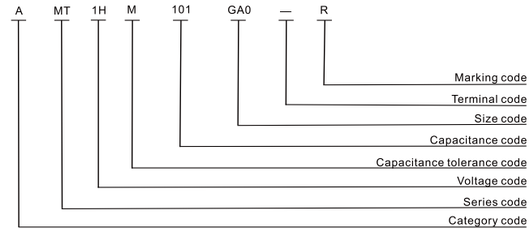
Items	Characteristics									
Category Temperature Range	-40 to +125℃									
Rated Working Voltage Range	10~100Vdc									
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)									
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20℃ after 2 minutes)									
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	10	16	25	35	50	63	80	100	
	Dissipation Factor (max.)	0.30	0.23	0.18	0.16	0.16	0.12	0.12	0.10	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000 μF increase. (at 20℃,120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	10	16	25	35	50	63	80	100	
	Z(-25℃)/Z(+20℃)	3	2	2	2	2	2	2	2	
	Z(-40℃)/Z(+20℃)	6	4	4	4	4	4	4	4	(at120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20℃ after DC voltage is applied for a specified period of time at 125℃.									
	Load Life	2,000 hours								
	Capacitance Change	≤±30% of the initial value								
	Dissipation Factor	≤300% of the initial specified value								
	Leakage Current	≤The initial specified value								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after leaving them under no load at 125℃ for 1,000 hours.									
	Capacitance Change	≤±30% of the initial value								
	Dissipation Factor	≤300% of the initial specified value								
	Leakage Current	≤500% of the initial specified value								

DIMENSIONS [mm]



Size code	D	L	A	B	C	W	P
E80	6.3	7.7	6.6	6.6	7.2	0.5~0.8	1.9
FA0	8	10	8.3	8.3	9.0	0.7~1.1	3.1
GA0	10	10	10.3	10.3	11.0	0.7~1.1	4.5
WE0	12.5	13.5	13.0	13.0	13.7	1.0~1.3	4.5
WG5	12.5	16	13.0	13.0	13.7	1.0~1.3	4.5

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Rated voltage(Vdc)	Cap. (μF) \ Freq. (Hz)	120	1k	10k	100k
10~100	Cap.< 220	0.40	0.75	0.90	1.00
	220 ≤Cap.< 560	0.50	0.85	0.94	1.00
	Cap.≥ 560	0.60	0.87	0.95	1.00

Surface Mount Type

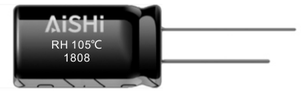
MT series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size Code	Impedance (Ωmax/20℃,100kHz)	Rated Ripple Current (mArms/125℃,100kHz)	Part Number
10	220	FA0	0.30	240	AMT1AM221FA0D00R
	330	FA0	0.30	240	AMT1AM331FA0D00R
	470	GA0	0.20	330	AMT1AM471GA0D00R
16	47	E80	0.60	180	AMT1CM470E80D00R
	100	E80	0.60	180	AMT1CM101E80D00R
	220	FA0	0.30	240	AMT1CM221FA0D00R
	330	FA0	0.30	240	AMT1CM331FA0D00R
	470	GA0	0.20	330	AMT1CM471GA0D00R
25	47	E80	0.60	180	AMT1EM470E80D00R
	100	E80	0.60	180	AMT1EM101E80D00R
	100	FA0	0.30	240	AMT1EM101FA0D00R
	220	FA0	0.30	240	AMT1EM221FA0D00R
	220	GA0	0.20	330	AMT1EM221GA0D00R
	330	GA0	0.20	330	AMT1EM331GA0D00R
35	47	E80	0.60	180	AMT1VM470E80D00R
	100	E80	0.60	180	AMT1VM101E80D00R
	100	FA0	0.30	240	AMT1VM101FA0D00R
	220	FA0	0.30	240	AMT1VM221FA0D00R
	220	GA0	0.20	330	AMT1VM221GA0D00R
	330	GA0	0.20	330	AMT1VM331GA0D00R
50	22	E80	0.80	120	AMT1HM220E80D00R
	47	E80	0.80	120	AMT1HM470E80D00R
	47	FA0	0.40	150	AMT1HM470FA0D00R
	100	FA0	0.40	150	AMT1HM101FA0D00R
	100	GA0	0.30	220	AMT1HM101GA0D00R
	220	GA0	0.30	220	AMT1HM221GA0D00R
63	68	FA0	0.75	70	AMT1JM680FA0D00R
	100	GA0	0.55	115	AMT1JM101GA0D00R
	150	WE0	0.22	540	AMT1JM151WE0D00R
	220	WG5	0.20	600	AMT1JM221WG5D00R
80	33	FA0	0.75	70	AMT1BM330FA0D00R
	47	GA0	0.55	115	AMT1BM470GA0D00R
	150	WE0	0.51	400	AMT1BM151WE0D00R
100	22	FA0	0.75	70	AMT1KM220FA0D00R
	33	GA0	0.55	115	AMT1KM330GA0D00R
	82	WE0	0.66	320	AMT1KM820WE0D00R
	100	WG5	0.63	360	AMT1KM101WG5D00R

※Specifications subject to change without notice

RH series

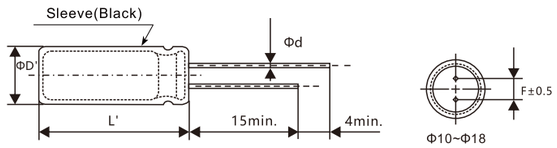


- Endurance: 3,000 hours at 105°C
- High frequency, low impedance
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

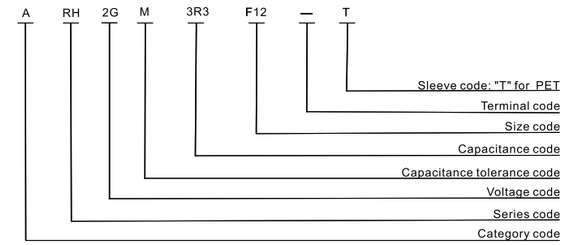
Items	Characteristics					
Category Temperature Range	-40 ~ +105℃(160 to 250Vdc)					
Rated Working Voltage Range	160~250Vdc					
Capacitance Tolerance	±20%(M)					(at 20℃, 120Hz)
Leakage Current	I≤0.02CV or 10μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V)					(at 20℃ after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160	180	200	250	
	Dissipation Factor (max.)	0.12	0.12	0.12	0.12	(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	160	180	200	250	
	Z(-25℃)/Z(+20℃)	3	5	5	5	
	Z(-40℃)/Z(+20℃)	4	7	7	7	(at120Hz)
Endurance	The following specification shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for 3,000 hours at 105°C.					
	Capacitance Change	≤±20% of the initial value				
	Dissipation Factor	≤200% of the initial specified value				
	Leakage Current	≤The initial specified value				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.					
	Capacitance Change	≤±20% of the initial value				
	Dissipation Factor	≤200% of the initial specified value				
	Leakage Current	≤200% of the initial specified value				

DIMENSIONS [mm]



ΦD	10	12.5	16	18
Φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
ΦD'	ΦD+0.5max.			
L'	L+2Max.			

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap. (μF) \ Freq. (Hz)	120	1k	10k	100k
Cap.< 10	0.40	0.70	0.92	1.00
10 ≤Cap.< 100	0.56	0.83	0.95	1.00
100 ≤Cap.< 1,000	0.67	0.87	0.96	1.00

Radial Type

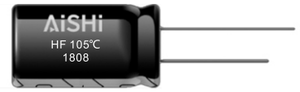
RH series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
160	22	10x16	228	ARH2CM220G16---T
	33	10x20	293	ARH2CM330G20---T
	47	12.5x20	368	ARH2CM470W20---T
	100	12.5x25	587	ARH2CM101W25---T
	220	16x25	767	ARH2CM221L25---T
180	270	16x30	880	ARH2LM271L30---T
200	22	10x16	228	ARH2DM220G16---T
	33	10x20	319	ARH2DM330G20---T
	47	12.5x20	405	ARH2DM470W20---T
	56	12.5x25	476	ARH2DM560W25---T
	100	16x25	774	ARH2DM101L25---T
	150	18x25	908	ARH2DM151M25---T
	220	18x30	1,032	ARH2DM221M30---T
250	22	10x16	205	ARH2EM220G16---T
	33	12.5x20	371	ARH2EM330W20---T
	56	12.5x25	472	ARH2EM560W25---T
	82	16x25	637	ARH2EM820L25---T
	100	16x30	795	ARH2EM101L30---T
	220	18x35	1,085	ARH2EM221M35---T
	330	18x45	1,182	ARH2EM331M45---T

※Specifications subject to change without notice

HF series

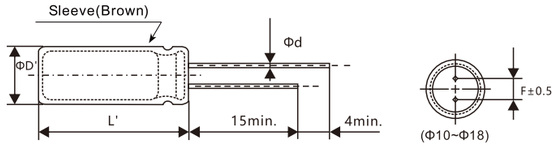


- Endurance: 5,000~10,000 hours at 105℃
- Long life, high ripple current
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

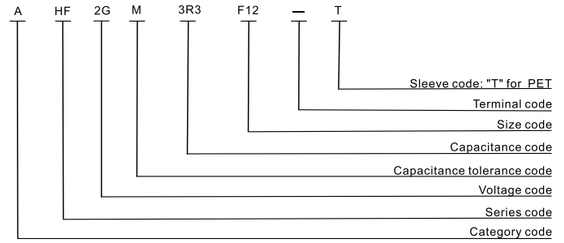
Items	Characteristics							
Category Temperature Range	-40 ~ +105℃(160 to 450Vdc)		-25 ~ +105℃(500Vdc)					
Rated Working Voltage Range	160~500Vdc							
Capacitance Tolerance	±20%(M)							(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes					
	CV≤1,000	I≤0.1CV+40μA	I≤0.03CV+15μA					
	CV > 1,000	I≤0.04CV+100μA	I≤0.02CV+25μA					
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)							(at 20°C)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160	200	250	400	450	500	
	tanδ (Max.)	0.15	0.15	0.15	0.20	0.20	0.24	(at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	160	200	250	400	450	500	
	Z(-25°C)/Z(+20°C)	3	3	3	6	6	8	
	Z(-40°C)/Z(+20°C)	8	8	8	10	10	-	(at120Hz)
Endurance	The following specification shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.							
	Capacitance Change	≤±20% of the initial value		Rated Voltage	160 to 450Vdc	500Vdc		
	Dissipation Factor	≤200% of the initial specified value		Life Time	ØD≦8：5,000	5,000		
	Leakage Current	≤The initial specified value			ØD=10：8,000			
					ØD≧12.5：10,000			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.							
	Capacitance Change	≤±20% of the initial value						
	Dissipation Factor	≤200% of the initial specified value						
	Leakage Current	≤200% of the initial specified value						

DIMENSIONS [mm]



ΦD	10	12.5	16	18
Φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
ΦD'	ΦD+0.5max.			
L'	L+2Max.			

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap. (μF) \ Freq.(Hz)	120	1k	10k	100k
＜100	1.0	1.75	2.25	2.50
≥100	1.0	1.67	2.05	2.25

Radial Type

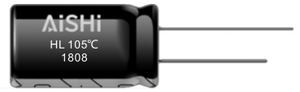
HF series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Rated Ripple Current (mArms/105℃,120Hz)	Part Number
160	68	12.5x20	478	AHF2CM680W20---T
	100	12.5x25	630	AHF2CM101W25---T
	150	16x25	790	AHF2CM151L25---T
	220	18x25	1,045	AHF2CM221M25---T
	330	18x30	1,402	AHF2CM331M30---T
200	22	10x16	172	AHF2DM220G16---T
	47	12.5x20	392	AHF2DM470W20---T
	68	12.5x25	485	AHF2DM680W25---T
	150	16x25	840	AHF2DM151L25---T
	150	18x25	870	AHF2DM151M25---T
	220	18x30	1,080	AHF2DM221M30---T
	330	18x35	1,430	AHF2DM331M35---T
	390	16x45	1,404	AHF2DM391L45---T
250	22	10x16	172	AHF2EM220G16---T
	33	10x20	248	AHF2EM330G20---T
	47	12.5x20	328	AHF2EM470W20---T
	82	16x25	560	AHF2EM820L25---T
	150	18x25	866	AHF2EM151M25---T
	220	18x30	923	AHF2EM221M30---T
400	10	10x16	121	AHF2GM100G16---T
	22	10x20	182	AHF2GM220G20---T
	39	12.5x25	370	AHF2GM390W25---T
	47	16x25	460	AHF2GM470L25---T
	68	18x25	590	AHF2GM680M25---T
	82	18x30	630	AHF2GM820M30---T
	100	18x35	785	AHF2GM101M35---T
	150	18x40	985	AHF2GM151M40---T
450	10	12.5x20	185	AHF2WM100W20---T
	27	12.5x25	305	AHF2WM270W25---T
	33	16x25	390	AHF2WM330L25---T
	47	18x25	496	AHF2WM470M25---T
	82	18x30	638	AHF2WM820M30---T
	100	18x35	750	AHF2WM101M35---T
500	10	12.5x20	135	AHF2HM100W20---T
	22	12.5x25	185	AHF2HM220W25---T
	33	16x25	290	AHF2HM330L25---T
	47	18x25	370	AHF2HM470M25---T
	47	16x30	390	AHF2HM470L30---T
	68	18x30	480	AHF2HM680M30---T
	68	16x35	500	AHF2HM680L35---T
	82	18x35	560	AHF2HM820M35---T
	100	18x40	620	AHF2HM101M40---T
	120	18x45	650	AHF2HM121M45---T

※Specifications subject to change without notice

HL series

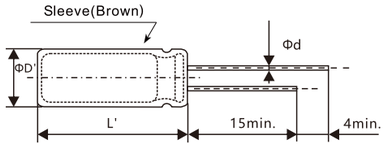


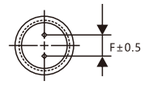
- Endurance: 10,000~12,000 hours at 105℃
- Long life, downsized, high ripple current
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	-40 ~ +105℃(160 to 450Vdc)		-25 ~ +105℃(500Vdc)						
Rated Working Voltage Range	160~500Vdc								
Capacitance Tolerance	±20%(M)								(at 20℃, 120Hz)
Leakage Current		After 1 minute	After 5 minutes						
	CV≤1,000	I≤0.1CV+40μA	I≤0.03CV+15μA						
	CV > 1,000	I≤0.04CV+100μA	I≤0.02CV+25μA						
	Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)								(at 20°C)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	160	200	250	350	400	450	500	
	tanδ (Max.)	0.18	0.18	0.18	0.24	0.24	0.24	0.24	(at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	160	200	250	350	400	450	500	
	Z(-25°C)/Z(+20°C)	3	3	3	6	6	6	6	
	Z(-40°C)/Z(+20°C)	8	8	8	10	10	10	-	(at120Hz)
Endurance	The following specification shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105°C.								
	Capacitance Change	≤±20% of the initial value		Rated Voltage	160 to 450Vdc	500Vdc			
	Dissipation Factor	≤200% of the initial specified value		Life Time	L≤20: 10,000 hours	10,000hours			
	Leakage Current	≤The initial specified value			L > 20: 12,000 hours				
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.								
	Capacitance Change	≤±20% of the initial value							
	Dissipation Factor	≤200% of the initial specified value							
	Leakage Current	≤200% of the initial specified value							

DIMENSIONS [mm]

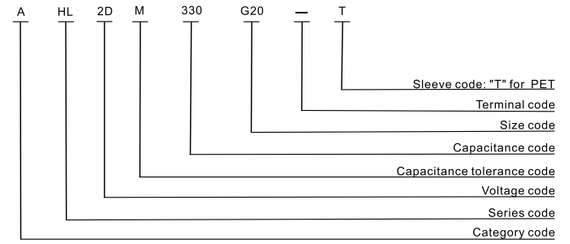




(Φ10~Φ18)

ΦD	10	12.5	16	18
Φd	0.6	0.6	0.8	0.8
F	5.0	5.0	7.5	7.5
ΦD'	ΦD+0.5max.			
L'	L+2Max.			

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap. (μF) \ Freq.(Hz)	120	1k	10k	100k
＜100	1.0	1.75	2.25	2.50
⩾100	1.0	1.67	2.05	2.25

Radial Type

HL series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Rated Ripple Current (mArms/105℃,120Hz)	Part Number
160	68	12.5x20	377	AHL2CM680W20---T
	150	12.5x25	767	AHL2CM151W25---T
	220	16x25	1,022	AHL2CM221L25---T
	330	16x30	1,355	AHL2CM331L30---T
	330	18x25	1,292	AHL2CM331M25---T
	390	16x35	1,505	AHL2CM391L35---T
	470	18x35	1,722	AHL2CM471M35---T
	560	18x40	1,910	AHL2CM561M40---T
	680	18x45	2,135	AHL2CM681M45---T
200	82	12.5x20	522	AHL2DM820W20---T
	100	12.5x25	628	AHL2DM101W25---T
	180	18x25	928	AHL2DM181M25---T
	270	16x35	1,252	AHL2DM271L35---T
	330	16x40	1,428	AHL2DM331L40---T
	330	18x30	1,402	AHL2DM331M30---T
	390	16x45	1,575	AHL2DM391L45---T
	390	18x35	1,570	AHL2DM391M35---T
	470	18x45	1,775	AHL2DM471M45---T
250	47	12.5x20	321	AHL2EM470W20---T
	82	12.5x25	565	AHL2EM820W25---T
	120	16x25	758	AHL2EM121L25---T
	180	16x30	995	AHL2EM181L30---T
	180	18x25	955	AHL2EM181M25---T
	220	16x35	1,130	AHL2EM221L35---T
	220	18x30	1,138	AHL2EM221M30---T
	270	16x45	1,315	AHL2EM271L45---T
	270	18x35	1,300	AHL2EM271M35---T
	330	18x40	1,466	AHL2EM331M40---T
350	82	16x25	628	AHL2VM820L25---T
	100	16x30	744	AHL2VM101L30---T
	100	18x25	710	AHL2VM101M25---T
	120	16x35	832	AHL2VM121L35---T
	150	16x45	978	AHL2VM151L45---T
	150	18x30	944	AHL2VM151M30---T
	180	18x40	1,086	AHL2VM181M40---T
	220	18x45	1,215	AHL2VM221M45---T
400	10	10x16	135	AHL2GM100G16---T
	33	12.5x25	320	AHL2GM330W25---T
	68	16x25	572	AHL2GM680L25---T
	82	16x30	672	AHL2GM820L30---T
	82	18x25	644	AHL2GM820M25---T
	100	16x40	780	AHL2GM101L40---T
	120	18x35	875	AHL2GM121M35---T
	150	18x40	985	AHL2GM151M40---T
	180	18x45	1,098	AHL2GM181M45---T

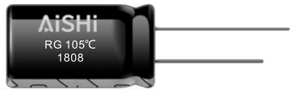
HL series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Rated Ripple Current (mArms/105℃,120Hz)	Part Number
450	10	10x20	150	AHL2WM100G20---T
	18	12.5x20	256	AHL2WM180W20---T
	47	16x25	500	AHL2WM470L25---T
	56	16x30	588	AHL2WM560L30---T
	56	18x25	562	AHL2WM560M25---T
	68	16x35	664	AHL2WM680L35---T
	82	16x40	750	AHL2WM820L40---T
	82	18x30	734	AHL2WM820M30---T
	100	18x35	836	AHL2WM101M35---T
	120	18x40	935	AHL2WM121M40---T
500	10	12.5x20	125	AHL2HM100W20---T
	33	16x25	246	AHL2HM330L25---T
	47	18x30	400	AHL2HM470M30---T

※Specifications subject to change without notice

RG series

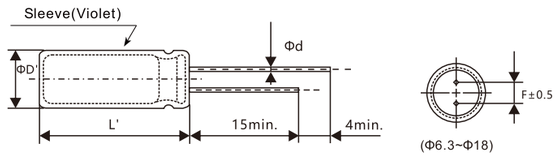


- Endurance: 2,000~8,000 hours at 105℃
- Low impedance and high frequency
- Good low temperature perfomance,high reliability
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

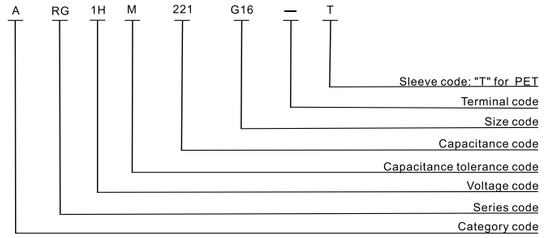
Items	Characteristics									
Category Temperature Range	-55 to +105℃									
Rated Working Voltage Range	10~100Vdc									
Capacitance Tolerance	±20%(M)									(at 20℃, 120Hz)
Leakage Current	I ≤0.01CV or 3μA, whichever is greater. Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)									(at 20℃ after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	10	16	25	35	50	63	100		
	Dissipation Factor (max.)	0.19	0.16	0.14	0.12	0.10	0.08	0.08		(at 20℃,120Hz)
	When nominal capacitance exceeds 1,000 μF, add 0.02 to the value above for each 1,000 μF increase.									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	10	16	25	35	50	63	100		
	Z(-25℃)/Z(+20℃)	3	2							
	Z(-55℃)/Z(+20℃)	6	4	3						(at 120Hz)
Endurance	The specifications listed below shall be satisfied when the capacitors are restored to 20℃ after DC voltage plus rated ripple current is applied for a specified period of time at 105℃.								Case Dia	Life Time (hours)
									ØD≤6.3	2,000
									ØD=8	3,000
	Capacitance Change	≤±25% of the initial value							ØD=10	5,000
	Dissipation Factor	≤200% of the initial specified value							ØD=12.5	7,000
	Leakage Current	≤The initial specified value							ØD≥ 16	8,000
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after leaving them under no load at 105℃ for 1,000 hours.									
	Capacitance Change	≤±25% of the initial value								
	Dissipation Factor	≤200% of the initial specified value								
	Leakage Current	≤200% of the initial specified value								

DIMENSIONS [mm]



ΦD	6.3	8		10	12.5	16	18
Φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
F	2.5	3.5		5.0	5.0	7.5	7.5
ΦD'	ΦD+0.5max.						
L'	L+2Max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap. (μF) \ Freq. (Hz)	120	1k	10k	100k
Cap.< 220	0.40	0.75	0.90	1.00
220 ≤Cap.< 680	0.50	0.85	0.94	1.00
680 ≤Cap.< 2,200	0.60	0.87	0.95	1.00
2,200 ≤Cap.< 4,700	0.75	0.90	0.95	1.00
Cap.≥4,700	0.85	0.95	0.98	1.00

RG series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
10	220	6.3x11	0.280	290	ARG1AM221E11---T
	470	8x12	0.130	555	ARG1AM471F12---T
	560	8x16	0.120	675	ARG1AM561F16---T
	1,000	10x16	0.100	1,050	ARG1AM102G16---T
	1,500	10x20	0.080	1,440	ARG1AM152G20---T
	2,200	12.5x20	0.038	1,660	ARG1AM222W20---T
	3,300	12.5x25	0.038	1,950	ARG1AM332W25---T
	6,800	16x30	0.019	3,010	ARG1AM682L30---T
	8,200	16x35	0.017	3,150	ARG1AM822L35---T
	10,000	16x40	0.015	3,710	ARG1AM103L40---T
16	100	6.3x11	0.520	255	ARG1CM101E11---T
	330	8x12	0.180	555	ARG1CM331F12---T
	470	8x16	0.120	730	ARG1CM471F16---T
	1,000	10x16	0.069	1,220	ARG1CM102G16---T
	2,200	12.5x25	0.055	1,950	ARG1CM222W25---T
	4,700	16x30	0.019	3,010	ARG1CM472L30---T
	5,600	16x35	0.017	3,150	ARG1CM562L35---T
	6,800	16x40	0.015	3,710	ARG1CM682L40---T
25	100	6.3x11	0.370	290	ARG1EM101E11---T
	220	8x12	0.240	640	ARG1EM221F12---T
	330	8x16	0.120	730	ARG1EM331F16---T
	470	10x16	0.080	1,050	ARG1EM471G16---T
	560	10x20	0.065	1,220	ARG1EM561G20---T
	680	10x20	0.064	1,220	ARG1EM681G20---T
	1,000	12.5x20	0.058	1,660	ARG1EM102W20---T
	1,500	12.5x25	0.048	1,950	ARG1EM152W25---T
	3,300	16x30	0.036	3,010	ARG1EM332L30---T
	4,700	16x40	0.018	3,710	ARG1EM472L40---T
35	100	6.3x11	0.400	280	ARG1VM101E11---T
	120	8x12	0.240	640	ARG1VM121F12---T
	220	8x16	0.120	730	ARG1VM221F16---T
	330	10x16	0.100	1,050	ARG1VM331G16---T
	470	10x20	0.065	1,220	ARG1VM471G20---T
	820	12.5x25	0.035	1,938	ARG1VM821W25---T
	1,000	12.5x25	0.030	1,950	ARG1VM102W25---T
	2,200	16x30	0.028	3,010	ARG1VM222L30---T
	3,300	16x40	0.024	3,710	ARG1VM332L40---T
	3,900	18x40	0.023	3,800	ARG1VM392M40---T

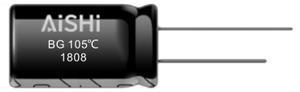
RG series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
50	47	6.3x11	0.570	220	ARG1HM470E11---T
	100	8x12	0.350	485	ARG1HM101F12---T
	150	8x16	0.160	635	ARG1HM151F16---T
	220	10x16	0.130	1,050	ARG1HM221G16---T
	470	12.5x20	0.090	1,480	ARG1HM471W20---T
	560	12.5x25	0.080	1,840	ARG1HM561W25---T
	680	12.5x30	0.039	2,220	ARG1HM681W30---T
	1,000	16x25	0.034	2,240	ARG1HM102L25---T
	1,200	16x30	0.028	2,700	ARG1HM122L30---T
	1,500	16X35	0.025	2,800	ARG1HM152L35---T
	2,200	18x35	0.023	3,100	ARG1HM222M35---T
	2,700	18x40	0.020	3,400	ARG1HM272M40---T
63	100	8x16	0.550	535	ARG1JM101F16---T
	100	10x12.5	0.550	540	ARG1JM101G1B---T
	330	12.5x20	0.110	1,290	ARG1JM331W20---T
	390	12.5x25	0.100	1,720	ARG1JM391W25---T
	470	12.5x30	0.055	2,090	ARG1JM471W30---T
	680	16x25	0.060	2,290	ARG1JM681L25---T
	1,000	16x30	0.050	2,680	ARG1JM102L30---T
	1,200	16x40	0.046	2,850	ARG1JM122L40---T
100	10	6.3x11	3.680	110	ARG1KM100E11---T
	47	10x12.5	1.500	395	ARG1KM470G1B---T
	100	10x16	1.250	550	ARG1KM101G16---T
	220	12.5x25	0.650	900	ARG1KM221W25---T
	330	16x25	0.400	1,360	ARG1KM331L25---T
	470	16x30	0.290	1,650	ARG1KM471L30---T
	680	18x35	0.280	2,350	ARG1KM681M35---T

※Specifications subject to change without notice

BG series

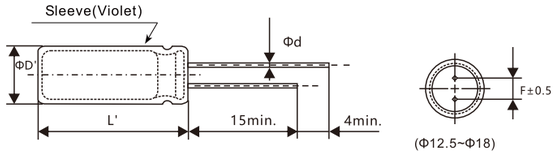


- Endurance:5,000 hours at 105℃
- Low impedance, low temperature characteristics
- SRS car assembly, high capacitance
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

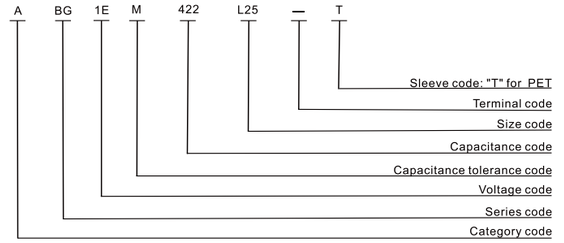
Items	Characteristics			
Category Temperature Range	-55 ~ +105℃			
Rated Working Voltage Range	25~35Vdc			
Capacitance Tolerance	±20%(M)			(at 20℃, 120Hz)
Leakage Current	I≤0.01CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V)			(at 20℃ after 2 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	25	35	
	tanδ (Max.)	0.20	0.16	
	When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase.			(at 20℃, 120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	25	35	
	Z(-55℃)/Z(+20℃)	3	3	(at120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after the rated voltage is applied for 5,000 hours at 105°C.			
	Capacitance Change	≤±20% of the initial value		
	Dissipation Factor	≤200% of the initial specified value		
	Leakage Current	≤The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 105°C without voltage applied.			
	Capacitance Change	≤±20% of the initial value		
	Dissipation Factor	≤200% of the initial specified value		
	Leakage Current	≤200% of the initial specified value		

DIMENSIONS [mm]



ΦD	12.5	14.5	16	18
Φd	0.6	0.8	0.8	0.8
F	5.0	7.5	7.5	7.5
ΦD'	ΦD+0.5max.			
L'	L+2Max.			

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap. (μF) \ Freq. (Hz)	120	1k	10k	100k
Cap. < 2,100	0.60	0.87	0.95	1.00
2,100≤Cap. < 4,000	0.75	0.90	0.95	1.00
Cap.≥4,000	0.85	0.95	0.98	1.00

Radial Type

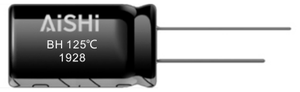
BG series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated Ripple Current (mArms/105℃,100kHz)	Part Number
25	1,700	12.5x20	0.057	1,700	ABG1EM172W20---T
	2,400	12.5x25	0.045	2,000	ABG1EM242W25---T
	2,800	12.5x30	0.039	2,300	ABG1EM282W30---T
	4,200	16x25	0.033	2,600	ABG1EM422L25---T
	5,600	16x30	0.026	3,200	ABG1EM562L30---T
	6,000	18x25	0.030	2,800	ABG1EM602M25---T
	6,600	16x35	0.023	3,500	ABG1EM662L35---T
	7,800	16x40	0.021	3,800	ABG1EM782L40---T
	7,900	18x30	0.024	3,500	ABG1EM792M30---T
	9,200	18x35	0.022	3,700	ABG1EM922M35---T
	11,000	18x40	0.020	4,000	ABG1EM113M40---T
35	1,000	12.5x20	0.057	1,700	ABG1VM102W20---T
	1,400	12.5x25	0.045	2,000	ABG1VM142W25---T
	1,600	12.5x30	0.039	2,300	ABG1VM162W30---T
	2,500	16x25	0.033	2,600	ABG1VM252L25---T
	3,400	16x30	0.026	3,200	ABG1VM342L30---T
	3,600	18x25	0.030	2,800	ABG1VM362M25---T
	4,000	16x35	0.023	3,500	ABG1VM402L35---T
	4,700	16x40	0.021	3,800	ABG1VM472L40---T
	4,800	18x30	0.024	3,500	ABG1VM482M30---T
	5,600	18x35	0.022	3,700	ABG1VM562M35---T
	6,700	18x40	0.020	4,000	ABG1VM672M40---T

※Specifications subject to change without notice

BH series

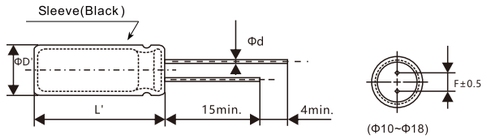


- Endurance: 3,000 hours at 125°C
- High reliability，suited for automobile electronics
- Miniaturized,long life,low impedance
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

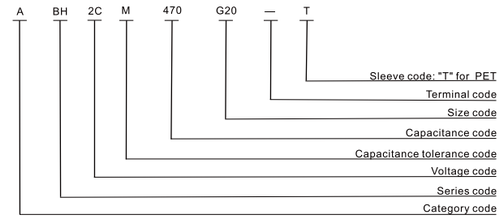
Items	Characteristics									
Category Temperature Range	-40 ~ +125℃									
Rated Working Voltage Range	25~400Vdc									
Capacitance Tolerance	±20%(M) (at 20℃, 120Hz)									
Leakage Current	25 ~ 100Vdc	250 ~ 400Vdc								
	I≦0.03CV or 4μA.(after 2 minutes) whichever is greater	CV ≤ 1,000	I≦0.1CV+40μA. (after 1 minute)							
		CV > 1,000	I≦0.04CV+100μA. (after 1 minute)							
	Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C)									
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	25	35	50	63	80	100	250	275~400	
	tanδ (Max.)	0.14	0.12	0.10	0.09	0.08	0.08	0.15	0.20	
	When nominal capacitance e×ceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20℃, 120Hz)									
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage (Vdc)	25	35	50	63	80	100	250	275~400	
	Z(-25°C)/Z(+20°C)	2	2	2	2	2	2	3	6	
	Z(-40°C)/Z(+20°C)	4	4	4	4	4	4	6	12	(at120Hz)
Endurance	The following specification shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied for 3000 hours at 125°C.									
	Rated Voltage (Vdc)	25 ~ 100Vdc					250 ~ 400Vdc			
	Capacitance Change	≤ ±30% of the initial value					≤ ±20% of the initial value			
	Dissipation Factor	≤300% of the initial specified value					≤200% of the initial specified value			
	Leakage Current	≤The initial specified value					≤The initial specified value			
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 125°C without voltage applied.									
	Rated Voltage (Vdc)	25 ~ 100Vdc					250 ~ 400Vdc			
	Capacitance Change	≤ ±30% of the initial value					≤ ±20% of the initial value			
	Dissipation Factor	≤300% of the initial specified value					≤200% of the initial specified value			
	Leakage Current	≤ 200% of the initial specified value					≤ 500% of the initial specified value			

DIMENSIONS [mm]



ΦD	10	12.5	14.5	16	18
Φd	0.6	0.6	0.8	0.8	0.8
F	5.0	5.0	7.5	7.5	7.5
ΦD'	ΦD+0.5max.				
L'	L+2Max.				

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

25 ~ 100Vdc

Cap. (μF) \ Freq. (Hz)	120	1k	10k	100k
130~240	0.40	0.82	0.93	1.00
270~560	0.50	0.85	0.94	1.00
620~2,000	0.60	0.87	0.95	1.00
2,200~4,300	0.75	0.90	0.95	1.00
4,700~11,000	0.85	0.95	0.98	1.00

250 ~ 400Vdc

Cap. (μF) \ Freq. (Hz)	50	120	300	1k	10k	100k
10~33	0.15	0.30	0.45	0.65	0.95	1.00
36~220	0.25	0.35	0.50	0.70	0.96	1.00

Radial Type

BH series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated Ripple Current (mArms/125℃,100kHz)	Part Number
25	510	10x12.5	0.182	720	ABH1EM511G1B---T
	750	10x16	0.122	1,040	ABH1EM751G16---T
	1,200	10x20	0.095	1,230	ABH1EM122G20---T
	1,800	12.5x20	0.049	1,270	ABH1EM182W20---T
	2,700	12.5x25	0.039	1,820	ABH1EM272W25---T
	3,300	12.5x30	0.033	2,210	ABH1EM332W30---T
	4,300	16x25	0.029	2,420	ABH1EM432L25---T
	5,100	16x30	0.023	2,660	ABH1EM512L30---T
	5,600	18x25	0.026	2,560	ABH1EM562M25---T
	6,800	16x35	0.021	2,900	ABH1EM682L35---T
	7,500	18x30	0.021	2,780	ABH1EM752M30---T
	8,200	16x40	0.020	3,150	ABH1EM822L40---T
	9,100	18x35	0.020	3,000	ABH1EM912M35---T
	11,000	18x40	0.018	3,230	ABH1EM113M40---T
35	300	10x12.5	0.182	720	ABH1VM301G1B---T
	510	10x16	0.122	1,040	ABH1VM511G16---T
	680	10x20	0.095	1,230	ABH1VM681G20---T
	1,100	12.5x20	0.049	1,270	ABH1VM112W20---T
	1,500	12.5x25	0.039	1,820	ABH1VM152W25---T
	2,000	12.5x30	0.033	2,210	ABH1VM202W30---T
	2,400	16x25	0.029	2,420	ABH1VM242L25---T
	3,300	16x30	0.023	2,660	ABH1VM332L30---T
	3,300	18x25	0.026	2,560	ABH1VM332M25---T
	4,300	16x35	0.021	2,900	ABH1VM432L35---T
	4,300	18x30	0.021	2,780	ABH1VM432M30---T
	4,700	16x40	0.020	3,150	ABH1VM472L40---T
	5,100	18x35	0.020	3,000	ABH1VM512M35---T
	6,200	18x40	0.018	3,230	ABH1VM622M40---T
50	160	10x12.5	0.312	580	ABH1HM161G1B---T
	240	10x16	0.208	860	ABH1HM241G16---T
	330	10x20	0.156	1,030	ABH1HM331G20---T
	470	12.5x20	0.069	1,085	ABH1HM471W20---T
	750	12.5x25	0.049	1,620	ABH1HM751W25---T
	1,000	12.5x30	0.040	2,010	ABH1HM102W30---T
	1,300	16x25	0.035	2,150	ABH1HM132L25---T
	1,600	16x30	0.030	2,520	ABH1HM162L30---T
	1,800	18x25	0.033	2,320	ABH1HM182M25---T
	2,000	16x35	0.026	2,780	ABH1HM202L35---T
	2,200	18x30	0.027	2,660	ABH1HM222M30---T
	2,400	16x40	0.023	3,040	ABH1HM242L40---T
	2,700	18x35	0.025	2,870	ABH1HM272M35---T
	3,300	18x40	0.022	3,080	ABH1HM332M40---T

BH series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	Impedance (Ωmax/20℃, 100kHz)	Rated Ripple Current (mArms/125℃,100kHz)	Part Number
63	390	12.5x20	0.126	1,050	ABH1JM391W20---T
	510	12.5x25	0.094	1,500	ABH1JM511W25---T
	680	12.5x30	0.068	1,920	ABH1JM681W30---T
	910	16x25	0.061	1,840	ABH1JM911L25---T
	1,100	16x30	0.048	2,350	ABH1JM112L30---T
	1,200	18x25	0.057	1,950	ABH1JM122M25---T
	1,300	16x35	0.040	2,570	ABH1JM132L35---T
	1,500	18x30	0.048	2,480	ABH1JM152M30---T
	1,800	16x40	0.036	2,870	ABH1JM182L40---T
	2,000	18x35	0.036	2,760	ABH1JM202M35---T
	2,400	18x40	0.030	2,950	ABH1JM242M40---T
80	1,500	18x40	0.030	2,950	ABH1BM152M40---T
100	130	12.5x20	0.156	970	ABH1KM131W20---T
	200	12.5x25	0.107	1,440	ABH1KM201W25---T
	240	12.5x30	0.081	1,830	ABH1KM241W30---T
	330	16x25	0.074	1,750	ABH1KM331L25---T
	390	16x30	0.057	2,210	ABH1KM391L30---T
	430	18x25	0.070	1,850	ABH1KM431M25---T
	510	16x35	0.048	2,410	ABH1KM511L35---T
	560	18x30	0.056	2,260	ABH1KM561M30---T
	620	16x40	0.042	2,650	ABH1KM621L40---T
	680	18x35	0.044	2,560	ABH1KM681M35---T
	820	18x40	0.038	2,730	ABH1KM821M40---T
250	33	12.5x20	-	388	ABH2EM330W20---T
	47	12.5x25	-	516	ABH2EM470W25---T
	56	12.5x30	-	590	ABH2EM560W30---T
	68	16x25	-	677	ABH2EM680L25---T
	100	18x25	-	846	ABH2EM101M25---T
275	33	12.5x20	-	378	ABH3MM330W20---T
	47	12.5x25	-	569	ABH3MM470W25---T
	56	16x20	-	687	ABH3MM560L20---T
350	22	12.5x20	-	280	ABH2VM220W20---T
	33	12.5x25	-	344	ABH2VM330W25---T
	47	16x25	-	526	ABH2VM470L25---T
	68	18x25	-	624	ABH2VM680M25---T
400	15	12.5x20	-	245	ABH2GM150W20---T
	22	12.5x25	-	355	ABH2GM220W25---T
	47	18x25	-	500	ABH2GM470M25---T
	68	18x30	-	716	ABH2GM680M30---T

※Specifications subject to change without notice

LM series

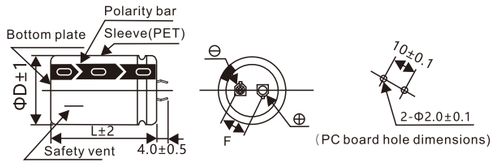
- Endurance: 3,000 hours at 105℃
- Downsized, high ripple current
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

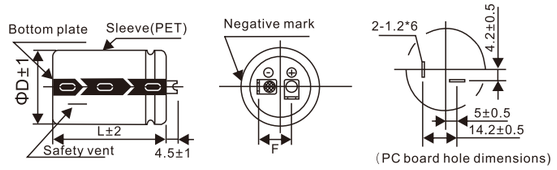
Items	Characteristics			
Category Temperature Range	-40~ +105℃			
Rated Working Voltage Range	450~500V.dc			
Capacitance Tolerance	±20%(M)			(at 20℃, 120Hz)
Leakage Current	I≤3$\sqrt{CV}$ Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	450 to 500		
	Dissipation Factor (max.)	0.20		(at 20℃,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	450 to 500		
	Z(-25℃)/Z(+20℃)	6		(at 120Hz)
	Rated Voltage(Vdc)	450	475 to 500	
	Z(-40℃)/Z(+20℃)	8	14	(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after DC voltage plus the rated ripple current is applied for 3,000 hours at 105℃.			
	Capacitance Change	≤±20% of the initial value		
	Dissipation Factor	≤200% of the initial specified value		
	Leakage Current	≤The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied.			
	Capacitance Change	≤±15% of the initial value		
	Dissipation Factor	≤150% of the initial specified value		
	Leakage Current	≤200% of the initial specified value		

DIMENSIONS [mm]

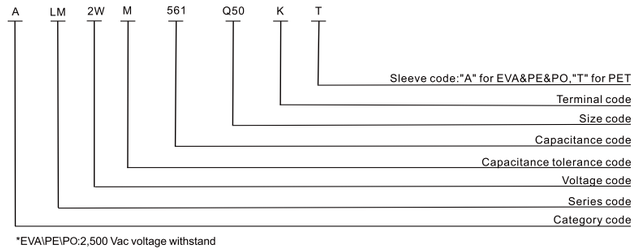
- Terminal Code : K (Φ22 to Φ35) : Standard



- Terminal Code :L (Φ30 to Φ35) : Standard



PART NUMBERING SYSTEM



*EVA\PE\PO:2,500 Vac voltage withstand

RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV (Vdc) \ Freq. (Hz)	120	1k	10k	100k
450~500	1.00	1.30	1.41	1.43

LM series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	tanδ	Rated Ripple Current (Arms/105℃,120Hz)	Part Number
450	68	22x30	0.20	0.53	ALM2WM680O30KT
	150	25x30	0.20	1.00	ALM2WM151P30KT
	220	25x40	0.20	1.12	ALM2WM221P40KT
	220	30x40	0.20	1.20	ALM2WM221Q40KT
	270	30x30	0.20	1.10	ALM2WM271Q30KT
	270	25x40	0.20	1.28	ALM2WM271P40KT
	270	35x25	0.20	1.20	ALM2WM271R25KT
	330	25x50	0.20	1.31	ALM2WM331P50KT
	330	25x45	0.20	1.24	ALM2WM331P45KT
	330	30x35	0.20	1.40	ALM2WM331Q35KT
	330	35x30	0.20	1.38	ALM2WM331R30KT
	390	35x35	0.20	1.45	ALM2WM391R35KT
	390	25x50	0.20	1.50	ALM2WM391P50KT
	390	25x55	0.20	1.48	ALM2WM391P55KT
	390	35x30	0.20	1.55	ALM2WM391R30KT
	390	30x40	0.20	1.41	ALM2WM391Q40KT
	470	30x50	0.20	1.78	ALM2WM471Q50KT
	470	30x45	0.20	1.60	ALM2WM471Q45KT
	470	35x35	0.20	1.70	ALM2WM471R35KT
	470	35x40	0.20	1.95	ALM2WM471R40KT
	560	30x45	0.20	1.85	ALM2WM561Q45KT
	560	35x45	0.20	1.84	ALM2WM561R45KT
	560	30x50	0.20	2.10	ALM2WM561Q50KT
	560	35x40	0.20	1.80	ALM2WM561R40KT
	680	35x50	0.20	2.12	ALM2WM681R50KT
	680	35x45	0.20	2.00	ALM2WM681R45KT
	680	30x60	0.20	2.20	ALM2WM681Q60KT
	820	35x55	0.20	2.20	ALM2WM821R55KT
	820	35x60	0.20	2.30	ALM2WM821R60KT
475	330	30x35	0.20	1.53	ALM3DM331Q35KT
	390	30x40	0.20	1.71	ALM3DM391Q40KT
	470	30x50	0.20	1.89	ALM3DM471Q50KT
	520	30x50	0.20	1.96	ALM3DM521Q50KT
	560	30x55	0.20	2.00	ALM3DM561Q55KT
	680	35x50	0.20	2.10	ALM3DM681R50KT
	820	35x60	0.20	2.60	ALM3DM821R60KT
500	330	30x50	0.20	1.57	ALM2HM331Q50KT
	390	30x50	0.20	1.68	ALM2HM391Q50KT
	470	35x50	0.20	1.74	ALM2HM471R50KT
	560	35x55	0.20	2.08	ALM2HM561R55KT

※Specifications subject to change without notice

LT series

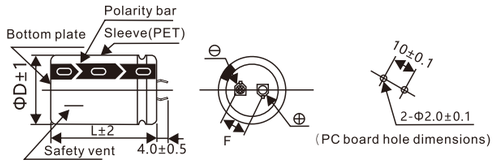
- Endurance: 5,000 hours at 105℃
- Downsized, long life
- Compliant to AEC-Q200
- **RoHS Compliant**

SPECIFICATIONS

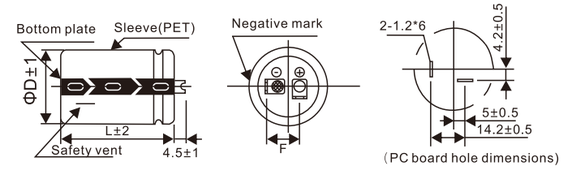
Items	Characteristics			
Category Temperature Range	-40~ +105℃			
Rated Working Voltage Range	450~500V.dc			
Capacitance Tolerance	±20%(M)			(at 20℃, 120Hz)
Leakage Current	I≤3√CV Where, I : Max. leakage current (μA), C : Nominal capacitance (μF), V : Rated voltage (V)			(at 20℃ after 5 minutes)
Dissipation Factor (tan δ)	Rated Voltage(Vdc)	450 to 500		(at 20℃,120Hz)
	Dissipation Factor (max.)	0.20		
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc)	450 to 500		(at 120Hz)
	Z(-25℃)/Z(+20℃)	6		
	Rated Voltage(Vdc)	450	475 to 500	(at 120Hz)
	Z(-40℃)/Z(+20℃)	8	14	
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20℃ after DC voltage plus the rated ripple current is applied for 5,000 hours at 105℃.			
	Capacitance Change	≤±20% of the initial value		
	Dissipation Factor	≤200% of the initial specified value(500 Vdc:≤250%)		
	Leakage Current	≤The initial specified value		
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20℃ after exposing them for 1,000 hours at 105℃ without voltage applied.			
	Capacitance Change	≤±15% of the initial value		
	Dissipation Factor	≤150% of the initial specified value		
	Leakage Current	≤200% of the initial specified value		

DIMENSIONS [mm]

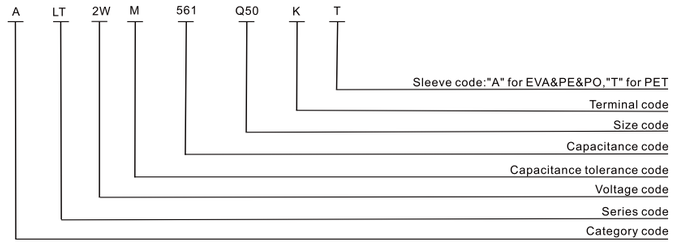
- Terminal Code : K (Φ22 to Φ35) : Standard



- Terminal Code :L (Φ30 to Φ35) : Standard



PART NUMBERING SYSTEM



*EVA\PE\PO:2,500 Vac voltage withstand

RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

WV (Vdc) \ Freq. (Hz)	120	1k	10k	100k
450~500	1.00	1.30	1.41	1.43

LT series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size ΦD×L(mm)	tanδ	Rated Ripple Current (Arms/105℃,120Hz)	Part Number
450	120	22x30	0.20	0.74	ALT2WM121O30KT
	330	35x35	0.20	1.48	ALT2WM331R35KT
	330	30x45	0.20	1.51	ALT2WM331Q45KT
	330	25x50	0.20	1.42	ALT2WM331P50KT
	390	35x35	0.20	1.60	ALT2WM391R35KT
	390	30x45	0.20	1.64	ALT2WM391Q45KT
	470	35x40	0.20	1.70	ALT2WM471R40KT
	560	35x45	0.20	1.80	ALT2WM561R45KT
	560	30x55	0.20	1.80	ALT2WM561Q55KT
	680	35x50	0.20	2.04	ALT2WM681R50KT
	820	35x60	0.20	2.35	ALT2WM821R60KT
500	68	22x30	0.20	0.42	ALT2HM680O30KT
	150	30x35	0.20	1.04	ALT2HM151Q35KT
	220	30x40	0.20	1.26	ALT2HM221Q40KT
	330	35x45	0.20	1.60	ALT2HM331R45KT
	390	35x50	0.20	1.72	ALT2HM391R50KT
	470	35x50	0.20	1.95	ALT2HM471R50KT

※Specifications subject to change without notice

FXQ series

Overview

The FXQ series is constructed of Metallized Polypropylene Film encapsulated with self - extinguishing resin in plastic box of material meeting the UL 94V-0 requirements. The series are suitable for harsh environment condition and qualify in accordance to AEC-Q200 requirement.

Applications

Interference suppression, across-the-line capacitor, EMI filter and spark-killer in class X2 applications. Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.

Features

- High stability of capacitance
- Operating temperature range: -40°C ~ +110°C
- Self-healing property
- Over voltage stress withstanding
- Flame-retardant plastic case and resin
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, URAC
- Automotive Grade (AEC-Q200)

RoHS REACH AUTOMOTIVE GRADE Available

Approvals

Marking	Standard	File Number
cULus	UL 60384-14 CAN/CSA-E60384-14	E500538 (305Vac~760Vac)
ENEC VDE	IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016	40051583 (305Vac) 40052137 (350Vac~760Vac)
CQC	IEC 60384-14 GB/T6346.14-2015	CQC20001245437 (305Vac) CQC20001281016 (350Vac~480Vac) CQC20001281018 (530Vac~760Vac)

General Technical Data

Application	Interference suppression \ Across-the-line (Class X2)
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 60384-14 / EN 60384-14 / UL 60384-14 / AEC-Q200
Climatic Category	40/110/56 IEC60068-1
Passive Flammability Class	B
Operating Temperature Range	-40°C ~ +110°C

Electrical Characteristics

Voltage Range	305Vac / 350Vac at 50/60Hz
Capacitance Range	0.1μF to 15μF
Capacitance Tolerance	±10% or ±20% at +25°C
Capacitance	Measuring Frequency at 1kHZ Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	DC Voltage: 4.3xVR for 60 seconds or $\sqrt{2}(2U_R + 1000Vac)$ VDC for 2 seconds, charge current must be 1A max. Withstanding (DC) voltage (cut off current 10mA), rise time 100V/S.
Voltage Between Terminals and Case U_{TC}	$2U_R$ + 1500Vac, 60s (at +20+/-2°C)
Dielectric Dissipation Factor Tgδ 0	$\leq 2\times10^{-4}$
Dissipation Factor	0.0010 (20°C, 1KHz)
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 15 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 5000 MΩ*μF
Life Expectancy	100 000hours (UR,Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	4000 m

Part Number System

F	XQ	30	K	105	G18	2GL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	X2, AEC-Q200 Type, Metallized PP Film	30=305Vac 35=350Vac	K = ±10% M = ±20%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Table

FXQ series

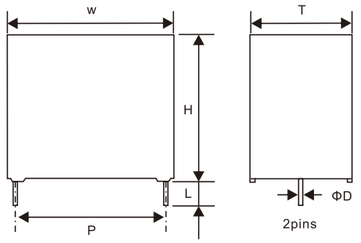
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	15.0mm	E	N/A	L
2 leads for straight cut	2	22.5mm	F		
2 leads for forming cut	E	27.5mm	G		
Taping	T	37.5mm	K		
Taping Straight	V	N/A	N		

Lead Length Code

Lead Length	
20mm min	L
3.5mm	2
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
Taping	T
N/A	N

Dimension (mm)



Size Code Table (mm)

Size Code	Dimension						Pitch		Lead Wire	
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.6	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.8	0.05
E18	18	0.5	13.5	0.5	6	0.5	15	0.5	0.8	0.05
E29	18	0.5	13.5	0.5	7.5	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F17	26	0.5	16.5	0.5	7	0.5	22.5	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	22.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	22.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	22.5	0.5	0.8	0.05
F27	26	0.5	22	0.5	12	0.5	22.5	0.5	0.8	0.05
F29	26	0.5	23	0.5	13	0.5	22.5	0.5	0.8	0.05
F34	26	0.5	29.5	0.5	14.5	0.5	22.5	0.5	0.8	0.05
F36	26	0.5	25	0.5	15	0.5	22.5	0.5	0.8	0.05
G15	32	0.8	18	0.5	9	0.8	27.5	0.5	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	0.8	0.05
G22	32	0.8	24.5	0.8	13	0.8	27.5	0.5	0.8	0.05
G25	32	0.8	24	0.8	14	0.8	27.5	0.5	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	0.8	0.05
G33	32	0.8	28	0.8	18	0.8	27.5	0.5	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	0.8	0.05
K21	42	1.0	32	0.8	19	1.0	37.5	0.5	1.0	0.05
K24	42	1.0	40	0.8	20	1.0	37.5	0.5	1.0	0.05
K27	42	1.0	37	1.0	22	1.0	37.5	0.5	1.0	0.05
K32	42	1.0	44	1.0	24	1.0	37.5	0.5	1.0	0.05
K42	42	1.0	45	1.0	30	1.0	37.5	0.5	1.0	0.05

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
305	630	0.1	18	11	5	15	40	120	400	0.6	FXQ30K104E142EL5
305	630	0.15	18	12	6	15	60	180	400	0.6	FXQ30K154E172EL5
305	630	0.22	18	13.5	7.5	15	88	264	400	0.8	FXQ30K224E292EL5
305	630	0.27	18	14.5	8.5	15	108	324	400	0.8	FXQ30K274E342EL5
305	630	0.33	18	14.5	8.5	15	132	396	400	0.8	FXQ30K334E342EL5
305	630	0.47	18	16	10	15	188	564	400	0.8	FXQ30K474E432EL5
305	630	0.56	18	19	11	15	224	672	400	0.8	FXQ30K564E472EL5
305	630	0.68	18	19	11	15	272	816	400	0.8	FXQ30K684E472EL5
305	630	0.22	26	16.5	7	22.5	44	132	200	0.8	FXQ30K224F172FL5
305	630	0.33	26	16.5	7	22.5	66	198	200	0.8	FXQ30K334F172FL5
305	630	0.47	26	16.5	7	22.5	94	282	200	0.8	FXQ30K474F172FL5
305	630	0.56	26	19	10	22.5	112	336	200	0.8	FXQ30K564F242FL5
305	630	0.68	26	19	10	22.5	136	408	200	0.8	FXQ30K684F242FL5
305	630	1	26	19	10	22.5	200	600	200	0.8	FXQ30K105F242FL5
305	630	1.2	26	22	12	22.5	240	720	200	0.8	FXQ30K125F272FL5
305	630	1.5	26	23	13	22.5	300	900	200	0.8	FXQ30K155F292FL5
305	630	1.8	26	29.5	14.5	22.5	360	1080	200	0.8	FXQ30K185F342FL5
305	630	2	26	29.5	14.5	22.5	400	1200	200	0.8	FXQ30K205F342FL5
305	630	2.2	26	29.5	14.5	22.5	440	1320	200	0.8	FXQ30K225F342FL5
305	630	0.68	32	18	9	27.5	102	306	150	0.8	FXQ30K684G152GL5
305	630	0.82	32	18	9	27.5	123	369	150	0.8	FXQ30K824G152GL5
305	630	1	32	20	11	27.5	150	450	150	0.8	FXQ30K105G182GL5
305	630	1.2	32	20	11	27.5	180	540	150	0.8	FXQ30K125G182GL5
305	630	1.5	32	24.5	13	27.5	225	675	150	0.8	FXQ30K155G222GL5
305	630	1.8	32	24.5	13	27.5	270	810	150	0.8	FXQ30K185G222GL5
305	630	2.2	32	24	14	27.5	330	990	150	0.8	FXQ30K225G252GL5
305	630	2.7	32	28	18	27.5	405	1215	150	0.8	FXQ30K275G332GL5
305	630	3.3	32	28	18	27.5	495	1485	150	0.8	FXQ30K335G332GL5
305	630	3.3	32	33	18	27.5	495	1485	150	0.8	FXQ30K335G342GL5
305	630	3.9	32	33	18	27.5	585	1755	150	0.8	FXQ30K395G342GL5
305	630	4.7	32	33	18	27.5	705	2115	150	0.8	FXQ30K475G342GL5
305	630	4.7	32	37	22	27.5	705	2115	150	0.8	FXQ30K475G402GL5
305	630	5.6	32	37	22	27.5	840	2520	150	0.8	FXQ30K565G402GL5
305	630	6.8	42	37	22	37.5	680	2040	100	1	FXQ30K685K272KL5
305	630	6.8	42	40	20	37.5	680	2040	100	1	FXQ30K685K242KL5
305	630	10	42	44	24	37.5	1000	3000	100	1	FXQ30K106K322KL5
305	630	12	42	45	30	37.5	1200	3600	100	1	FXQ30K126K422KL5
305	630	15	42	45	30	37.5	1500	4500	100	1	FXQ30K156K422KL5

FXQ series

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
		μF	W mm	H mm	T mm	P mm	A	A	V/us	mm	
350	700	0.1	18	13.5	6	15	50	150	500	0.6	FXQ35K104E182EL5
350	700	0.15	18	13.5	7.5	15	75	225	500	0.8	FXQ35K154E292EL5
350	700	0.22	18	14.5	8.5	15	110	330	500	0.8	FXQ35K224E342EL5
350	700	0.33	18	16	10	15	165	495	500	0.8	FXQ35K334E432EL5
350	700	0.47	18	19	11	15	235	705	500	0.8	FXQ35K474E472EL5
350	700	0.47	26	17	8.5	22.5	188	564	400	0.8	FXQ35K474F202FL5
350	700	0.56	26	19	10	22.5	224	672	400	0.8	FXQ35K564F242FL5
350	700	0.68	26	20	11	22.5	272	816	400	0.8	FXQ35K684F262FL5
350	700	0.82	26	22	12	22.5	328	984	400	0.8	FXQ35K824F272FL5
350	700	1	26	23	13	22.5	400	1200	400	0.8	FXQ35K105F292FL5
350	700	1.2	26	25	15	22.5	480	1440	400	0.8	FXQ35K125F362FL5
350	700	1.5	26	29.5	14.5	22.5	600	1800	400	0.8	FXQ35K155F342FL5
350	700	1.8	32	28	14	22.5	360	1080	200	0.8	FXQ35K185G262GL5
350	700	2.0	32	28	14	27.5	400	1200	200	0.8	FXQ35K205G262GL5
350	700	2.2	32	28	18	27.5	440	1320	200	0.8	FXQ35K225G332GL5
350	700	2.7	32	28	18	27.5	540	1620	200	0.8	FXQ35K275G332GL5
350	700	3.0	32	33	18	27.5	600	1800	200	0.8	FXQ35K305G342GL5
350	700	3.3	32	33	18	27.5	660	1980	200	0.8	FXQ35K335G342GL5
350	700	3.9	32	37	22	27.5	780	2340	200	0.8	FXQ35K395G402GL5
350	700	4.7	32	37	22	27.5	940	2820	200	0.8	FXQ35K475G402GL5
350	700	4.7	42	32	19	37.5	470	1410	100	1.0	FXQ35K475K212KL5
350	700	5.6	42	37	22	37.5	560	1680	100	1.0	FXQ35K565K272KL5

FYQ series

Overview

The FYQ series is constructed of metallized polypropylene film encapsulated with self-extinguishing resin in a box of material meeting the requirement of UL94V-0. This FYQ series robustness design is suitable for harsh environmental condition and qualify in accordance to AEC-Q200 requirement.

Applications

Use in EMI filter in line-to-ground and line-by-pass applications requiring Y2 safety classification. Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.

Features

- High stability of capacitance
- Operating temperature range: -40°C ~ +110°C
- Self-healing property
- Over voltage stress withstanding
- Flame-retardant plastic case and resin
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{RAC}
- Automotive Grade (AEC-Q200)

Approvals

Marking	Standard	File Number
cULus	UL 60384-14 CAN/CSA-E60384-14	E500538
EN 10 DVE	IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016	40052687
CQC	IEC 60384-14:2013+AMD1:2016 CQC11-471112-2015	CQC20001280148

General Technical Data

Application	Line-to-ground / Line-by-pass (Class Y2)
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 60384-14; UL 60384-14; GB/T 6346.14-2015; AEC-Q200
Climatic Category	40/110/56 IEC60068-1
Passive Flammability Class	B
Operating Temperature Range	-40°C ~ +110°C

FYQ series

Electrical Characteristics

Voltage Range	300Vac / 350Vac at 50/60Hz
Capacitance Range	0.001μF to 1.2μF
Capacitance Tolerance	±10% or ±20% at +25°C
Capacitance	Measuring Frequency at 1kHZ Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	AC Voltage: U_R+1200Vac for 60 seconds or 2U_R+1200Vac for 2 seconds DC Voltage: 4000VDC for 2 seconds, charge current must be 1A maximum Withstanding (DC) voltage (cut off current 10mA), rise time 100V/S.
Voltage Between Terminals and Case U_{TC}	2200Vac, 60 seconds (at+20+/-2°C)
Dielectric Dissipation Factor Tgδ 0	≤2×10^{-4}
Dissipation Factor	0.0020 (0.2%) at 20°C, 1KHz
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 15 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 5000 MΩ*μF
Life Expectancy	100 000hours (UR,Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	4000 m

Part Number System

F	YQ	30	K	474	G33	2GL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	Class Y2,AEC-Q200 Type, Metallized PP Film	30=300 35=350	K = ±10% M = ±20%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Table

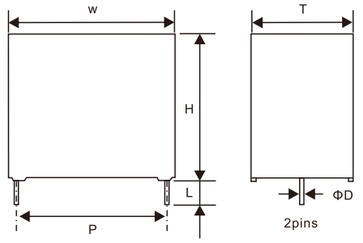
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	10.0mm	C	N/A	L
2 leads for straight cut	2	15.0mm	E		
2 leads for forming cut	E	22.5mm	F		
Taping	T	27.5mm	G		
Taping Straight	V	37.5mm	K		
		N/A	N		

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
Taping	T
N/A	N

Dimension (mm)



Size Code Table (mm)

Size Code	Dimension						Pitch		Lead Wire	
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
C11	13	0.5	9	0.5	4	0.5	15	0.5	0.6	0.05
C13	13	0.5	11	0.5	5	0.5	15	0.5	0.6	0.05
C16	13	0.5	12	0.5	6	0.5	15	0.5	0.6	0.05
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.6	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.6	0.05
E21	18	0.5	13	0.5	7	0.5	15	0.5	0.8	0.05
E29	18	0.5	13.5	0.5	7.5	0.5	15	0.5	0.8	0.05
E31	18	0.5	14	0.5	8	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E45	18	0.5	18	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F14	26	0.5	15.5	0.5	6	0.5	22.5	0.5	0.8	0.05
F17	26	0.5	16.5	0.5	7	0.5	22.5	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	22.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	22.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	22.5	0.5	0.8	0.05
F27	26	0.5	22	0.5	12	0.5	22.5	0.5	0.8	0.05
F30	26	0.5	24.5	0.5	13	0.5	22.5	0.5	0.8	0.05
F34	26	0.5	29.5	0.5	14.5	0.5	22.5	0.5	0.8	0.05
F36	26	0.5	25	0.5	15	0.5	22.5	0.5	0.8	0.05
F40	26	0.5	30	0.5	20	0.5	22.5	0.5	0.8	0.05
G15	32	0.5	18	0.8	9	0.8	27.5	0.5	0.8	0.05
G18	32	0.5	20	0.8	11	0.8	27.5	0.5	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	0.8	0.05
G25	32	0.8	24	0.8	14	0.8	27.5	0.5	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	0.8	0.05
G27	32	0.8	24.5	0.8	15	0.8	27.5	0.5	0.8	0.05
G32	32	0.8	28	0.8	18	0.8	27.5	0.5	0.8	0.05
G33	32	0.8	28	0.8	18	0.8	27.5	0.5	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	0.8	0. 05
G44	32	0.8	37	0.8	26	0.8	27.5	0.5	0.8	0.05
K11	42	1.0	24	1.0	13	1.0	37.5	0.5	1.0	0.05
K14	42	1.0	30	1.0	16	1.0	37.5	0.5	1.0	0.05
K17	42	1.0	28	1.0	17	1.0	37.5	0.5	1.0	0. 05
K21	42	1.0	32	1.0	19	1.0	37.5	0.5	1.0	0.05
K24	42	1.0	40	1.0	20	1.0	37.5	0.5	1.0	0.05
K39	42	1.0	43	1.0	28	1.0	37.5	0.5	1.0	0.05

FYQ series

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
300	1500	0.001	13	9	4	10	0.8	2.4	800	0.6	FYQ30K102C112CL5
300	1500	0.0015	13	9	4	10	1.2	3.6	800	0.6	FYQ30K152C112CL5
300	1500	0.0022	13	9	4	10	1.76	5.28	800	0.6	FYQ30K222C112CL5
300	1500	0.0033	13	11	5	10	2.64	7.92	800	0.6	FYQ30K332C132CL5
300	1500	0.0047	13	11	5	10	3.76	11.28	800	0.6	FYQ30K472C132CL5
300	1500	0.0047	13	12	6	10	3.76	11.28	800	0.6	FYQ30K472C162CL5
300	1500	0.0068	13	12	6	10	5.44	16.32	800	0.6	FYQ30K682C162CL5
300	1500	0.01	13	12	6	10	8	24	800	0.6	FYQ30K103C162CL5
300	1500	0.015	13	12	6	10	12	36	800	0.6	FYQ30K153C162CL5
300	1500	0.0047	18	11	5	15	2.82	8.46	600	0.6	FYQ30K472E142EL5
300	1500	0.0056	18	11	5	15	3.36	10.08	600	0.6	FYQ30K562E142EL5
300	1500	0.0068	18	11	5	15	4.08	12.24	600	0.6	FYQ30K682E142EL5
300	1500	0.0082	18	11	5	15	4.92	14.76	600	0.6	FYQ30K822E142EL5
300	1500	0.01	18	11	5	15	6	18	600	0.6	FYQ30K103E142EL5
300	1500	0.015	18	11	5	15	9	27	600	0.6	FYQ30K153E142EL5
300	1500	0.018	18	12	6	15	10.8	32.4	600	0.6	FYQ30K183E172EL5
300	1500	0.022	18	12	6	15	13.2	39.6	600	0.6	FYQ30K223E172EL5
300	1500	0.033	18	13.5	7.5	15	19.8	59.4	600	0.8	FYQ30K333E292EL5
300	1500	0.039	18	13.5	7.5	15	23.4	70.2	600	0.8	FYQ30K393E292EL5
300	1500	0.047	18	14.5	8.5	15	28.2	84.6	600	0.8	FYQ30K473E342EL5
300	1500	0.068	18	19	11	15	40.8	122.4	600	0.8	FYQ30K683E472EL5
300	1500	0.082	18	19	11	15	49.2	147.6	600	0.8	FYQ30K823E472EL5
300	1500	0.047	26	15.5	6	22.5	23.5	70.5	500	0.6	FYQ30K473F142FL5
300	1500	0.056	26	15.5	6	22.5	28	84	500	0.6	FYQ30K563F142FL5
300	1500	0.068	26	16.5	7	22.5	34	102	500	0.8	FYQ30K683F172FL5
300	1500	0.082	26	16.5	7	22.5	41	123	500	0.8	FYQ30K853F172FL5
300	1500	0.1	26	17	8.5	22.5	50	150	500	0.8	FYQ30K104F202FL5
300	1500	0.15	26	19	10	22.5	75	225	500	0.8	FYQ30K154F242FL5
300	1500	0.22	26	22	12	22.5	110	330	500	0.8	FYQ30K224F272FL5
300	1500	0.33	26	25	15	22.5	165	495	500	0.8	FYQ30K334F362FL5
300	1500	0.1	32	18	9	27.5	40	120	400	0.8	FYQ30K104G152GL5
300	1500	0.15	32	18	9	27.5	60	180	400	0.8	FYQ30K154G152GL5
300	1500	0.18	32	20	11	27.5	72	216	400	0.8	FYQ30K184G182GL5
300	1500	0.22	32	20	11	27.5	88	264	400	0.8	FYQ30K224G182GL5
300	1500	0.27	32	22	13	27.5	108	324	400	0.8	FYQ30K274G212GL5
300	1500	0.33	32	28	14	27.5	132	396	400	0.8	FYQ30K334G262GL5
300	1500	0.33	32	22	13	27.5	132	396	400	0.8	FYQ30K334G212GL5
300	1500	0.47	32	28	18	27.5	188	564	400	0.8	FYQ30K474G332GL5
300	1500	0.56	32	33	18	27.5	224	672	400	0.8	FYQ30K564G342GL5
300	1500	0.68	32	33	18	27.5	272	816	400	0.8	FYQ30K384G342GL5
300	1500	0.82	32	37	22	27.5	328	984	400	0.8	FYQ30K824G402GL5
300	1500	1	32	37	22	27.5	400	1200	400	0.8	FYQ30K105G402GL5
300	1500	0.47	42	24	13	37.5	141	423	300	1.0	FYQ30K474K112KL5
300	1500	0.68	42	28	17	37.5	204	612	300	1.0	FYQ30K684K172KL5
300	1500	0.82	42	32	19	37.5	246	738	300	1.0	FYQ30K824K212KL5
300	1500	1	42	40	20	37.5	300	900	300	1.0	FYQ30K105K242KL5

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
350	1500	0.0047	18	11	5	15	2.82	8.46	600	0.6	FYQ35K472E142EL5
350	1500	0.0056	18	11	5	15	3.36	10.08	600	0.6	FYQ35K562E142EL5
350	1500	0.0068	18	11	5	15	4.08	12.24	600	0.6	FYQ35K682E142EL5
350	1500	0.0082	18	11	5	15	4.92	14.76	600	0.6	FYQ35K822E142EL5
350	1500	0.01	18	11	5	15	6	18	600	0.6	FYQ35K103E142EL5
350	1500	0.012	18	12	6	15	7.2	21. 6	600	0.6	FYQ35K123E172EL5
350	1500	0.015	18	12	6	15	9	27	600	0.6	FYQ35K153E172EL5
350	1500	0.018	18	13	7	15	10.8	32.4	600	0.8	FYQ35K183E212EL5
350	1500	0.022	18	13	7	15	13.2	39.6	600	0.8	FYQ35K223E212EL5
350	1500	0.027	18	14	8	15	16.2	48. 6	600	0.8	FYQ35K273E312EL5
350	1500	0.033	18	14	8	15	19.8	59.4	600	0.8	FYQ35K333E312EL5
350	1500	0.039	18	14.5	8. 5	15	23.4	70.2	600	0.8	FYQ35K393E342EL5
350	1500	0.039	18	16	10	15	23.4	70.2	600	0. 8	FYQ35K393E432EL5
350	1500	0.047	18	16	10	15	28.2	84.6	600	0. 8	FYQ35K473E432EL5
350	1500	0.056	18	18	10	15	33.6	100.8	600	0. 8	FYQ35K563E452EL5
350	1500	0.056	18	19	11	15	33.6	100.8	600	0. 8	FYQ35K563E472EL5
350	1500	0.068	18	19	11	15	40.8	122.4	600	0. 8	FYQ35K683E472EL5
350	1500	0.033	26	15.5	6	22.5	16.5	49.5	500	0.6	FYQ35K333F142FL5
350	1500	0.039	26	15.5	6	22.5	19.5	58.5	500	0.6	FYQ35K393F142FL5
350	1500	0.047	26	16.5	7	22.5	23.5	70.5	500	0.8	FYQ35K473F172FL5
350	1500	0.056	26	16.5	8.5	22.5	28	84	500	0.8	FYQ35K563F172FL5
350	1500	0.068	26	17	8.5	22.5	34	102	500	0.8	FYQ35K683F202FL5
350	1500	0.082	26	17	8.5	22.5	41	123	500	0.8	FYQ35K823F202FL5
350	1500	0.082	26	19	10	22.5	41	123	500	0.8	FYQ35K823F242FL5
350	1500	0.1	26	19	10	22.5	50	150	500	0.8	FYQ35K104F242FL5
350	1500	0.12	26	19	10	22.5	60	180	500	0.8	FYQ35K124F242FL5
350	1500	0.12	26	20	11	22.5	60	180	500	0.8	FYQ35K124F262FL5
350	1500	0.15	26	20	11	22.5	75	225	500	0.8	FYQ35K154F262FL5
350	1500	0.15	26	22	12	22.5	75	225	500	0.8	FYQ35K154F272FL5
350	1500	0.18	26	24.5	13	22.5	90	270	500	0.8	FYQ35K184F302FL5
350	1500	0.22	26	25	15	22.5	110	330	500	0.8	FYQ35K224F362FL5
350	1500	0.27	26	29.5	14.5	22.5	135	405	500	0.8	FYQ35K274F342FL5
350	1500	0.33	26	30	20	22.5	165	495	500	0.8	FYQ35K334F402FL5
350	1500	0.39	26	30	20	22. 5	195	585	500	0.8	FYQ35K394F402FL5
350	1500	0.1	32	18	9	27.5	40	120	400	0.8	FYQ35K104G152GL5
350	1500	0.12	32	18	9	27.5	48	144	400	0.8	FYQ35K124G152GL5
350	1500	0.15	32	18	9	27.5	60	180	400	0.8	FYQ35K154G152GL5
350	1500	0.15	32	20	11	27.5	60	180	400	0.8	FYQ35K154G182GL5
350	1500	0.18	32	20	11	27.5	72	216	400	0.8	FYQ35K184G182GL5
350	1500	0.22	32	22	13	27.5	88	264	400	0.8	FYQ35K224G212GL5
350	1500	0.27	32	24	14	27.5	108	324	400	0.8	FYQ35K274G252GL5
350	1500	0.33	32	30	16	27.5	132	396	400	0.8	FYQ35K334G322GL5
350	1500	0.33	32	28	18	27.5	132	396	400	0.8	FYQ35K334G332GL5
350	1500	0.39	32	30	16	27.5	156	468	400	0.8	FYQ35K394G322GL5
350	1500	0.39	32	28	18	27.5	156	468	400	0.8	FYQ35K394G332GL5
350	1500	0.47	32	30	16	27.5	188	564	400	0.8	FYQ35M474G322GL5

FYQ series

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
350	1500	0.47	32	33	18	27.5	188	564	400	0.8	FYQ35K474G342GL5
350	1500	0.56	32	33	18	27.5	224	672	400	0.8	FYQ35K564G342GL5
350	1500	0.68	32	37	22	27.5	272	816	400	0.8	FYQ35K684G402GL5
350	1500	0.82	32	37	22	27.5	328	984	400	0.8	FYQ35K824G402GL5
350	1500	1	32	37	26	27.5	400	1200	400	0.8	FYQ35K105G442GL5
350	1500	0.33	42	24	13	37.5	99	297	300	1.0	FYQ35K334K112KL5
350	1500	0.39	42	24	13	37.5	117	351	300	1.0	FYQ35K394K112KL5
350	1500	0.47	42	30	16	37.5	141	423	300	1.0	FYQ35K474K142KL5
350	1500	0.56	42	30	16	37.5	168	504	300	1.0	FYQ35K564K142KL5
350	1500	0.68	42	32	19	37.5	204	612	300	1.0	FYQ35K684K212KL5
350	1500	0.82	42	32	19	37.5	246	738	300	1.0	FYQ35K824K212KL5
350	1500	0.82	42	40	20	37.5	246	738	300	1.0	FYQ35K824K242KL5
350	1500	1	42	40	20	37.5	300	900	300	1.0	FYQ35K105K242KL5
350	1500	1.2	42	43	28	37.5	360	1080	300	1.0	FYQ35K125K392KL5

FXJ series

Overview

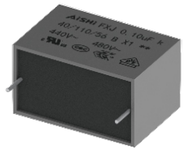
The FXJ series is constructed of metallized polypropylene film encapsulated with self-extinguishing resin in a box of material meeting the requirement of UL94V-0. This FXJ series robustness design is suitable for high humidity and high temperature environmental conditions and qualify in accordance to AEC-Q200 requirement.

Applications

For use as an electromagnetic interference (EMI) suppression filter in across-the-line applications that require X1 safety classification. Suitable for use in situations where failure of the capacitor would not lead to danger of electric shock.

Features

- High stability of capacitance
- Operating temperature range: -40°C ~ +110°C
- Self-healing property
- Over voltage stress withstanding
- Flame-retardant plastic case and resin
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, URAC
- Automotive Grade (AEC-Q200)



AUTOMOTIVE GRADE Available

Approvals

Marking	Standard	File Number
c UL us	UL 60384-14 CAN/CSA-E60384-14	E500538
IEC 10 DVE	IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016	40052137
CQC	IEC 60384-14:2013+AMD1:2016 CQC11-471112-2015	CQC20001281016 (350Vac~480Vac) CQC20001281018 (530Vac~760Vac)

General Technical Data

Application	Interference suppression \ Across-the-line (Class X1)
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 60384-14;UL 60384-14;GB/T 6346.14-2015;AEC-Q200
Climatic Category	40/110/56 IEC60068-1
Passive Flammability Class	B
Operating Temperature Range	-40°C ~ +110°C

FXJ series

Electrical Characteristics

Voltage Range	350Vac / 480Vac / 530Vac at 50/60Hz
Capacitance Range	0.0068μF to 3.3μF
Capacitance Tolerance	±10% or ±20% at +25°C
Capacitance	Measuring Frequency at 1kHZ Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	DC Voltage: 4.3xVR for 60 seconds or $\sqrt{2}(2U_R + 1000Vac)$ VDC for 2 seconds, charge current must be 1A max. Withstanding (DC) voltage (cut off current 10mA), rise time 100V/S. AC Voltage: $(2U_R + 1000VAC)$ for 2 seconds
Voltage Between Terminals and Case U_{TC}	$2U_R$ + 1500Vac, 60s (at +20+/-2°C)
Dielectric Dissipation Factor Tgδ 0	≤2×10^{-4}
Dissipation Factor	≤10×10^{-4} C < 0.47μF ≤20×10^{-4} 0.47μF ≤ C ≤ 1.0μF ≤30×10^{-4} C > 1.0μF
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 15 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 5000 MΩ*μF
Life Expectancy	100 000hours (UR , Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	4000 m

Part Number System

F	XJ	48	K	104	E34	2EL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	X1, THB Type, AEC-Q200D, Metallized PP Film	35=350 44=440 48=480 53=530	J = ±5% K = ±10% M = ±20%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Table

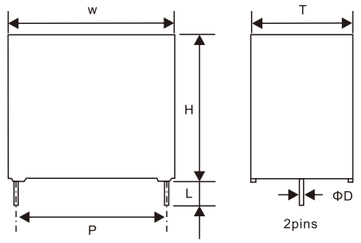
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	15.0mm	E	N/A	L
2 leads for straight cut	2	22.5mm	F		
2 leads for forming cut	E	27.5mm	G		
Taping	T	37.5mm	K		
Taping Straight	V	N/A	N		

Lead Length Code

Lead Length	
20mm min	L
3.5mm	2
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
Taping	T
N/A	N

Dimension (mm)



Size Code Table (mm)

Size Code	Dimension						Pitch		Lead Wire	
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.6	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.6	0.05
E29	18	0.5	13.5	0.5	7.5	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E39	18	0.5	18	0.5	9	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
E52	18	0.5	22	0.5	12.5	0.5	15	0.5	0.8	0.05
F14	26	0.5	15.5	0.5	6	0.5	22.5	0.5	0.6	0.05
F17	26	0.5	16.5	0.5	7	0.5	22.5	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	22.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	22.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	22.5	0.5	0.8	0.05
F27	26	0.5	22	0.5	12	0.5	22.5	0.5	0.8	0.05
F29	26	0.5	23	0.5	13	0.5	22.5	0.5	0.8	0.05
F30	26	0.5	24.5	0.5	13	0.5	22.5	0.5	0.8	0.05
F34	26	0.5	29.5	0.5	14.5	0.5	22.5	0.5	0.8	0.05
F36	26	0.5	25	0.5	15	0.5	22.5	0.5	0.8	0.05
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	0.8	0.05
G22	32	0.8	24.5	0.8	13	0.8	27.5	0.5	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	0.8	0.05
G27	32	0.8	24.5	0.8	15	0.8	27.5	0.5	0.8	0.05
G32	32	0.8	30	0.8	16	0.8	27.5	0.5	0.8	0.05
G33	32	0.8	28	0.8	18	0.8	27.5	0.5	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	0.8	0.05

FXJ series

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
350	700	0.01	18	11	5	15	5	15	500	0.6	FXJ35K103E142EL5
350	700	0.022	18	11	5	15	11	33	500	0.6	FXJ35K223E142EL5
350	700	0.033	18	11	5	15	16.5	49.5	500	0.6	FXJ35K333E142EL5
350	700	0.047	18	11	5	15	23.5	70.5	500	0.6	FXJ35K473E142EL5
350	700	0.068	18	12	6	15	34	102	500	0.6	FXJ35K683E172EL5
350	700	0.1	18	13.5	7.5	15	50	150	500	0.8	FXJ35K103E292EL5
350	700	0.15	18	14.5	8.5	15	75	225	500	0.8	FXJ35K154E342EL5
350	700	0.22	18	16	10	15	110	330	500	0.8	FXJ35K224E432EL5
350	700	0.33	18	19	11	15	165	495	500	0.8	FXJ35K334E472EL5
350	700	0.047	26	15.5	6	22.5	18.8	56.4	400	0.6	FXJ35K473F142FL5
350	700	0.068	26	15.5	6	22.5	27.2	81.6	400	0.6	FXJ35K683F142FL5
350	700	0.1	26	15.5	6	22.5	40	120	400	0.6	FXJ35K104F142FL5
350	700	0.15	26	15.5	6	22.5	60	180	400	0.6	FXJ35K154F142FL5
350	700	0.22	26	16.5	7	22.5	88	264	400	0.8	FXJ35K224F172FL5
350	700	0.33	26	17	8.5	22.5	132	396	400	0.8	FXJ35K334F202FL5
350	700	0.47	26	19	10	22.5	188	564	400	0.8	FXJ35K474F272FL5
350	700	0.68	26	22	12	22.5	272	816	400	0.8	FXJ35K684F272FL5
350	700	1	26	25	15	22.5	400	1200	400	0.8	FXJ35K105F362FL5
350	700	0.15	32	18	9	27.5	30	90	200	0.8	FXJ35K154G152GL5
350	700	0.22	32	18	9	27.5	44	132	200	0.8	FXJ35K224G152GL5
350	700	0.33	32	18	9	27.5	66	198	200	0.8	FXJ35K334G152GL5
350	700	0.47	32	18	9	27.5	94	282	200	0.8	FXJ35K474G152GL5
350	700	0.68	32	20	11	27.5	136	408	200	0.8	FXJ35K684G182GL5
350	700	1	32	22	13	27.5	200	600	200	0.8	FXJ35K105G212GL5
350	700	1.2	32	28	14	27.5	240	720	200	0.8	FXJ35K125G262GL5
350	700	1.5	32	30	16	27.5	300	900	200	0.8	FXJ35K155G322GL5
350	700	2.2	32	33	18	27.5	440	1320	200	0.8	FXJ35K225G342GL5
350	700	3.3	32	37	22	27.5	660	1980	200	0.8	FXJ35K335G402GL5

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
480	1000	0.01	18	11	5	15	6	18	600	0.6	FXJ48K103E142EL5
480	1000	0.015	18	11	5	15	9	27	600	0.6	FXJ48K153E142EL5
480	1000	0.018	18	11	5	15	10.8	32.4	600	0.6	FXJ48K183E142EL5
480	1000	0.022	18	11	5	15	13.2	39.6	600	0.6	FXJ48K223E142EL5
480	1000	0.033	18	11	5	15	19.8	59.4	600	0.6	FXJ48K333E142EL5
480	1000	0.047	18	12	6	15	28.2	84.6	600	0.6	FXJ48K473E172EL5
480	1000	0.068	18	13.5	7.5	15	40.8	122.4	600	0.8	FXJ48K683E292EL5
480	1000	0.1	18	14.5	8.5	15	60	180	600	0.8	FXJ48K104E342EL5
480	1000	0.15	18	19	11	15	90	270	600	0.8	FXJ48K154E472EL5
480	1000	0.22	18	22	12.5	15	132	396	600	0.8	FXJ48K224E522EL5
480	1000	0.047	26	15.5	6	22.5	14.1	42.3	300	0.6	FXJ48K473F142FL5
480	1000	0. 056	26	15.5	6	22.5	16.8	50.4	300	0.6	FXJ48K563F142FL5
480	1000	0.068	26	15.5	6	22.5	20.4	61.2	300	0.6	FXJ48K683F142FL5
480	1000	0. 082	26	15.5	6	22.5	24.6	73.8	300	0.6	FXJ48K823F142FL5
480	1000	0.1	26	15.5	6	22.5	30	90	300	0.6	FXJ48K104F142FL5
480	1000	0.15	26	16.5	7	22.5	45	135	300	0.8	FXJ48K154F172FL5
480	1000	0.22	26	17	8.5	22.5	66	198	300	0.8	FXJ48K224F202FL5
480	1000	0.33	26	20	11	22.5	99	297	300	0.8	FXJ48K334F262FL5
480	1000	0.47	26	24.5	13	22.5	141	423	300	0.8	FXJ48K474F302FL5
480	1000	0. 56	26	25	15	22.5	168	504	300	0.8	FXJ48K564F362FL5
480	1000	0.68	26	29.5	14.5	22.5	204	612	300	0.8	FXJ48K684F342FL5
480	1000	0.15	32	18	9	27.5	30	90	200	0.8	FXJ48K154G152GL5
480	1000	0.22	32	18	9	27.5	44	132	200	0.8	FXJ48K224G152GL5
480	1000	0.33	32	18	9	27.5	66	198	200	0.8	FXJ48K334G152GL5
480	1000	0.47	32	20	11	27.5	94	282	200	0.8	FXJ48K474G182GL5
480	1000	0. 56	32	22	13	27.5	112	336	200	0.8	FXJ48K564G212GL5
480	1000	0.68	32	24.5	13	27.5	136	408	200	0.8	FXJ48K684G222GL5
480	1000	0. 82	32	28	14	27.5	164	492	200	0.8	FXJ48K824G262GL5
480	1000	1	32	28	18	27.5	200	600	200	0.8	FXJ48K105G332GL5
480	1000	1.2	32	33	18	27.5	240	720	200	0.8	FXJ48K125G342GL5
480	1000	1.5	32	33	18	27.5	300	900	200	0.8	FXJ48K155G342GL5
480	1000	1. 8	32	37	22	27.5	360	1080	200	0.8	FXJ48K185G402GL5

FXJ series

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P					
		μF	mm	mm	mm	mm	A	A	V/us	mm	
530	1100	0.0068	18	11	5	15	4.08	12.24	600	0.6	FXJ53K682E142EL5
530	1100	0.0082	18	11	5	15	4.926	14.76	600	0.6	FXJ53K822E142EL5
530	1100	0.01	18	11	5	15	6	18	600	0.6	FXJ53K103E142EL5
530	1100	0.022	18	12	6	15	13.2	39.6	600	0.6	FXJ53K223E172EL5
530	1100	0.033	18	13.5	7.5	15	19.8	59.4	600	0.8	FXJ53K333E292EL5
530	1100	0.047	18	14.5	8.5	15	28.2	84.6	600	0.8	FXJ53K473E342EL5
530	1100	0.056	18	14.5	8.5	15	33. 6	100.8	600	0.8	FXJ53K563E342EL5
530	1100	0.068	18	18	9	15	40.8	122.4	600	0.8	FXJ53K683E3492EL5
530	1100	0.1	18	19	11	15	60	180	600	0.8	FXJ53K104E472EL5
530	1100	0.033	26	15.5	6	22.5	9. 9	29.7	300	0.6	FXJ53K333E142FL5
530	1100	0.047	26	15.5	6	22.5	14.1	42.3	300	0.6	FXJ53K473F142FL5
530	1100	0. 056	26	15.5	6	22.5	16.8	50.4	300	0.6	FXJ53K563F142FL5
530	1100	0.068	26	15.5	6	22.5	20.4	61.2	300	0.6	FXJ53K683F142FL5
530	1100	0. 082	26	15.5	6	22.5	24.6	73.8	300	0.6	FXJ53K823F142FL5
530	1100	0.1	26	16.5	7	22.5	30	90	300	0.8	FXJ53K104F172FL5
530	1100	0.15	26	17	8.5	22.5	45	135	300	0.8	FXJ53K154F202FL5
530	1100	0.22	26	19	10	22.5	66	198	300	0.8	FXJ53K224F242FL5
530	1100	0.33	26	22	12	22.5	99	297	300	0.8	FXJ53K334F272FL5
530	1100	0.47	26	29.5	14. 5	22.5	141	423	300	0.8	FXJ53K474F342FL5
530	1100	0.15	32	20	11	27.5	30	90	200	0.8	FXJ53K154G182GL5
530	1100	0.22	32	20	11	27.5	44	132	200	0.8	FXJ53K224G182GL5
530	1100	0.33	32	20	11	27.5	66	198	200	0.8	FXJ53K334G182GL5
530	1100	0.47	32	22	13	27.5	94	282	200	0.8	FXJ53K474G212GL5
530	1100	0.47	32	24.5	13	27.5	94	282	200	0.8	FXJ53K474G222GL5
530	1100	0. 56	32	24.5	13	27.5	112	336	200	0.8	FXJ53K564G222GL5
530	1100	0.68	32	24.5	15	27.5	136	408	200	0.8	FXJ53K684G272GL5
530	1100	0.68	32	28	18	27.5	136	408	200	0.8	FXJ53K684G332GL5
530	1100	0. 82	32	28	18	27.5	164	492	200	0.8	FXJ53K824G332GL5
530	1100	1	32	33	18	27.5	200	600	200	0.8	FXJ53K105G342GL5
530	1100	1.5	32	37	22	27.5	300	900	200	0.8	FXJ53K155G402GL5
530	1100	1. 8	32	37	22	27.5	360	1080	200	0.8	FXJ53K185G402GL5

FYJ series

Overview

The FY1 series is constructed of metallized polypropylene film encapsulated with self-extinguishing resin in a box of material meeting the requirement of UL94V-0. This FYJ series robustness design is suitable for high humidity and high temperature environmental conditions and qualify in accordance to AEC-Q200D requirement.

Applications

Use in EMI filter in line-to-ground and double insulation applications requiring Y1 safety classification.

Features

- High stability of capacitance
- Self-healing property
- Over voltage stress withstanding
- Flame-retardant plastic case and resin
- Operating temperature range: -40°C ~ 125°C
- Lead space: 15mm~27.5mm
- Capacitance range: 0.00047μF ~ 0.1μF
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{RAC}
- Suitable for harsh environmental conditions
- Automotive Grade (AEC-Q200)

RoHS COMPLIANT REACH COMPLIANT AUTOMOTIVE GRADE Available

Approvals

Marking	Standard	File Number
c UL us	UL 60384-14 CAN/CSA-E60384-14	3Q-2023
ENEC 10 DVE	IEC 60384-14:2013 IEC 60384-14:2013/AMD1:2016	40056757
CQC	IEC 60384-14:2013+AMD1:2016 CQC11-471112-2015	3Q-2023

General Technical Data

Application	Line-to-ground / Line-by-pass (Class Y1)
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 60384-14;UL 60384-14;GB/T 6346.14-2015;AEC-Q200D
Climatic Category	40/110/56 IEC60068-1
Passive Flammability Class	B
Operating Temperature Range	-40°C ~ +110°C

FYJ series

Electrical Characteristics

Voltage Range	500Vac 50/60Hz
Capacitance Range	0.00047μF to 0.1μF
Capacitance Tolerance	±10% or ±20% at +25°C
Capacitance	Measuring Frequency at 1kHZ Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	AC Voltage: 4000Vac 60 seconds DC Voltage: 5000Vdc 2 seconds
Voltage Between Terminals and Case U_{TC}	4000Vac, 60 seconds (at+20+/-2°C)
Dielectric Dissipation Factor Tgδ 0	$\leq 2\times10^{-4}$
Dissipation Factor	0.0010 (0.1%) at 20°C, 1KHz 0.0020 (0.2%) at 20°C, 10KHz
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 15 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 5000 MΩ*μF
Life Expectancy	100 000hours (UR,Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	2000 m

Part Number System

F	YJ	50	K	103	E47	2EL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	Class Y1, AEC-Q200 Metallized PP Film	50=500Vac	K = ±10% M = ±20%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Table

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

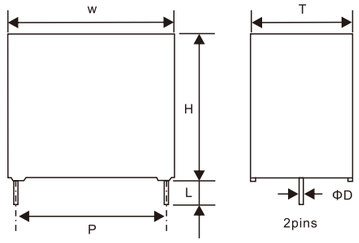
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	10.0mm	C	5.1mm	A
2 leads for straight cut	2	15.0mm	E	7.5mm	C
2 leads for forming cut	E	22.5mm	F	10.2mm	B
4 leads for straight cut	4	27.5mm	G	12.7mm	G
Taping	T	37.5mm	K	20.3mm	D
Taping Straight	V	N/A	N	N/A	L

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
Taping	T
N/A	N

Dimension (mm)



Size Code Table (mm)

Size Code	Dimension						Pitch		Lead Wire	
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.6	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.8	0.05
E29	18	0.5	13.5	0.5	7.5	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F14	26	0.5	15.5	0.5	6	0.5	22.5	0.5	0.6	0.05
F17	26	0.5	16.5	0.5	7	0.5	22.5	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	22.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	22.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	22.5	0.5	0.8	0.05
F27	26	0.5	22	0.5	12	0.5	22.5	0.5	0.8	0.05
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	0.8	0.05
G27	32	0.8	24.5	0.8	15	0.8	27.5	0.5	0.8	0.05
G32	32	0.8	30	0.8	16	0.8	27.5	0.5	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	0.8	0.05

FYJ series

Rating and Part Number

Vac	Vdc	Cap Value	Dimensions				Peak Current	Surge Current	dv/dt	Lead Wrie	Part Number
		μF	W mm	H mm	T mm	P mm	A	A	V/us	mm	
500	3000	0.00047	18	11	5	15	0.94	2.82	2000	0.6	FYJ50K471E142EL5
500	3000	0.00056	18	11	5	15	1.12	3.36	2000	0.6	FYJ50K561E142EL5
500	3000	0.00068	18	11	5	15	1.36	4.08	2000	0.6	FYJ50K681E142EL5
500	3000	0.00082	18	11	5	15	1.64	4.92	2000	0.6	FYJ50K821E142EL5
500	3000	0.001	18	11	5	15	2	6	2000	0.6	FYJ50K102E142EL5
500	3000	0.0012	18	11	5	15	2.4	7.2	2000	0.6	FYJ50K122E142EL5
500	3000	0.0015	18	11	5	15	75	225	2000	0.6	FYJ50K152E142EL5
500	3000	0.0018	18	12	6	15	3.6	10.8	2000	0.6	FYJ50K182E172EL5
500	3000	0.0020	18	12	6	15	4	12	2000	0.6	FYJ50K202E172EL5
500	3000	0.0022	18	12	6	15	4.4	13.2	2000	0.6	FYJ50K222E172EL5
500	3000	0.0025	18	12	6	15	5	15	2000	0.6	FYJ50K252E172EL5
500	3000	0.0027	18	13.5	7.5	15	5.4	16.2	2000	0.8	FYJ50K272E292EL5
500	3000	0.0030	18	13.5	7.5	15	6	18	2000	0.8	FYJ50K302E292EL5
500	3000	0.0033	18	13.5	7.5	15	6.6	19.8	2000	0.8	FYJ50K332E292EL5
500	3000	0.0039	18	13.5	7.5	15	7.8	23.4	2000	0.8	FYJ50K392E292EL5
500	3000	0.0040	18	13.5	7.5	15	8	24	2000	0.8	FYJ50K402E292EL5
500	3000	0.0047	18	14.5	8.5	15	9.4	28.2	2000	0.8	FYJ50K472E342EL5
500	3000	0.0050	18	14.5	8.5	15	10	30	2000	0.8	FYJ50K502E342EL5
500	3000	0.0056	18	14.5	8.5	15	11.2	33.6	2000	0.8	FYJ50K562E342EL5
500	3000	0.0068	18	16	10	15	13.6	40.8	2000	0.8	FYJ50K682E432EL5
500	3000	0.0082	18	19	11	15	16.4	49.2	2000	0.8	FYJ50K822E472EL5
500	3000	0.01	18	19	11	15	20	60	2000	0.8	FYJ50K103E472EL5
500	3000	0.0056	26	15.5	6	22.5	8.4	25.2	1500	0.6	FYJ50K562F142FL5
500	3000	0.0068	26	16.5	7	22.5	10.2	30.6	1500	0.8	FYJ50K682F172FL5
500	3000	0.0082	26	17	8.5	22.5	12.3	36.9	1500	0.8	FYJ50K822F202FL5
500	3000	0.01	26	17	8.5	22.5	15	45	1500	0.8	FYJ50K103F202FL5
500	3000	0.012	26	19	10	22.5	18	54	1500	0.8	FYJ50K123F242FL5
500	3000	0.015	26	19	10	22.5	22.5	67.5	1500	0.8	FYJ50K153F242FL5
500	3000	0.018	26	20	11	22.5	27	81	1500	0.8	FYJ50K183F262FL5
500	3000	0.022	26	22	12	22.5	33	99	1500	0.8	FYJ50K223F272FL5
500	3000	0.022	32	20	11	27.5	17.6	52.8	800	0.8	FYJ50K223G182GL5
500	3000	0.033	32	22	13	27.5	26.4	79.2	800	0.8	FYJ50K333G212GL5
500	3000	0.047	32	28	14	27.5	37.6	112.8	800	0.8	FYJ50K473G262GL5
500	3000	0.068	32	33	18	27.5	54.4	163.2	800	0.8	FYJ50K683G342GL5
500	3000	0.1	32	37	22	27.5	80	240	800	1.0	FYJ50K104G402GL5

FDQ series

Overview

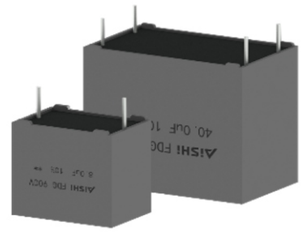
The FDQ series is constructed of metallized polypropylene film encapsulated with epoxy resin in a plastic box, with 2 or 4 tinned copper wire. These FDQ series is suitable for harsh environment condition and qualify in accordance to AEC-Q200 requirement.

Applications

Widely used in high performance DC Link, DC filtering, frequency converter, industrial power supply, solar inverter, energy storage, OBC, DC-DC converter and automotive applications.

Features

- Self-healing
- High capacitance density
- Operating temperature range: -55°C to 105°C
- High ripple current and low loss
- High contact reliability
- Suitable for high frequency applications
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{NDC}
- Automotive Grade (AEC-Q200)



Qualification

Reference Standard	IEC 61071, EN 61071, AEC-Q200
Climate Category	40/105/56 IEC 60068-1

RoHS COMPLIANT COMPLIANT REACH AUTOMOTIVE GRADE Available

General Technical Data

Application	DC Link / DC Filtering
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 61071/EN 61071/AEC-Q200
Climatic Category	55/105/56 IEC 60068-1
Operating Temperature Range	−55°C ~ +105°C (85°C ~105°C, decreasing factor 1.25% per °C for Rated Voltage)

FDQ series

Electrical Characteristics

Voltage Range	450Vdc ~ 1200Vdc
Capacitance Range	1.0μF ~ 200μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	1.5 x V_R VDC for 10 seconds (between terminations) @ +25°C ±5°C
Voltage Between Terminals and Case U_{TC}	3000V_{AC}, 50/60Hz 60s（at +25 +/-5°C）
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}
Dissipation Factor	≤0.002 (0.2%) at 1KHz; C ≤20μF at 25°C ≤0.003 (0.3%) at 1KHz; C >20μF at 25°C ≤0.004 (0.4%) at 1KHz; C >80μF at 25°C
Insulation Resistance	RC between leads, IR xC≥30,000 s at 100vdc 1minute at +25°C
Self-Inductance	<1nH per mm of lead spacing
Life Expectancy	100,000 hours (UR， Θhotspot=85°C)
Failure Rate	100Fit
Max. Altitude	4000m
Overvoltage	**Maximum duration within one day**
Apply 110% of rated voltage	30% of on-load duration
Apply 115% of rated voltage	30 mins
Apply 120% of rated voltage	5 mins
Apply 130% of rated voltage	1 min

Part Number System

F	DQ	2N	K	405	G22	2GL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	DC Link, AEC-Q200 Type, Metallized PP Film	450=2W 500=2H 550=2J 600=2K 700=2M 800=2N 900=2Q 1000=3K 1100=3M 1200=3B	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

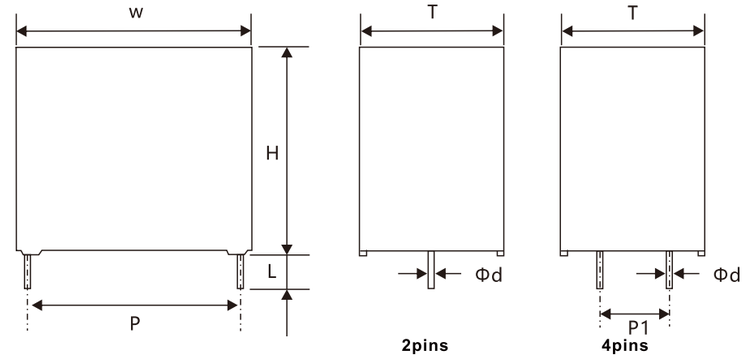
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	27.5mm	G	10.2mm	B
2 leads for straight cut	2	37.5mm	K	12.7mm	G
2 leads for forming cut	E	52.5mm	M	20.3mm	D
4 leads for straight cut	4	N/A	N	N/A	L
6 leads for straight cut	6				

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
20.0mm min	L

Dimension (mm)



Size Code Table (mm)

Size Code	Dimension						Pitch				Φd		
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	P1	Tolerance	4 Leads	2 Leads	Tolerance
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	\	\	\	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	\	\	\	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05
G22	32	0.8	24.5	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05
G27	32	0.8	24.5	0.8	15	0.8	27.5	0.5	\	\	\	0.8	0.05
G32	32	0.8	30	0.8	16	0.8	27.5	0.5	\	\	\	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	\	\	\	0.8	0.05
K18	42	1.0	29	1.0	17	1.0	37.5	0.5	\	\	\	1.0	0.05
K21	42	1.0	32	1.0	19	1.0	37.5	0.5	\	\	\	1.0	0.05
K24	42	1.0	40	1.0	20	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K27	42	1.0	37	1.0	22	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K32	42	1.0	44	1.0	24	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K37	42	1.0	37	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K39	42	1.0	43	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K42	42	1.0	45	1.0	30	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K47	42	1.0	50	1.0	35	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K49	42	1.0	55	1.0	40	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K52	42	1.0	60	1.0	45	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K66	42	1.0	30	1.0	17	1.0	37.5	0.5	\	\	\	1.0	0.05
M10	57.5	1.0	45	1.0	25	1.0	52.5	0.5	10.2	0.5	1.2	1.2	0.05
M16	57.5	1.0	45	1.0	30	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M20	57.5	1.0	50	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M32	57.5	1.0	55	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M34	57.5	1.0	65	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05

FDQ series

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
450	5	32	20	11	27.5	\	5	325	975	20.0	25	30.0	65	0.8	FDQ2WK505G182GL5
450	10	32	24.5	15	27.5	\	7	650	1950	11.0	25	27.8	65	0.8	FDQ2WK106G272GL5
450	15	32	33	18	27.5	\	11	975	2925	7.0	25	17.7	65	0.8	FDQ2WK156G342GL5
450	22	32	37	22	27.5	\	11	1430	4290	5.0	28	24.8	65	0.8	FDQ2WK226G402GL5
450	25	32	37	22	27.5	\	12	1625	4875	4.8	28	24.8	65	0.8	FDQ2WK256G402GL5
450	30	42	40	20	37.5	10.2	12.5	1050	3150	7.5	30	12.8	35	1.2	FDQ2WK306K244KB5
450	35	42	37	22	37.5	10.2	13.5	1225	3675	7.0	30	11.8	35	1.2	FDQ2WK356K274KB5
450	40	42	37	28	37.5	10.2	14.5	1400	4200	6.2	30	11.5	35	1.2	FDQ2WK406K374KB5
450	50	42	43	28	37.5	10.2	16	1750	5250	5.0	30	11.7	35	1.2	FDQ2WK506K394KB5
450	50	42	45	30	37.5	20.3	16	1750	5250	5.0	30	11.7	35	1.2	FDQ2WK506K424KD5
450	60	42	45	30	37.5	20.3	16.5	2100	6300	4.5	30	12.2	35	1.2	FDQ2WK606K424KD5
450	80	42	50	35	37.5	20.3	20.5	2800	8400	3.8	30	12.2	35	1.2	FDQ2WK806K474KD5
450	110	42	60	45	37.5	20.3	24.5	3850	11550	3.6	30	12.2	35	1.2	FDQ2WK117K524KD5
450	130	42	60	45	37.5	20.3	28.5	4550	13650	3.0	30	12.2	35	1.2	FDQ2WK137K524KD5
450	75	57.5	45	30	52.5	20.3	16.5	1500	4500	5.5	35	10.0	20	1.2	FDQ2WK756M164MD5
450	80	57.5	45	30	52.5	20.3	17	1600	4800	5.0	35	10.4	20	1.2	FDQ2WK806M164MD5
450	100	57.5	50	35	52.5	20.3	18	2000	6000	4.5	35	10.3	20	1.2	FDQ2WK107M204MD5
450	110	57.5	50	35	52.5	20.3	19	2200	6600	4.0	35	10.4	20	1.2	FDQ2WK117M204MD5
450	120	57.5	50	35	52.5	20.3	21.5	2400	7200	3.8	35	10.4	20	1.2	FDQ2WK127M204MD5
450	160	57.5	55	45	52.5	20.3	28.5	3200	9600	3.0	35	10.4	20	1.2	FDQ2WK167M324MD5
450	200	57.5	65	45	52.5	20.3	33	4000	12000	2.6	35	10.4	20	1.2	FDQ2WK207M344MD5

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
550	5	32	22	13	27.5	\	5.5	325	975	19.5	25	25.4	65	0.8	FDQ2JK505G212GL5
550	10	32	33	18	27.5	\	7.5	650	1950	10.5	25	25.4	65	0.8	FDQ2JK106G342GL5
550	15	32	37	22	27.5	\	11.5	975	2925	6.8	28	16.7	65	0.8	FDQ2JK156G402GL5
550	22	32	37	22	27.5	\	11.5	1430	4290	4.9	28	23.1	65	0.8	FDQ2JK226G402GL5
550	30	42	44	24	37.5	10.2	13	1050	3150	7.2	30	12.3	35	1.2	FDQ2JK306K324KB5
550	35	42	45	30	37.5	20.3	13.8	1225	3675	6.8	30	11.6	35	1.2	FDQ2JK356K424KD5
550	40	42	45	30	37.5	20.3	14.8	1400	4200	6.0	30	11.4	35	1.2	FDQ2JK406K424KD5
550	50	42	50	35	37.5	20.3	17	1750	5250	4.8	30	10.8	35	1.2	FDQ2JK506K474KD5
550	60	42	50	35	37.5	20.3	18	2100	6300	4.2	30	11.0	35	1.2	FDQ2JK606K474KD5
550	70	42	50	35	37.5	20.3	20.5	2450	7350	3.8	30	11.0	35	1.2	FDQ2JK706K474KD5
550	110	42	60	45	37.5	20.3	24.5	3850	11550	3.6	30	11.0	35	1.2	FDQ2JK117K524KD5
550	75	57.5	45	30	52.5	20.3	16.8	1500	4500	5.2	35	10.2	20	1.2	FDQ2JK675M164MD5
550	100	57.5	50	35	52.5	20.3	18.5	2000	6000	4.3	35	10.2	20	1.2	FDQ2JK107M204MD5
550	110	57.5	50	35	52.5	20.3	20	2200	6600	4.0	35	9.4	20	1.2	FDQ2JK117M204MD5
550	140	57.5	55	45	52.5	20.3	26	2800	8400	3.5	35	6.3	20	1.2	FDQ2JK147M324MD5
550	170	57.5	65	45	52.5	20.3	32	3400	10200	2.8	35	5.2	20	1.2	FDQ2JK177M344MD5
550	180	57.5	65	45	52.5	20.3	33	3600	10800	2.6	35	5.2	20	1.2	FDQ2JK187M344MD5

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
600	2	32	18	9	27.5	\	2.9	130	390	40.0	25	44.6	65	0.8	FDQ2KK205G152GL5
600	3	32	20	11	27.5	\	4	195	585	28.0	25	33.5	65	0.8	FDQ2KK305G182GL5
600	4	32	20	11	27.5	\	5.5	260	780	23.0	25	21.6	65	0.8	FDQ2KK405G182GL5
600	5	32	22	13	27.5	\	7	325	975	14.5	25	21.1	65	0.8	FDQ2KK505G212GL5
600	6	32	24.5	15	27.5	\	7.3	390	1170	13.0	25	21.7	65	0.8	FDQ2KK605G272GL5
600	7	32	24.5	15	27.5	\	8.5	455	1365	12.0	25	17.3	65	0.8	FDQ2KK705G272GL5
600	8	32	28	14	27.5	\	9.5	520	1560	11.0	25	15.1	65	0.8	FDQ2KK805G262GL5
600	9	32	30	16	27.5	\	10.5	585	1755	10.5	25	13.0	65	0.8	FDQ2KK905G322GL5
600	10	32	30	16	27.5	\	11	650	1950	10.0	25	12.4	65	0.8	FDQ2KK106G322GL5
600	12	32	33	18	27.5	\	12	780	2340	9.5	25	11.0	65	0.8	FDQ2KK126G342GL5
600	15	32	37	22	27.5	\	12	975	2925	9.5	28	11.0	65	0.8	FDQ2KK156G402GL5
600	15	32	37	22	27.5	10.2	14.5	975	2925	7.0	28	10.2	65	1.0	FDQ2KK156G404GB5
600	18	32	37	22	27.5	\	12.5	1170	3510	9.0	28	10.7	65	0.8	FDQ2KK186G402GL5
600	18	32	37	22	27.5	10.2	16.5	1170	3510	6.0	28	9.2	65	1.0	FDQ2KK186G404GB5
600	10	42	30	17	37.5	\	7	350	1050	18.0	28	17.0	35	1.0	FDQ2KK106K182KL5
600	12	42	30	17	37.5	\	8	420	1260	12.0	28	19.5	35	1.0	FDQ2KK126K182KL5
600	15	42	32	19	37.5	\	9.5	525	1575	11.0	28	15.1	35	1.0	FDQ2KK156K212KL5
600	20	42	40	20	37.5	10.2	12.5	700	2100	9.0	30	10.7	35	1.2	FDQ2KK206K244KB5
600	22	42	40	20	37.5	10.2	13.5	770	2310	8.0	30	10.3	35	1.2	FDQ2KK226K244KB5
600	25	42	40	20	37.5	10.2	15.5	875	2625	7.0	30	8.9	35	1.2	FDQ2KK256K244KB5
600	30	42	44	24	37.5	10.2	16.5	1050	3150	6.5	30	8.5	35	1.2	FDQ2KK306K424KB5
600	35	42	45	30	37.5	20.3	18.5	1225	3675	6.0	30	7.3	35	1.2	FDQ2KK356K424KD5
600	40	42	45	30	37.5	20.3	20.5	1400	4200	5.0	30	7.1	35	1.2	FDQ2KK406K424KD5
600	45	42	50	35	37.5	20.3	23	1575	4725	4.5	30	6.3	35	1.2	FDQ2KK456K474KD5
600	50	42	50	35	37.5	20.3	25	1750	5250	4.0	30	6.0	35	1.2	FDQ2KK506K474KD5
600	60	42	55	40	37.5	20.3	27	2100	6300	3.8	30	5.4	35	1.2	FDQ2KK606K494KD5
600	70	42	55	40	37.5	20.3	29	2450	7350	3.5	30	5.1	35	1.2	FDQ2KK706K494KD5
600	75	42	60	45	37.5	20.3	30	2625	7875	3.0	30	5.6	35	1.2	FDQ2KK756K524KD5
600	80	42	60	45	37.5	20.3	32	2800	8400	2.8	30	5.2	35	1.2	FDQ2KK806K524KD5
600	85	42	60	45	37.5	20.3	34	2975	8925	2.5	30	5.2	35	1.2	FDQ2KK856K524KD5
600	40	57.5	45	25	52.5	10.2	13.5	800	2400	8.0	35	10.3	20	1.2	FDQ2KK406M104MB5
600	45	57.5	45	25	52.5	10.2	14	900	2700	7.5	35	10.2	20	1.2	FDQ2KK456M104MB5
600	50	57.5	45	25	52.5	10.2	15.5	1000	3000	7.0	35	8.9	20	1.2	FDQ2KK506M104MB5
600	55	57.5	45	30	52.5	20.3	17	1100	3300	6.2	35	8.4	20	1.2	FDQ2KK556M164MD5
600	60	57.5	45	30	52.5	20.3	18.5	1200	3600	6.0	35	7.3	20	1.2	FDQ2KK606M164MD5
600	65	57.5	50	35	52.5	20.3	20	1300	3900	5.5	35	6.8	20	1.2	FDQ2KK656M204MD5
600	70	57.5	50	35	52.5	20.3	21.5	1400	4200	5.0	35	6.5	20	1.2	FDQ2KK706M204MD5
600	75	57.5	50	35	52.5	20.3	23.5	1500	4500	4.5	35	6.0	20	1.2	FDQ2KK756M204MD5
600	80	57.5	50	35	52.5	20.3	24.5	1600	4800	4.2	35	5.9	20	1.2	FDQ2KK806M204MD5
600	90	57.5	55	45	52.5	20.3	26	1800	5400	4.0	35	5.5	20	1.2	FDQ2KK906M324MD5
600	100	57.5	55	45	52.5	20.3	29	2000	6000	3.4	35	5.2	20	1.2	FDQ2KK107M324MD5
600	110	57.5	55	45	52.5	20.3	30	2200	6600	3.0	35	5.6	20	1.2	FDQ2KK117M324MD5
600	120	57.5	65	45	52.5	20.3	32	2400	7200	2.8	35	5.2	20	1.2	FDQ2KK127M344MD5
600	130	57.5	65	45	52.5	20.3	33	2600	7800	2.6	35	5.3	20	1.2	FDQ2KK137M344MD5
600	140	57.5	65	45	52.5	20.3	34	2800	8400	2.5	35	5.2	20	1.2	FDQ2KK147M344MD5

FDQ series

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
700	2	32	18	9	27.5	\	2.9	130	390	40.0	25	44.6	65	0.8	FDQ2NK205G152GL5
700	3	32	20	11	27.5	\	4	195	585	28.0	25	33.5	65	0.8	FDQ2NK305G182GL5
700	4	32	20	11	27.5	\	5.5	260	780	23.0	25	21.6	65	0.8	FDQ2NK405G182GL5
700	5	32	22	13	27.5	\	7	325	975	14.5	25	21.1	65	0.8	FDQ2NK505G212GL5
700	6	32	24.5	15	27.5	\	7.3	390	1170	13.0	25	21.7	65	0.8	FDQ2NK605G272GL5
700	7	32	24.5	15	27.5	\	8.5	455	1365	12.0	25	17.3	65	0.8	FDQ2NK705G272GL5
700	8	32	28	14	27.5	\	9.5	520	1560	11.0	25	15.1	65	0.8	FDQ2NK805G262GL5
700	9	32	30	16	27.5	\	10.5	585	1755	10.5	25	13.0	65	0.8	FDQ2NK905G322GL5
700	10	32	30	16	27.5	\	11	650	1950	10.0	25	12.4	65	0.8	FDQ2NK106G322GL5
700	12	32	33	18	27.5	\	12	780	2340	9.5	25	11.0	65	0.8	FDQ2NK126G342GL5
700	15	32	37	22	27.5	\	12	975	2925	9.5	28	11.0	65	0.8	FDQ2NK156G402GL5
700	15	32	37	22	27.5	10.2	14.5	975	2925	7.0	28	10.2	65	1.0	FDQ2NK156G404GB5
700	18	32	37	22	27.5	\	12.5	1170	3510	9.0	28	10.7	65	0.8	FDQ2NK186G402GL5
700	18	32	37	22	27.5	10.2	16.5	1170	3510	6.0	28	9.2	65	1.0	FDQ2NK186G404GB5
700	10	42	30	17	37.5	\	7	350	1050	18.0	28	17.0	35	1.0	FDQ2NK106K182KL5
700	12	42	30	17	37.5	\	8	420	1260	12.0	28	19.5	35	1.0	FDQ2NK126K182KL5
700	15	42	32	19	37.5	\	9.5	525	1575	11.0	28	15.1	35	1.0	FDQ2NK156K212KL5
700	20	42	40	20	37.5	10.2	12.5	700	2100	9.0	30	10.7	35	1.2	FDQ2NK206K244KB5
700	22	42	40	20	37.5	10.2	13.5	770	2310	8.0	30	10.3	35	1.2	FDQ2NK226K244KB5
700	25	42	40	20	37.5	10.2	15.5	875	2625	7.0	30	8.9	35	1.2	FDQ2NK256K244KB5
700	30	42	44	24	37.5	10.2	16.5	1050	3150	6.5	30	8.5	35	1.2	FDQ2NK306K424KB5
700	35	42	45	30	37.5	20.3	18.5	1225	3675	6.0	30	7.3	35	1.2	FDQ2NK356K424KD5
700	40	42	45	30	37.5	20.3	20.5	1400	4200	5.0	30	7.1	35	1.2	FDQ2NK406K424KD5
700	45	42	50	35	37.5	20.3	23	1575	4725	4.5	30	6.3	35	1.2	FDQ2NK456K474KD5
700	50	42	50	35	37.5	20.3	25	1750	5250	4.0	30	6.0	35	1.2	FDQ2NK506K474KD5
700	60	42	55	40	37.5	20.3	27	2100	6300	3.8	30	5.4	35	1.2	FDQ2NK606K494KD5
700	70	42	55	40	37.5	20.3	29	2450	7350	3.5	30	5.1	35	1.2	FDQ2NK706K494KD5
700	75	42	60	45	37.5	20.3	30	2625	7875	3.0	30	5.6	35	1.2	FDQ2NK756K524KD5
700	80	42	60	45	37.5	20.3	32	2800	8400	2.8	30	5.2	35	1.2	FDQ2NK806K524KD5
700	85	42	60	45	37.5	20.3	34	2975	8925	2.5	30	5.2	35	1.2	FDQ2NK856K524KD5
700	40	57.5	45	25	52.5	10.2	13.5	800	2400	8.0	35	10.3	20	1.2	FDQ2NK406M104MB5
700	45	57.5	45	25	52.5	10.2	14	900	2700	7.5	35	10.2	20	1.2	FDQ2NK456M104MB5
700	50	57.5	45	25	52.5	10.2	15.5	1000	3000	7.0	35	8.9	20	1.2	FDQ2NK506M104MB5
700	55	57.5	45	30	52.5	20.3	17	1100	3300	6.2	35	8.4	20	1.2	FDQ2NK556M164MD5
700	60	57.5	45	30	52.5	20.3	18.5	1200	3600	6.0	35	7.3	20	1.2	FDQ2NK606M164MD5
700	65	57.5	50	35	52.5	20.3	20	1300	3900	5.5	35	6.8	20	1.2	FDQ2NK656M204MD5
700	70	57.5	50	35	52.5	20.3	21.5	1400	4200	5.0	35	6.5	20	1.2	FDQ2NK706M204MD5
700	75	57.5	50	35	52.5	20.3	23.5	1500	4500	4.5	35	6.0	20	1.2	FDQ2NK756M204MD5
700	80	57.5	50	35	52.5	20.3	24.5	1600	4800	4.2	35	5.9	20	1.2	FDQ2NK806M204MD5
700	90	57.5	55	45	52.5	20.3	26	1800	5400	4.0	35	5.5	20	1.2	FDQ2NK906M324MD5
700	100	57.5	55	45	52.5	20.3	29	2000	6000	3.4	35	5.2	20	1.2	FDQ2NK107M324MD5
700	110	57.5	55	45	52.5	20.3	30	2200	6600	3.0	35	5.6	20	1.2	FDQ2NK117M324MD5
700	120	57.5	65	45	52.5	20.3	32	2400	7200	2.8	35	5.2	20	1.2	FDQ2NK127M344MD5
700	130	57.5	65	45	52.5	20.3	33	2600	7800	2.6	35	5.3	20	1.2	FDQ2NK137M344MD5
700	140	57.5	65	45	52.5	20.3	34	2800	8400	2.5	35	5.2	20	1.2	FDQ2NK147M344MD5

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
800	2	32	18	9	27.5	\	2.9	130	390	40.0	25	44.6	65	0.8	FDQ2NK205G152GL5
800	3	32	20	11	27.5	\	4.5	195	585	26.0	25	28.5	65	0.8	FDQ2NK305G182GL5
800	4	32	24.5	13	27.5	\	5.8	260	780	22.0	25	20.3	65	0.8	FDQ2NK405G222GL5
800	5	32	24.5	15	27.5	\	7.5	325	975	14.0	25	19.0	65	0.8	FDQ2NK505G272GL5
800	6	32	30	16	27.5	\	8.5	390	1170	12.0	25	17.3	65	0.8	FDQ2NK605G322GL5
800	7	32	30	16	27.5	\	9.5	455	1365	11.0	25	15.1	65	0.8	FDQ2NK705G322GL5
800	8	32	33	18	27.5	\	10.5	520	1560	10.5	25	13.0	65	0.8	FDQ2NK805G342GL5
800	9	32	33	18	27.5	\	11.5	585	1755	10.2	25	11.1	65	0.8	FDQ2NK905G332GL5
800	10	32	37	22	27.5	\	12	650	1950	9.5	25	11.0	65	0.8	FDQ2NK106G402GL5
800	10	32	37	22	27.5	10.2	14	650	1950	8.5	25	9.0	65	1.0	FDQ2NK106G404GB5
800	12	32	37	22	27.5	\	12	780	2340	9.5	25	11.0	65	0.8	FDQ2NK126G402GL5
800	12	32	37	22	27.5	10.2	15	780	2340	8.0	25	8.3	65	1.0	FDQ2NK126G404GB5
800	14	32	37	22	27.5	\	12	910	2730	9.5	25	11.0	65	0.8	FDQ2NK146G402GL5
800	14	32	37	22	27.5	10.2	16	910	2730	7.5	25	7.8	65	1.0	FDQ2NK146G404GB5
800	8	42	30	17	37.5	\	5.5	280	840	22.5	28	22.0	35	1.0	FDQ2NK805K182KL5
800	9	42	30	17	37.5	\	6	315	945	21.5	28	19.4	35	1.0	FDQ2NK905K182KL5
800	10	42	32	19	37.5	\	7	350	1050	18.0	28	17.0	35	1.0	FDQ2NK106K212KL5
800	12	42	32	19	37.5	\	8	420	1260	12.0	28	19.5	35	1.0	FDQ2NK126K212KL5
800	14	42	32	19	37.5	\	9.5	490	1470	11.0	28	15.1	35	1.0	FDQ2NK146K212KL5
800	15	42	40	20	37.5	10.2	12.5	525	1575	9.0	30	10.7	35	1.2	FDQ2NK156K244KB5
800	20	42	44	24	37.5	10.2	13.5	700	2100	8.0	30	10.3	35	1.2	FDQ2NK206K324KB5
800	25	42	44	24	37.5	10.2	16.5	875	2625	6.5	30	8.5	35	1.2	FDQ2NK256K324KB5
800	30	42	45	30	37.5	20.3	20	1050	3150	5.8	30	6.5	35	1.2	FDQ2NK306K424KD5
800	35	42	50	35	37.5	20.3	22	1225	3675	5.5	30	5.6	35	1.2	FDQ2NK356K474KD5
800	40	42	50	35	37.5	20.3	25	1400	4200	4.8	30	5.0	35	1.2	FDQ2NK406K474KD5
800	45	42	55	40	37.5	20.3	28	1575	4725	4.0	30	4.8	35	1.2	FDQ2NK456K494KD5
800	50	42	55	40	37.5	20.3	31	1750	5250	3.6	30	4.3	35	1.2	FDQ2NK506K494KD5
800	55	42	60	45	37.5	20.3	32.5	1925	5775	3.4	30	4.2	35	1.2	FDQ2NK556K524KD5
800	60	42	60	45	37.5	20.3	34	2100	6300	3.2	30	4.1	35	1.2	FDQ2NK606K524KD5
800	65	42	60	45	37.5	20.3	35	2275	6825	2.8	30	4.4	35	1.2	FDQ2NK656K524KD5
800	25	57.5	45	25	52.5	10.2	8.5	500	1500	12.0	35	17.3	20	1.2	FDQ2NK256M104MB5
800	30	57.5	45	25	52.5	10.2	10	600	1800	10.5	35	14.3	20	1.2	FDQ2NK306M104MB5
800	35	57.5	45	25	52.5	10.2	12	700	2100	9.5	35	11.0	20	1.2	FDQ2NK356M104MB5
800	40	57.5	45	30	52.5	20.3	14	800	2400	8.5	35	9.0	20	1.2	FDQ2NK406M164MD5
800	45	57.5	45	30	52.5	20.3	15.5	900	2700	7.0	35	8.9	20	1.2	FDQ2NK456M164MD5
800	50	57.5	50	35	52.5	20.3	17	1000	3000	5.8	35	8.9	20	1.2	FDQ2NK506M204MD5
800	55	57.5	50	35	52.5	20.3	19	1100	3300	5.5	35	7.6	20	1.2	FDQ2NK556M204MD5
800	60	57.5	50	35	52.5	20.3	21	1200	3600	4.8	35	7.1	20	1.2	FDQ2NK606M204MD5
800	65	57.5	55	45	52.5	20.3	22.5	1300	3900	4.6	35	6.4	20	1.2	FDQ2NK656M324MD5
800	70	57.5	55	45	52.5	20.3	24	1400	4200	4.5	35	5.8	20	1.2	FDQ2NK706M324MD5
800	75	57.5	55	45	52.5	20.3	25.5	1500	4500	4.3	35	5.4	20	1.2	FDQ2NK756M324MD5
800	80	57.5	55	45	52.5	20.3	26	1600	4800	4.2	35	5.3	20	1.2	FDQ2NK806M324MD5
800	90	57.5	55	45	52.5	20.3	27.5	1800	5400	4.0	35	5.0	20	1.2	FDQ2NK906M324MD5
800	100	57.5	65	45	52.5	20.3	31.5	2000	6000	3.2	35	4.7	20	1.2	FDQ2NK107M344MD5
800	110	57.5	65	45	52.5	20.3	34	2200	6600	3.0	35	4.3	20	1.2	FDQ2NK117M344MD5

FDQ series

Rating and Part Number

Vdc	Cap Value	Dimensions W	H	T	P	P1	Irms max (10KHz 70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
900	1	32	18	9	27.5	\	2	70	210	65.0	25	57.7	70	0.8	FDQ2QK205G152GL5
900	2	32	20	11	27.5	\	3.2	140	420	38.0	25	38.5	70	0.8	FDQ2QK205G182GL5
900	3	32	22	13	27.5	\	4.8	210	630	30.0	25	21.7	70	0.8	FDQ2QK305G212GL5
900	4	32	24.5	15	27.5	\	6	280	840	20.5	25	20.3	70	0.8	FDQ2QK405G272GL5
900	5	32	30	16	27.5	\	7.5	350	1050	12.0	25	22.2	70	0.8	FDQ2QK505G322GL5
900	6	32	33	18	27.5	\	7.8	420	1260	11.5	25	21.4	70	0.8	FDQ2QK605G342GL5
900	7	32	33	18	27.5	\	10.5	490	1470	10.2	25	13.3	70	0.8	FDQ2QK705G342GL5
900	8	32	37	22	27.5	\	11.5	560	1680	9.5	25	11.9	70	0.8	FDQ2QK805G402GL5
900	8	32	37	22	27.5	10.2	12.5	560	1680	9.0	25	10.7	70	1.0	FDQ2QK805G404GB5
900	9	32	37	22	27.5	\	11.8	630	1890	9.7	25	11.1	70	0.8	FDQ2QK905G402GL5
900	9	32	37	22	27.5	10.2	14	630	1890	7.8	25	9.8	70	1.0	FDQ2QK905G404GB5
900	10	32	37	22	27.5	\	12	700	2100	9.5	25	11.0	70	0.8	FDQ2QK106G402GL5
900	10	32	37	22	27.5	10.2	15.5	700	2100	7.2	25	8.7	70	1.0	FDQ2QK106G404GB5
900	5	42	30	17	37.5	\	3.8	175	525	28.0	28	37.1	35	1.0	FDQ2QK505K182KL5
900	6	42	30	17	37.5	\	4.5	210	630	25.0	28	29.6	35	1.0	FDQ2QK605K182KL5
900	7	42	30	17	37.5	\	5	245	735	22.0	28	27.3	35	1.0	FDQ2QK705K182KL5
900	8	42	32	19	37.5	\	6	280	840	19.5	28	21.4	35	1.0	FDQ2QK805K212KL5
900	10	42	40	20	37.5	10.2	7.5	350	1050	13.0	30	20.5	35	1.2	FDQ2QK106K244KB5
900	12	42	37	22	37.5	10.2	9	420	1260	11.5	30	16.1	35	1.2	FDQ2QK126K274KB5
900	15	42	44	24	37.5	10.2	10.5	525	1575	10.5	30	13.0	35	1.2	FDQ2QK156K324KB5
900	18	42	44	24	37.5	10.2	13	630	1890	8.8	30	10.1	35	1.2	FDQ2QK186K324KB5
900	20	42	44	24	37.5	10.2	14.5	700	2100	7.5	30	9.5	35	1.2	FDQ2QK206K324KB5
900	25	42	45	30	37.5	20.3	17.5	875	2650	6.2	30	7.9	35	1.2	FDQ2QK256K424KD5
900	30	42	50	35	37.5	20.3	21.5	1050	3150	5.0	30	6.5	35	1.2	FDQ2QK306K474KD5
900	35	42	55	40	37.5	20.3	23	1225	3675	4.6	30	6.2	35	1.2	FDQ2QK356K494KD5
900	40	42	55	40	37.5	20.3	26.5	1400	4200	3.9	30	5.5	35	1.2	FDQ2QK406K494KD5
900	45	42	60	45	37.5	20.3	30	1575	4725	3.4	30	4.9	35	1.2	FDQ2QK456K524KD5
900	50	42	60	45	37.5	20.3	33.5	1750	5250	3.0	30	4.5	35	1.2	FDQ2QK506K524KD5
900	15	57.5	45	25	52.5	10.2	5.5	300	900	22.0	35	22.5	20	1.2	FDQ2QK156K104MB5
900	20	57.5	45	25	52.5	10.2	7.5	400	1200	13.5	35	19.8	20	1.2	FDQ2QK206M104MB5
900	25	57.5	45	25	52.5	10.2	9	500	1500	11.5	35	16.1	20	1.2	FDQ2QK256M104MB5
900	30	57.5	45	30	52.5	20.3	11	600	1800	10.0	35	12.4	20	1.2	FDQ2QK306M164MD5
900	35	57.5	45	30	52.5	20.3	12.5	700	2100	9.0	35	10.7	20	1.2	FDQ2QK356M164MD5
900	40	57.5	50	35	52.5	20.3	14.5	800	2400	7.5	35	9.5	20	1.2	FDQ2QK406M204MD5
900	45	57.5	50	35	52.5	20.3	16	900	2700	6.8	35	8.6	20	1.2	FDQ2QK456M204MD5
900	50	57.5	50	35	52.5	20.3	18	1000	3000	6.4	35	7.2	20	1.2	FDQ2QK506M204MD5
900	55	57.5	55	45	52.5	20.3	20	1100	3300	5.6	35	6.7	20	1.2	FDQ2QK556M324MD5
900	60	57.5	55	45	52.5	20.3	21.5	1200	3600	4.8	35	6.8	20	1.2	FDQ2QK606M324MD5
900	65	57.5	55	45	52.5	20.3	23	1300	3900	4.5	35	6.3	20	1.2	FDQ2QK656M324MD5
900	70	57.5	65	45	52.5	20.3	25	1400	4200	4.0	35	6.0	20	1.2	FDQ2QK706M344MD5
900	75	57.5	65	45	52.5	20.3	25.5	1500	4500	3.9	35	5.9	20	1.2	FDQ2QK756M344MD5
900	80	57.5	65	45	52.5	20.3	26.5	1600	4800	3.8	35	5.6	20	1.2	FDQ2QK806M344MD5
900	85	57.5	65	45	52.5	20.3	28.5	1700	5100	3.6	35	5.1	20	1.2	FDQ2QK856M344MD5

AUTOMOTIVE SERIES CAPACITORS
AiSHi THINK AHEAD

Rating and Part Number

Vdc	Cap Value	Dimensions W	H	T	P	P1	Irms max (10KHz 70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
1000	1	32	18	9	27.5	\	2	75	225	65.0	25	57.7	75	0.8	FDQ3KK105G152GL5
1000	2	32	22	13	27.5	\	3.5	150	450	38.0	25	32.2	75	0.8	FDQ3KK205G212GL5
1000	3	32	24.5	15	27.5	\	5	225	675	22.0	25	27.3	75	0.8	FDQ3KK305G272GL5
1000	4	32	30	16	27.5	\	7	300	900	16.5	25	18.6	75	0.8	FDQ3KK405G322GL5
1000	5	32	33	18	27.5	\	8.5	375	1125	12.5	25	16.6	75	0.8	FDQ3KK505G342GL5
1000	6	32	33	18	27.5	\	9	450	1350	11.5	25	16.1	75	0.8	FDQ3KK605G342GL5
1000	7	32	37	22	27.5	\	9.5	525	1575	11.0	25	15.1	75	0.8	FDQ3KK705G402GL5
1000	7	32	37	22	27.5	10.2	11.5	525	1575	9.8	25	11.6	75	1.0	FDQ3KK705G404GB5
1000	8	32	37	22	27.5	\	10.5	600	1800	10.5	25	13.0	75	0.8	FDQ3KK805G402GL5
1000	8	32	37	22	27.5	10.2	13	600	1800	8.8	25	10.1	75	1.0	FDQ3KK805G404GB5
1000	5	42	30	17	37.5	\	3.8	175	525	28.0	28	37.1	35	1.0	FDQ3KK505K182KL5
1000	6	42	30	17	37.5	\	4.5	210	630	25.0	28	29.6	35	1.0	FDQ3KK605K182KL5
1000	7	42	30	17	37.5	\	5	245	735	22.0	28	27.3	35	1.0	FDQ3KK705K182KL5
1000	8	42	32	19	37.5	\	6	280	840	19.5	28	21.4	35	1.0	FDQ3KK805K212KL5
1000	10	42	40	20	37.5	10.2	7.5	350	1050	13.0	30	20.5	35	1.2	FDQ3KK106K244KB5
1000	12	42	37	22	37.5	10.2	9	420	1260	11.5	30	16.1	35	1.2	FDQ3KK126K274KB5
1000	15	42	44	24	37.5	10.2	11.5	525	1575	10.0	30	11.3	35	1.2	FDQ3KK156K324KB5
1000	18	42	45	30	37.5	20.3	14	630	1890	7.8	30	9.8	35	1.2	FDQ3KK186K424KD5
1000	20	42	45	30	37.5	20.3	15.5	700	2100	7.0	30	8.9	35	1.2	FDQ3KK206K424KD5
1000	25	42	50	35	37.5	20.3	19.5	875	2625	5.5	30	7.2	35	1.2	FDQ3KK256K474KD5
1000	30	42	55	40	37.5	20.3	23	1050	3150	4.6	30	6.2	35	1.2	FDQ3KK306K494KD5
1000	35	42	55	40	37.5	20.3	25	1225	3675	4.0	30	6.0	35	1.2	FDQ3KK356K494KD5
1000	40	42	60	45	37.5	20.3	28.5	1400	4200	3.6	30	5.1	35	1.2	FDQ3KK406K524KD5
1000	15	57.5	45	25	52.5	10.2	5.8	300	900	19.8	35	22.5	20	1.2	FDQ3KK156M104MB5
1000	20	57.5	45	25	52.5	10.2	7.5	400	1200	13.5	35	19.8	20	1.2	FDQ3KK206M104MB5
1000	25	57.5	45	25	52.5	10.2	9.5	500	1500	11.0	35	15.1	20	1.2	FDQ3KK256M104MB5
1000	30	57.5	45	30	52.5	20.3	11.5	600	1800	9.8	35	11.6	20	1.2	FDQ3KK306M164MD5
1000	35	57.5	45	30	52.5	20.3	13.5	700	2100	8.0	35	10.3	20	1.2	FDQ3KK356M164MD5
1000	40	57.5	50	35	52.5	20.3	15.5	800	2400	7.0	35	8.9	20	1.2	FDQ3KK406M204MD5
1000	45	57.5	55	45	52.5	20.3	17.5	900	2700	6.2	35	7.9	20	1.2	FDQ3KK456M324MD5
1000	50	57.5	55	45	52.5	20.3	19.5	1000	3000	5.8	35	6.8	20	1.2	FDQ3KK506M324MD5
1000	55	57.5	55	45	52.5	20.3	21	1100	3300	5.0	35	6.8	20	1.2	FDQ3KK556M324MD5
1000	60	57.5	65	45	52.5	20.3	23	1200	3600	4.6	35	6.2	20	1.2	FDQ3KK606M344MD5
1000	65	57.5	65	45	52.5	20.3	25	1300	3900	4.2	35	5.7	20	1.2	FDQ3KK656M344MD5
1000	70	57.5	65	45	52.5	20.3	27	1400	4200	3.8	35	5.4	20	1.2	FDQ3KK706M344MD5

FDQ series

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
1100	1	32	20	11	27.5	\	2.2	80	240	65.0	25	47.7	80	0.8	FDQ3MK105G182GL5
1100	1.5	32	22	13	27.5	\	2.5	120	360	46.0	25	52.2	80	0.8	FDQ3MK155G212GL5
1100	2	32	24.5	13	27.5	\	4.8	160	480	24.5	25	26.6	80	0.8	FDQ3MK205G222GL5
1100	3	32	30	16	27.5	\	6.5	240	720	18.5	25	19.2	80	0.8	FDQ3MK305G322GL5
1100	4	32	33	18	27.5	\	8.5	320	960	12.5	25	16.6	80	0.8	FDQ3MK405G342GL5
1100	5	32	37	22	27.5	\	9.8	400	1200	10.8	25	14.5	80	0.8	FDQ3MK505G402GL5
1100	5	32	37	22	27.5	10.2	10.5	400	1200	10.5	25	13.0	80	1.0	FDQ3MK505G404GB5
1100	6	32	37	22	27.5	\	10.5	480	1440	10.5	25	13.0	80	0.8	FDQ3MK605G402GL5
1100	6	32	37	22	27.5	10.2	13	480	1440	8.8	25	10.1	80	1.0	FDQ3MK605G404GB5
1100	3	42	30	17	37.5	\	2.5	120	360	46.0	28	52.2	40	1.0	FDQ3MK305K182KL5
1100	4	42	30	17	37.5	\	3.5	160	480	32.5	28	37.7	40	1.0	FDQ3MK405K182KL5
1100	4.7	42	32	19	37.5	\	4	188	564	28.0	28	33.5	40	1.0	FDQ3MK475K212KL5
1100	5	42	32	19	37.5	\	4.2	200	600	26.0	28	32.7	40	1.0	FDQ3MK505K212KL5
1100	6	42	32	19	37.5	\	5	240	720	23.5	28	25.5	40	1.0	FDQ3MK605K212KL5
1100	7	42	40	20	37.5	10.2	6	280	840	18.5	30	22.5	40	1.2	FDQ3MK705K244KB5
1100	8	42	37	22	37.5	10.2	6.5	320	960	16.5	30	21.5	40	1.2	FDQ3MK805K274KB5
1100	9	42	37	22	37.5	10.2	7.5	360	1080	13.0	30	20.5	40	1.2	FDQ3MK905K274KB5
1100	10	42	44	24	37.5	10.2	8.5	400	1200	12.0	30	17.3	40	1.2	FDQ3MK106K324KB5
1100	12	42	44	24	37.5	10.2	10	480	1440	10.8	30	13.9	40	1.2	FDQ3MK126K324KB5
1100	14	42	45	30	37.5	20.3	12	560	1680	9.5	30	11.0	40	1.2	FDQ3MK146K424KD5
1100	15	42	45	30	37.5	20.3	13	600	1800	8.5	30	10.4	40	1.2	FDQ3MK156K424KD5
1100	18	42	50	35	37.5	20.3	15	720	2160	7.0	30	9.5	40	1.2	FDQ3MK186K474KD5
1100	20	42	50	35	37.5	20.3	16.5	800	2400	6.5	30	8.5	40	1.2	FDQ3MK206K474KD5
1100	25	42	55	40	37.5	20.3	20.5	1000	3000	5.0	30	7.1	40	1.2	FDQ3MK256K494KD5
1100	30	42	60	45	37.5	20.3	24.5	1200	3600	4.3	30	5.8	40	1.2	FDQ3MK306K524KD5
1100	15	57.5	45	25	52.5	10.2	6.5	300	900	16.5	35	21.5	20	1.2	FDQ3MK156M104MB5
1100	20	57.5	45	30	52.5	10.2	9	400	1200	11.5	35	16.1	20	1.2	FDQ3MK206M164MD5
1100	25	57.5	50	35	52.5	10.2	11	500	1500	10.0	35	12.4	20	1.2	FDQ3MK256M204MD5
1100	30	57.5	50	35	52.5	20.3	13	600	1800	8.6	35	10.3	20	1.2	FDQ3MK306M204MD5
1100	35	57.5	55	45	52.5	20.3	14.5	700	2100	7.5	35	9.5	20	1.2	FDQ3MK356M324MD5
1100	40	57.5	55	45	52.5	20.3	16	800	2400	6.8	35	8.6	20	1.2	FDQ3MK406M324MD5
1100	45	57.5	55	45	52.5	20.3	17.5	900	2700	6.2	35	7.9	20	1.2	FDQ3MK456M324MD5
1100	50	57.5	65	45	52.5	20.3	19.5	1000	3000	5.6	35	7.0	20	1.2	FDQ3MK506M344MD5
1100	55	57.5	65	45	52.5	20.3	21.5	1100	3300	4.8	35	6.8	20	1.2	FDQ3MK556M344MD5

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max (10KHz 70℃)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
1200	1	32	20	11	27.5	\	3.5	90	270	35.0	25	35.0	90	0.8	FDQ3BK105G182GL5
1200	2	32	24.5	15	27.5	\	5	180	540	24.0	25	25.0	90	0.8	FDQ3BK205G272GL5
1200	3	32	30	16	27.5	\	7.5	270	810	13.0	25	20.5	90	0.8	FDQ3BK305G322GL5
1200	4	32	33	18	27.5	\	9.5	360	1080	11.0	25	15.1	90	0.8	FDQ3BK405G342GL5
1200	5	32	37	22	27.5	\	10.5	450	1350	10.5	25	13.0	90	0.8	FDQ3BK505G402GL5
1200	5	32	37	22	27.5	10.2	12	450	1350	9.5	25	11.0	90	1.0	FDQ3BK505G404GB5
1200	3	42	30	17	37.5	\	3.2	135	405	35.0	28	41.9	45	1.0	FDQ3BK305K182KL5
1200	4	42	30	17	37.5	\	4.2	180	540	28.0	28	30.4	45	1.0	FDQ3BK405K662KL5
1200	5	42	32	19	37.5	\	5.5	225	675	21.5	28	23.1	45	1.0	FDQ3BK505K212KL5
1200	6	42	40	20	37.5	10.2	6.5	270	810	16.5	30	21.5	45	1.2	FDQ3BK605K244KB5
1200	7	42	37	22	37.5	10.2	7.5	315	945	13.0	30	20.5	45	1.2	FDQ3BK705K274KB5
1200	8	42	44	24	37.5	10.2	8.5	360	1080	12.0	30	17.3	45	1.2	FDQ3BK805K324KB5
1200	9	42	44	24	37.5	10.2	10	405	1215	10.8	30	13.9	45	1.2	FDQ3BK905K324KB5
1200	10	42	44	24	37.5	10. 2	11	450	1350	10.0	30	12.4	45	1.2	FDQ3BK106K324KB5
1200	12	42	45	30	37.5	20.3	13	540	1620	8.5	30	10.4	45	1.2	FDQ3BK126K424KD5
1200	15	42	50	35	37.5	20.3	16	675	2025	6.8	30	8.6	45	1.2	FDQ3BK156K474KD5
1200	18	42	50	35	37.5	20.3	18	810	2430	6.2	30	7.5	45	1.2	FDQ3BK186K474KD5
1200	20	42	55	40	37.5	20.3	20	900	2700	5.5	30	6.8	45	1.2	FDQ3BK206K494KD5
1200	25	42	60	45	37.5	20.3	25	1125	3375	4.3	30	5.6	45	1.2	FDQ3BK256K524KD5
1200	12	57.5	45	25	52.5	10.2	6.5	300	900	16.5	35	21.5	25	1.2	FDQ3BK126M104MB5
1200	15	57.5	45	25	52.5	10.2	7.5	375	1125	13.0	35	20.5	25	1.2	FDQ3BK156M104MB5
1200	20	57.5	45	30	52.5	20.3	11	500	1500	10.0	35	12.4	25	1.2	FDQ3BK206M164MD5
1200	25	57.5	50	35	52.5	20.3	13	625	1875	8.6	35	10.3	25	1.2	FDQ3BK256K204MD5
1200	30	57.5	55	45	52.5	20.3	14.5	750	2250	7.5	35	9.5	25	1.2	FDQ3BK306M324MD5
1200	35	57.5	55	45	52.5	20.3	16	875	2625	6.8	35	8.6	25	1.2	FDQ3BK356M324MD5
1200	40	57.5	55	45	52.5	20.3	20	1000	3000	5.5	35	6.8	25	1.2	FDQ3BK406M324MD5
1200	45	57.5	65	45	52.5	20.3	22.5	1125	3375	4.8	35	6.2	25	1.2	FDQ3BK456M344MD5

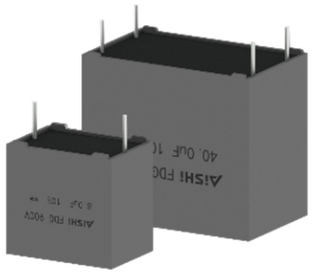
FDU series

Overview

The FDU series is constructed of metallized polypropylene film encapsulated with epoxy resin in a plastic box, with 2 or 4 tinned copper wire. This FDU series is suitable for harsh environment condition and qualify in accordance to AEC-Q200 requirement.

Applications

Widely used in high performance DC Link, DC filtering, frequency converter, industrial power supply, solar inverter, energy storage, OBC, DC-DC converter and automotive applications.



Features

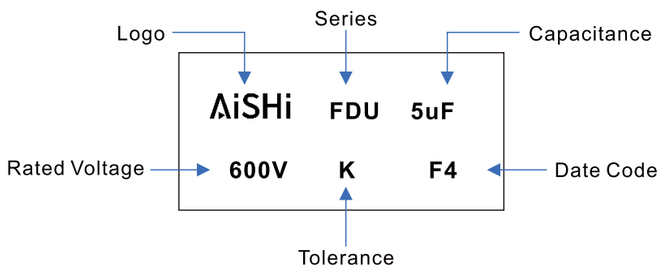
- Self-healing property
- High capacitance density
- Operating temperature range: -55°C to 125°C
- Lead Space (Pitch): 27.5mm ~ 52.5mm
- High ripple current and low loss
- High contact reliability
- Suitable for high frequency applications
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{NDC}
- Automotive Grade (AEC-Q200)

Qualification

Reference Standard	IEC 61071, EN 61071, AEC-Q200
Climate Category	55/105/56 IEC 60068-1

RoHS COMPLIANT - COMPLIANT REACH AUTOMOTIVE GRADE Available

Marking



Manufacturing Date Code

Year	Code	Month	Code
2018	A	Jan	1
2019	B	Feb	2
2020	C	Mar	3
2021	D	Apr	4
2022	E	May	5
2023	F	Jun	6

Year	Code	Month	Code
2024	G	Jun	7
2025	H	Aug	8
2026	J	Sep	9
2027	K	Oct	A
2028	L	Nov	N
2029	M	Dec	D

AUTOMOTIVE SERIES CAPACITORS
AiSHi THINK AHEAD

Part Number System

F	DU	2K	K	505	G21	2GL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	DC Link, AEC-Q200 Type, Metallized PP Film, Max 125°C	450=2W 600=2K 700=2M 900=2Q 1100=3M	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

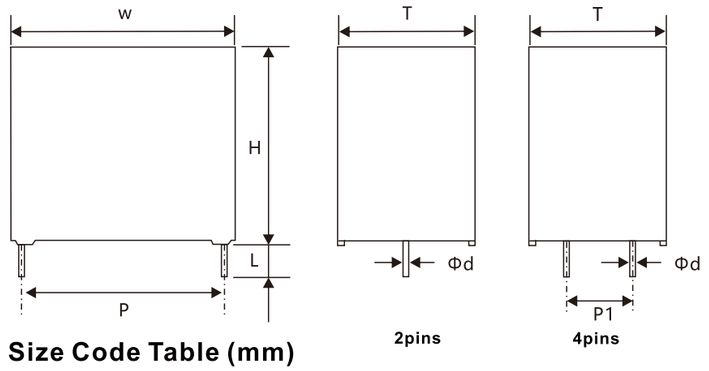
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	27.5mm	G	10.2mm	B
2 leads for straight cut	2	37.5mm	K	20.3mm	D
2 leads for forming cut	E	52.5mm	M	N/A	L
4 leads for straight cut	4	N/A	N		
6 leads for straight cut	6				

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
20.0mm min	L

Dimension (mm)



Size Code Table (mm)

Size Code	Dimension						Pitch				Φd		
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	P1	Tolerance	4 Leads	2 Leads	Tolerance
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	\	\	\	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	\	\	\	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05
G22	32	0.8	24.5	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05
G25	32	0.8	24	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05
G27	32	0.8	24.5	0.8	15	0.8	27.5	0.5	\	\	\	0.8	0.05
G32	32	0.8	30	0.8	16	0.8	27.5	0.5	\	\	\	0.8	0.05
G33	32	0.8	28	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	\	\	\	0.8	0.05

FDU series

Size Code Table (mm)

Size Code	Dimension						Pitch				Φd		
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	P1	Tolerance	4 Leads	2 Leads	Tolerance
K17	42	1.0	28	1.0	17	1.0	37.5	0.5	\	\	\	1.0	0.05
K18	42	1.0	29	1.0	17	1.0	37.5	0.5	\	\	\	1.0	0.05
K21	42	1.0	32	1.0	19	1.0	37.5	0.5	\	\	\	1.0	0.05
K24	42	1.0	40	1.0	20	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K27	42	1.0	37	1.0	22	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K32	42	1.0	44	1.0	24	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K37	42	1.0	37	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K39	42	1.0	43	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K42	42	1.0	45	1.0	30	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K46	42	1.0	45	1.0	35	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K47	42	1.0	50	1.0	35	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K49	42	1.0	55	1.0	40	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K52	42	1.0	60	1.0	45	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05

Size Code Table (mm)

Size Code	Dimension						Pitch				Φd		
	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	P1	Tolerance	4 Leads	2 Leads	Tolerance
M10	57.5	1.0	45	1.0	25	1.0	52.5	0.5	10.2	0.5	1.2	1.2	0.05
M16	57.5	1.0	45	1.0	30	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M20	57.5	1.0	50	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M22	57.5	1.0	60	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M23	57.5	1.0	65	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M32	57.5	1.0	55	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M34	57.5	1.0	65	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05

Rating and Part Number

Vdc	Cap Value	Dimensions W	H	T	P	P1	Irms max 75℃	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
V_{NDC} at 85℃=450VDC; V_{OP105} at 105℃=351Vdc; V_{OP115} at 115℃=301Vdc; V_{OP125} at 125℃=252Vdc															
450	3.3	32	18	9	27.5	\	4.7	215	644	22.1	12	41.7	65	0.8	FDU2WK335G152GL5
450	4	32	18	9	27.5	\	5.1	260	780	18.2	12	41.7	65	0.8	FDU2WK405G152GL5
450	5	32	20	11	27.5	\	6.2	325	975	14.6	14	35.7	65	0.8	FDU2WK505G182GL5
450	6	32	20	11	27.5	\	6.8	390	1170	12.1	14	35.7	65	0.8	FDU2WK605G182GL5
450	7	32	22	13	27.5	\	7.6	455	1365	10.4	15	33.3	65	0.8	FDU2WK705G212GL5
450	8	32	22	13	27.5	\	8.1	520	1560	9.1	15	33.3	65	0.8	FDU2WK805G212GL5
450	10	32	24.5	13	27.5	\	9.4	650	1950	7.3	16	31.3	65	0.8	FDU2WK106G222GL5
450	12	32	28	14	27.5	\	10.9	780	2340	6.1	18	27.8	65	0.8	FDU2WK126G262GL5
450	13	32	28	14	27.5	\	11.3	845	2535	5.6	18	27.8	65	0.8	FDU2WK136G262GL5
450	15	32	30	16	27.5	\	12.5	975	2925	4.9	18	26.3	65	0.8	FDU2WK156G322GL5
450	15	32	28	18	27.5	\	12.7	975	2925	5.2	19	23.8	65	0.8	FDU2WK156G332GL5
450	16	32	28	18	27.5	\	13.6	1040	3120	4.6	19	23.8	65	0.8	FDU2WK166G332GL5
450	18	32	33	18	27.5	\	14.6	1170	3510	4.3	21	21.7	65	0.8	FDU2WK186G342GL5
450	20	32	33	18	27.5	\	15.4	1300	3900	3.9	21	21.7	65	0.8	FDU2WK206G342GL5
450	22	32	37	22	27.5	\	16.5	1430	4290	4.3	23	17.2	65	0.8	FDU2WK226G402GL5
450	25	32	37	22	27.5	\	17.6	1625	4875	3.7	23	17.2	65	0.8	FDU2WK256G402GL5
450	28	32	37	22	27.5	\	18.6	1820	5460	3.3	23	17.2	65	0.8	FDU2WK286G402GL5
450	20	42	28	17	37.5	\	10.9	700	2100	8.4	12	20.0	35	1.0	FDU2WK206K172KL5
450	25	42	32	19	37.5	\	12.9	875	2625	6.8	13	17.9	35	1.0	FDU2WK256K212KL5
450	30	42	37	22	37.5	10.2	15.8	1050	3150	5.6	14	14.3	35	1.2	FDU2WK306K274KB5
450	35	42	37	22	37.5	10.2	17.0	1225	3675	4.8	14	14.3	35	1.2	FDU2WK356K374KB5
450	40	42	40	20	37.5	10.2	18.5	1400	4200	4.2	14	13.9	35	1.2	FDU2WK406K244KB5
450	40	42	37	22	37.5	10.2	18.2	1400	4200	4.2	14	14.3	35	1.2	FDU2WK406K274KB5
450	50	42	37	28	37.5	10.2	22.0	1750	5250	3.4	15	12.2	35	1.2	FDU2WK506K374KB5
450	55	42	44	24	37.5	10.2	23.1	1925	5775	3.1	15	12.2	35	1.2	FDU2WK556K324KB5
450	60	42	43	28	37.5	10.2	24.6	2100	6300	2.8	16	11.8	35	1.2	FDU2WK606K394KB5
450	65	42	45	30	37.5	20.3	27.7	2275	6825	2.6	16	10.0	35	1.2	FDU2WK656K424KD5
450	70	42	45	30	37.5	20.3	28.8	2450	7350	2.4	16	10.0	35	1.2	FDU2WK706K424KD5
450	80	42	45	35	37.5	20.3	32.3	2800	8400	2.1	17	9.1	35	1.2	FDU2WK806K464KD5
450	90	42	50	35	37.5	20.3	33.5	3150	9450	2.1	17	8.3	35	1.2	FDU2WK906K474KD5
450	110	42	55	40	37.5	20.3	35.2	3850	11550	2.1	18	7.7	35	1.2	FDU2WK117K494KD5
450	120	42	55	40	37.5	20.3	36.8	4200	12600	1.9	18	7.7	35	1.2	FDU2WK127K494KD5
450	140	42	60	45	37.5	20.3	41.2	4900	14700	1.6	20	7.1	35	1.2	FDU2WK147K524KD5
450	80	57.5	45	25	52.5	10.2	21.2	1600	4800	4.9	14	9.1	20	1.2	FDU2WK806M104MB5
450	100	57.5	45	30	52.5	20.3	25.3	2000	6000	3.9	15	8.0	20	1.2	FDU2WK107M164MD5
450	130	57.5	50	35	52.5	20.3	31.1	2600	7800	3.0	17	6.9	20	1.2	FDU2WK137M204MD5
450	160	57.5	60	35	52.5	20.3	36.8	3200	9600	2.4	18	6.1	20	1.2	FDU2WK167M224MD5
450	170	57.5	55	45	52.5	20.3	36.5	3400	10200	2.5	18	6.1	20	1.2	FDU2WK177M324MD5
450	180	57.5	65	35	52.5	20.3	38.6	3600	10800	2.4	18	5.7	20	1.2	FDU2WK187M234MD5
450	180	57.5	55	45	52.5	20.3	39.6	3600	10800	2.4	19	5.4	20	1.2	FDU2WK187M324MD5
450	210	57.5	65	45	52.5	20.3	44.0	4200	12600	2.0	20	5.1	20	1.2	FDU2WK217M344MD5
450	220	57.5	65	45	52.5	20.3	45.0	4400	13200	1.9	20	5.1	20	1.2	FDU2WK227M344MD5

FDU series

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max 75℃	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	W mm	H mm	T mm	P mm	P1 mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
V_{NDC} at 85℃=600VDC; V_{OP105} at 105℃=468Vdc; V_{OP115} at 115℃=402Vdc; V_{OP125} at 125℃=336Vdc															
600	2	32	18	9	27.5	\	4.1	130	390	28.1	12	41.7	65	0.8	FDU2KK205G152GL5
600	2.2	32	18	9	27.5	\	4.3	143	429	25.5	12	41.7	65	0.8	FDU2KK225G152GL5
600	3	32	20	11	27.5	\	5.5	195	585	18.7	14	35.7	65	0.8	FDU2KK305G182GL5
600	3.3	32	20	11	27.5	\	5.7	195	585	17.0	14	35.7	65	0.8	FDU2KK335G182GL5
600	4	32	20	11	27.5	\	6.3	260	780	14.0	14	35.7	65	0.8	FDU2KK405G182GL5
600	5	32	22	13	27.5	\	7.3	325	975	11.2	15	33.3	65	0.8	FDU2KK505G212GL5
600	6	32	24.5	13	27.5	\	8.3	390	1170	9.4	16	31.3	65	0.8	FDU2KK605G222GL5
600	7	32	24.5	15	27.5	\	9.3	455	1365	8.0	17	28.6	65	0.8	FDU2KK705G272GL5
600	7	32	28	14	27.5	\	9.5	520	1560	8.0	17	27.8	65	0.8	FDU2KK705G262GL5
600	8	32	28	14	27.5	\	10.1	520	1560	7.0	17	27.8	65	0.8	FDU2KK805G262GL5
600	9	32	30	16	27.5	\	11.0	585	1755	6.2	18	26.3	65	0.8	FDU2KK905G322GL5
600	10	32	28	18	27.5	\	12.2	650	1950	5.6	18	23.8	65	0.8	FDU2KK106G332GL5
600	11	32	33	18	27.5	\	13.4	715	2145	5.1	21	21.7	65	0.8	FDU2KK116G342GL5
600	12	32	33	18	27.5	\	14.0	780	2340	4.7	21	21.7	65	0.8	FDU2KK126G342GL5
600	15	32	37	22	27.5	\	15.5	975	2925	4.8	23	17.2	65	0.8	FDU2KK156G402GL5
600	18	32	37	22	27.5	\	17.0	1170	3510	4.0	23	17.2	65	0.8	FDU2KK186G402GL5
600	15	42	32	19	37.5	\	11.4	525	1575	8.7	13	17.9	35	1.0	FDU2KK156K212KL5
600	22	42	40	20	37.5	10.2	15.6	770	2310	5.9	14	13.9	35	1.2	FDU2KK226K244KB5
600	25	42	40	20	37.5	10.2	16.6	875	2625	5.2	14	13.9	35	1.2	FDU2KK256K244KB5
600	30	42	37	28	37.5	10.2	19.4	1050	3150	4.3	15	12.2	35	1.2	FDU2KK306K374KB5
600	33	42	44	24	37.5	10.2	20.4	1155	3465	4.0	15	12.2	35	1.2	FDU2KK336K324KB5
600	35	42	43	28	37.5	10.2	21.4	1225	3675	3.7	16	11.8	35	1.2	FDU2KK356K394KB5
600	40	42	45	30	37.5	20.3	24.8	1400	4200	3.3	16	10.0	35	1.2	FDU2KK406K424KD5
600	45	42	45	30	37.5	20.3	26.3	1575	4725	2.9	16	10.0	35	1.2	FDU2KK456K424KD5
600	45	42	45	35	37.5	20.3	27.6	1575	4725	2.9	17	9.1	35	1.2	FDU2KK456K464KD5
600	50	42	45	35	37.5	20.3	29.0	1750	5250	2.6	17	9.1	35	1.2	FDU2KK506K464KD5
600	50	42	50	35	37.5	20.3	28.5	1750	5250	3.0	17	8.3	35	1.2	FDU2KK506K474KD5
600	60	42	55	40	37.5	20.3	29.6	2100	6300	3.0	18	7.7	35	1.2	FDU2KK606K494KD5
600	70	42	55	40	37.5	20.3	32.0	2450	7350	2.5	18	7.7	35	1.2	FDU2KK706K494KD5
600	75	42	60	45	37.5	20.3	34.4	2625	7875	2.4	20	7.1	35	1.2	FDU2KK756K524KD5
600	80	42	60	45	37.5	20.3	35.5	2800	8400	2.2	20	7.1	35	1.2	FDU2KK806K524KD5
600	85	42	60	45	37.5	20.3	36.6	2975	8925	2.1	20	7.1	35	1.2	FDU2KK856K524KD5
600	45	57.5	45	25	52.5	10.2	18.1	900	2700	6.7	14	9.1	20	1.2	FDU2KK456M104MB5
600	50	57.5	45	25	52.5	10.2	19.1	1000	3000	6.0	14	9.1	20	1.2	FDU2KK506M104MB5
600	55	57.5	45	30	52.5	20.3	21.4	1100	3300	5.5	15	8.0	20	1.2	FDU2KK556M164MD5
600	60	57.5	45	30	52.5	20.3	22.3	1200	3600	5.0	15	8.0	20	1.2	FDU2KK606M164MD5
600	65	57.5	50	35	52.5	20.3	25.0	1300	3900	4.6	17	6.9	20	1.2	FDU2KK656M204MD5
600	70	57.5	50	35	52.5	20.3	26.0	1400	4200	4.3	17	6.9	20	1.2	FDU2KK706M204MD5
600	75	57.5	50	35	52.5	20.3	26.9	1500	4500	4.0	17	6.9	20	1.2	FDU2KK756M204MD5
600	80	57.5	50	35	52.5	20.3	27.8	1600	4800	3.8	17	6.9	20	1.2	FDU2KK806M204MD5
600	90	57.5	60	35	52.5	20.3	31.4	1800	5400	3.3	18	6.1	20	1.2	FDU2KK906M224MD5
600	100	57.5	60	35	52.5	20.3	33.1	2000	6000	3.0	18	6.1	20	1.2	FDU2KK107M224MD5
600	110	57.5	65	35	52.5	20.3	34.3	2200	6600	3.0	18	5.7	20	1.2	FDU2KK117M234MD5
600	110	57.5	55	45	52.5	20.3	35.3	2200	6600	3.0	19	5.4	20	1.2	FDU2KK117M324MD5
600	130	57.5	65	45	52.5	20.3	39.4	2600	7800	2.5	20	5.1	20	1.2	FDU2KK137M344MD5

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max 75℃	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	W mm	H mm	T mm	P mm	P1 mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
V_{NDC} at 85℃=700VDC; V_{OP105} at 105℃=546Vdc; V_{OP115} at 115℃=469Vdc; V_{OP125} at 125℃=392Vdc															
700	2	32	18	9	27.5	\	4.4	130	390	24.6	12	41.7	65	0.8	FDU2MK205G152GL5
700	3	32	20	11	27.5	\	5.8	195	585	16.4	14	35.7	65	0.8	FDU2MK305G182GL5
700	4	32	24.5	13	27.5	\	7.2	260	780	12.3	16	31.3	65	0.8	FDU2MK405G222GL5
700	5	32	24	14	27.5	\	8.3	325	975	9.8	17	29.4	65	0.8	FDU2MK505G252GL5
700	5	32	28	14	27.5	\	8.6	325	975	9.8	17	27.8	65	0.8	FDU2MK505G262GL5
700	5	32	24.5	15	27.5	\	8.4	325	975	9.8	17	28.6	65	0.8	FDU2MK505G272GL5
700	6	32	30	16	27.5	\	9.6	390	1170	8.2	18	26.3	65	0.8	FDU2MK605G322GL5
700	7	32	30	16	27.5	\	10.4	455	1365	7.0	18	26.3	65	0.8	FDU2MK705G322GL5
700	8	32	28	18	27.5	\	11.7	520	1560	6.1	19	23.8	65	0.8	FDU2MK805G332GL5
700	9	32	33	18	27.5	\	13.0	585	1755	5.5	21	21.7	65	0.8	FDU2MK905G342GL5
700	10	32	33	18	27.5	\	13.7	650	1950	4.9	21	21.7	65	0.8	FDU2MK106G342GL5
700	12	32	37	22	27.5	\	14.8	780	2340	5.3	23	17.2	65	0.8	FDU2MK126G402GL5
700	14	32	37	22	27.5	\	16.0	910	2730	4.5	23	17.2	65	0.8	FDU2MK146G402GL5
700	14	42	32	19	37.5	\	11.7	490	1470	8.1	13	17.9	35	1.0	FDU2MK146K212KL5
700	15	42	40	20	37.5	10.2	13.8	525	1575	7.6	14	13.9	35	1.2	FDU2MK156K244KB5
700	20	42	37	28	37.5	10.2	17.0	700	2100	5.7	15	12.2	35	1.2	FDU2MK206K374KB5
700	22	42	37	28	37.5	10.2	17.8	770	2310	5.2	15	12.2	35	1.2	FDU2MK226K374KB5
700	25	42	44	24	37.5	10.2	19.0	875	2625	4.6	15	12.2	35	1.2	FDU2MK256K324KB5
700	25	42	43	28	37.5	10.2	19.3	875	2625	4.6	16	11.8	35	1.2	FDU2MK256K394KB5
700	30	42	45	30	37.5	20.3	22.9	1050	3150	3.8	16	10.0	35	1.2	FDU2MK306K424KD5
700	35	42	45	35	37.5	20.3	26.0	1225	3675	3.3	17	9.1	35	1.2	FDU2MK356K464KD5
700	40	42	50	35	37.5	20.3	27.2	1400	4200	3.2	17	8.3	35	1.2	FDU2MK406K474KD5
700	45	42	55	40	37.5	20.3	27.4	1575	4725	3.5	18	7.7	35	1.2	FDU2MK456K494KD5
700	50	42	55	40	37.5	20.3	28.9	1750	5250	3.1	18	7.7	35	1.2	FDU2MK506K494KD5
700	55	42	55	40	37.5	20.3	30.3	1925	5775	2.8	18	7.7	35	1.2	FDU2MK556K494KD5
700	60	42	60	45	37.5	20.3	32.9	2100	6300	2.6	20	7.1	35	1.2	FDU2MK606K524KD5
700	65	42	60	45	37.5	20.3	34.2	2275	6825	2.4	20	7.1	35	1.2	FDU2MK656K524KD5
700	30	57.5	45	25	52.5	10.2	15.8	600	1800	8.8	14	9.1	20	1.2	FDU2MK306M104MB5
700	35	57.5	45	25	52.5	10.2	17.1	700	2100	7.5	14	9.1	20	1.2	FDU2MK356M104MB5
700	40	57.5	45	30	52.5	20.3	19.5	800	2400	6.6	15	8.0	20	1.2	FDU2MK406M164MD5
700	45	57.5	45	30	52.5	20.3	20.7	900	2700	5.9	15	8.0	20	1.2	FDU2MK456M164MD5
700	50	57.5	50	35	52.5	20.3	23.5	1000	3000	5.3	17	6.9	20	1.2	FDU2MK506M204MD5
700	55	57.5	50	35	52.5	20.3	24.6	1100	3300	4.8	17	6.9	20	1.2	FDU2MK556M204MD5
700	60	57.5	50	35	52.5	20.3	25.7	1200	3600	4.4	17	6.9	20	1.2	FDU2MK606M204MD5
700	70	57.5	60	35	52.5	20.3	28.4	1400	4200	4.1	18	6.1	20	1.2	FDU2MK706M224MD5
700	75	57.5	60	35	52.5	20.3	29.4	1500	4500	3.8	18	6.1	20	1.2	FDU2MK756M224MD5
700	85	57.5	65	35	52.5	20.3	32.3	1700	5100	3.4	18	5.7	20	1.2	FDU2MK856M234MD5
700	85	57.5	55	45	52.5	20.3	33.2	1760	5280	3.4	19	5.4	20	1.2	FDU2MK856M324MD5
700	100	57.5	65	45	52.5	20.3	36.9	2000	6000	2.9	20	5.1	20	1.2	FDU2MK107M344MD5
700	110	57.5	65	45	52.5	20.3	38.7	2200	6600	2.6	20	5.1	20	1.2	FDU2MK117M344MD5

FDU series

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max 75℃	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	W mm	H mm	T mm	P mm	P1 mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
V_{NDC} at 85℃=900VDC; V_{OP105} at 105℃=702Vdc; V_{OP115} at 115℃=603Vdc; V_{OP125} at 125℃=504Vdc															
900	1	32	18	9	27.5	\	3.5	65	195	39.3	12	41.7	65	0.8	FDU2QK105G152GL5
900	1.8	32	20	11	27.5	\	5.1	117	351	21.9	14	35.7	65	0.8	FDU2QK185G182GL5
900	2.0	32	22	13	27.5	\	5.5	130	390	19.7	15	33.3	65	0.8	FDU2QK205G212GL5
900	2.2	32	22	13	27.5	\	5.8	143	429	17.9	15	33.3	65	0.8	FDU2QK225G212GL5
900	3	32	24	14	27.5	\	7.2	195	585	13.1	17	29.4	65	0.8	FDU2QK305G252GL5
900	3.3	32	28	14	27.5	\	7.8	215	644	11.9	17	27.8	65	0.8	FDU2QK335G262GL5
900	4	32	30	16	27.5	\	8.8	260	780	9.8	18	26.3	65	0.8	FDU2QK405G322GL5
900	5	32	28	18	27.5	\	10.3	325	975	7.9	19	23.8	65	0.8	FDU2QK505G332GL5
900	6	32	33	18	27.5	\	11.8	390	1170	6.6	21	21.7	65	0.8	FDU2QK605G342GL5
900	7	32	37	22	27.5	\	12.7	455	1365	7.2	23	17.2	65	0.8	FDU2QK705G402GL5
900	8	32	37	22	27.5	\	13.5	520	1560	6.3	23	17.2	65	0.8	FDU2QK805G402GL5
900	7	42	29	17	37.5	\	8.9	245	735	13.0	12	19.2	35	1.0	FDU2QK705G182GL5
900	8	42	32	19	37.5	\	9.9	280	840	11.4	13	17.9	35	1.0	FDU2QK805G212GL5
900	12	42	40	20	37.5	10.2	13.8	420	1260	7.6	14	13.9	35	1.2	FDU2QK126K244KB5
900	12	42	37	22	37.5	10.2	13.6	420	1260	7.6	14	14.3	35	1.2	FDU2QK126K274KB5
900	14	42	37	22	37.5	10.2	14.7	490	1470	6.5	14	14.3	35	1.2	FDU2QK146K274KB5
900	15	42	44	24	37.5	10.2	16.4	525	1575	6.1	15	12.2	35	1.2	FDU2QK156K324KL5
900	16	42	43	28	37.5	10.2	17.3	560	1680	5.7	16	11.8	35	1.2	FDU2QK166K394KB5
900	18	42	45	30	37.5	20.3	19.9	630	1890	5.1	16	10.0	35	1.2	FDU2QK186K424KD5
900	20	42	45	30	37.5	20.3	20.9	700	2100	4.6	16	10.0	35	1.2	FDU2QK206K424KD5
900	22	42	45	35	37.5	20.3	23.0	770	2310	4.1	17	9.1	35	1.2	FDU2QK226K464KD5
900	25	42	50	35	37.5	20.3	24.1	875	2625	4.1	17	8.3	35	1.2	FDU2QK256K474KD5
900	30	42	55	40	37.5	20.3	25.0	1050	3150	4.1	18	7.7	35	1.2	FDU2QK306K494KD5
900	35	42	55	40	37.5	20.3	27.0	1225	3675	3.6	18	7.7	35	1.2	FDU2QK356K494KD5
900	40	42	60	45	37.5	20.3	30.0	1400	4200	3.1	20	7.1	35	1.2	FDU2QK406K524KD5
900	25	57.5	45	25	52.5	10.2	16.2	500	1500	8.4	14	9.1	20	1.2	FDU2QK256M104MB5
900	30	57.5	45	30	52.5	20.3	18.9	600	1800	7.0	15	8.0	20	1.2	FDU2QK306M164MD5
900	35	57.5	45	30	52.5	20.3	20.4	700	2100	6.0	15	8.0	20	1.2	FDU2QK356M164MD5
900	40	57.5	50	35	52.5	20.3	23.5	800	2400	5.3	17	6.9	20	1.2	FDU2QK406M204MD5
900	45	57.5	60	35	52.5	20.3	26.5	900	2700	4.7	18	6.1	20	1.2	FDU2QK456M224MD5
900	50	57.5	60	35	52.5	20.3	28.0	1000	3000	4.2	18	6.1	20	1.2	FDU2QK506M224MD5
900	55	57.5	65	35	52.5	20.3	29.0	1100	3300	4.2	18	5.7	20	1.2	FDU2QK556M234MD5
900	57	57.5	55	45	52.5	20.3	30.4	1140	3420	4.0	19	5.4	20	1.2	FDU2QK576M324MD5
900	65	57.5	65	45	52.5	20.3	33.3	1300	3900	3.5	20	5.1	20	1.2	FDU2QK656M344MD5
900	70	57.5	65	45	52.5	20.3	33.7	1400	4200	3.4	20	5.1	20	1.2	FDU2QK706M344MD5

Rating and Part Number

Vdc	Cap Value	Dimensions					Irms max 75℃	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
	μF	W mm	H mm	T mm	P mm	P1 mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
V_{NDC} at 85℃=1100VDC; V_{OP105} at 105℃=858Vdc; V_{OP115} at 115℃=737Vdc; V_{OP125} at 125℃=616Vdc															
1100	1.0	32	20	11	27.5	\	4.5	65	195	27.3	14	35.7	65	0.8	FDU3MK105G182GL5
1100	1.2	32	20	11	27.5	\	4.5	78	234	27.3	14	35.7	65	0.8	FDU3MK125G182GL5
1100	1.5	32	22	13	27.5	\	5.2	98	293	21.9	15	33.3	65	0.8	FDU3MK155G212GL5
1100	2	32	24.5	13	27.5	\	6.2	130	390	16.4	16	31.3	65	0.8	FDU3MK205G222GL5
1100	2.2	32	28	14	27.5	\	7.0	143	429	14.9	17	27.8	65	0.8	FDU3MK225G262GL5
1100	3	32	30	16	27.5	\	8.3	195	585	10.9	18	26.3	65	0.8	FDU3MK305G322GL5
1100	3.3	32	28	18	27.5	\	9.2	215	644	9.9	19	23.8	65	0.8	FDU3MK335G332GL5
1100	4	32	33	18	27.5	\	10.6	260	780	8.2	21	21.7	65	0.8	FDU3MK405G342GL5
1100	5	32	37	22	27.5	\	13.3	325	975	6.6	23	17.2	65	0.8	FDU3MK505G402GL5
1100	4.5	42	29	17	37.5	\	7.8	158	473	16.9	12	19.2	35	1.0	FDU3MK455K182KL5
1100	5.5	42	32	19	37.5	\	9.0	193	578	13.8	13	17.9	35	1.0	FDU3MK555K212KL5
1100	8	42	40	20	37.5	10.2	12.3	280	840	9.5	14	13.9	35	1.2	FDU3MK805G402KB5
1100	10	42	37	28	37.5	10.2	14.7	350	1050	7.6	15	12.2	35	1.2	FDU3MK106K374KB5
1100	11	42	44	24	37.5	10.2	15.4	385	1155	6.9	15	12.2	35	1.2	FDU3MK116K324KB5
1100	12	42	43	28	37.5	10.2	16.4	420	1260	6.3	16	11.8	35	1.2	FDU3MK126K394KB5
1100	13	42	43	28	37.5	10.2	17.0	455	1365	5.8	16	11.8	35	1.2	FDU3MK206K374KB5
1100	14	42	45	30	37.5	20.3	19.2	490	1470	5.4	16	10.0	35	1.2	FDU3MK146K424KD5
1100	15	42	45	35	37.5	20.3	20.8	525	1575	5.1	17	9.1	35	1.2	FDU3MK156K464KD5
1100	16	42	45	35	37.5	20.3	21.5	560	1680	4.8	17	9.1	35	1.2	FDU3MK166K464KD5
1100	18	42	50	35	37.5	20.3	22.4	630	1890	4.8	17	8.3	35	1.2	FDU3MK186K474KD5
1100	22	42	55	40	37.5	20.3	25.7	770	2310	3.9	18	7.7	35	1.2	FDU3MK226K494KD5
1100	23	42	55	40	37.5	20.3	26.3	805	2415	3.8	18	7.7	35	1.2	FDU3MK236K494KD5
1100	30	42	60	45	37.5	20.3	31.2	1050	3150	2.9	20	7.1	35	1.2	FDU3MK306K524KD5
1100	15	57.5	45	25	52.5	10.2	13.7	300	900	11.7	14	9.1	20	1.2	FDU3MK156M104MB5
1100	20	57.5	45	30	52.5	20.3	16.9	400	1200	8.8	15	8.0	20	1.2	FDU3MK206M164MD5
1100	25	57.5	50	35	52.5	20.3	20.3	500	1500	7.0	17	6.9	20	1.2	FDU3MK256M204MD5
1100	33	57.5	60	35	52.5	20.3	24.9	660	1980	5.3	18	6.1	20	1.2	FDU3MK336M224MD5
1100	38	57.5	65	35	52.5	20.3	26.4	760	2280	5.0	18	5.7	20	1.2	FDU3MK386M234MD5
1100	40	57.5	55	45	52.5	20.3	27.9	800	2400	4.8	19	5.4	20	1.2	FDU3MK406M324MD5
1100	45	57.5	65	45	52.5	20.3	30.3	900	2700	4.2	20	5.1	20	1.2	FDU3MK456M344MD5

FDU series

General Technical Data

Applications	DC Link / DC Filtering
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 61071/EN 61071/AEC-Q200
Climatic Category	55/105/56 IEC 60068-1
Operating Temperature Range	−55°C ~ +125°C (85°C ~125°C, decreasing factor 1.1% per °C for Rated Voltage)
Protection	Solvent resistant plastic case UL94 V-0 Thermosetting resin sealing UL 94 V-0 compliant
Installation	Any position
Packaging	Packed in cardboard boxes with protection for the terminals
Storage Conditions	Storage time: ≤24months from the date marked on the label package Average relative humidity per year ≤70% RH≤85% for 30 days randomly distributed throughout the year Dew is absent Temperature: -40°C ~ +85°C
Storage Life	Product that passed less than 2 years from production, No need reconfirmation
RoHS Compliance	Compliant with the restricted substance requirement of Directive 2011/65/EU
Flame Retardant Grade	Flame retardant performance accords with horizontal combustion grade HB and vertical combustion grade V-0.
Application note and limiting conditions	These capacitors are designed only for DC voltage so should not be used for AC line. The continuous peak voltage shall not exceed the rated DC voltage rating

Construction

Metallized Film	OPP & Al/Zn	
Metal Sprayed	Sn/Zn Alloy	
Connection Electrode	Tinned copper wires	
Case	Plastic Case (UL94V-0)	
Filling	Epoxy Resin (UL94V-0)	
Film Construction	Mono Structure	

Electrical Characteristics

Voltage Range	450Vdc ~ 1100Vdc
Capacitance Range	1.0μF ~ 220μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	1.5 x V_R VDC for 10 seconds (between terminations) @ +25°C ±5°C
Voltage Between Terminals and Case U_{TC}	3000V_{AC}, 50/60Hz 60s （at +25 +/-5°C）
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}
Dissipation Factor	≤0.002 (0.2%) at 1KHz; C ≤20μF at 25°C ≤0.003 (0.3%) at 1KHz; C >20μF at 25°C ≤0.004 (0.4%) at 1KHz; C >80μF at 25°C
Insulation Resistance	RC between leads, IR xC≥30,000 s at 100vdc 1minute at +25°C
Self-Inductance	<1nH per mm of lead spacing
Capacitance Drop at end of life	−5% (Typical)
Failure Rate	≤100 Fit V_{NDC} at hot spot temperature (T_{HS}) = 85°C
Max. Altitude	4000m
Overvoltage Apply 110% of rated voltage Apply 115% of rated voltage Apply 120% of rated voltage Apply 130% of rated voltage	**Maximum duration within one day** 30% of on-load duration 30 mins 5 mins 1 min

Operative Voltage Derating	Symbol	Voltage (VDC)				
Rated Voltage at 85°C (T_{HS})	V_{NDC}	450	600	700	900	1100
Rated Voltage at 105°C (T_{HS})	V_{OP105}	351	468	546	702	858
Rated Voltage at 115°C (T_{HS})	V_{OP115}	301	402	469	603	737
Rated Voltage at 125°C (T_{HS})	V_{OP125}	252	336	392	504	616

Life Expectancy	Symbol	Life
Rated Voltage at 85°C (T_{HS})	V_{NDC}	100,000hours
Rated Voltage at 105°C (T_{HS})	V_{OP105}	20,000hours
Rated Voltage at 115°C (T_{HS})	V_{OP115}	5,000hours
Rated Voltage at 125°C (T_{HS})	V_{OP125}	4,000hours

T_{HS} = Highest hot spot temperature; V_{OP} = Maximum operating Voltage

FDU series

Environmental Test

Biased Humidity Test	**Test Condition:** Test Temperature: +85 +/-2°C Test Humidity: 85% R.H. Loading Voltage: rated voltage Test Duration: 2000 +24/-0 hours After test, allow it stay alone 4 hours at standard temperature and humidity before making measurements. **Performance:** Capacitance Change Rate (△C/C): ≤±10% Maximum permissible increase of tan δ between initial and final measurement: DF change(△tgδ): ≤150*10⁻⁴ at 1 KHz Insulation Resistance: ≥50% of initial limit
Operational Life	**Test Conditions:** Testing method per IEC 61071 Reference: MIL-STD-202 Method 108 Test Temperature: +85 +/-2°C Apply 130% of rated voltage for 1,000 +24/-0 hours Duration: 500 hours 1000 charges and discharges At 1.4 x I peak (maximum respective peak current in continuous operation) measurement at 24±4 hours after test conclusion **Performance:** Capacitance Change Rate (△C/C): ≤±5% DF change(△tgδ): ≤50*10⁻⁴ at 1 KHz Insulation Resistance: ≥50% of initial limit
Temperature Cycle	**Test Conditions:** Reference: JESD22 Method JA-104 Test Temperature Cycle: Total 1000 cycles High Temperature: +105+/-5°C Low Temperature: -40 +/-5°C 30 min +/- 10% for each temperature. 1 min maximum transition time. measurement at 24±4 hours after test conclusion **Performance:** Capacitance Change Rate (△C/C): ≤±5% DF change(△tgδ): ≤50*10⁻⁴ at 1 KHz Insulation Resistance: ≥50% of initial limit
High Temperature Exposure (storage)	**Test Conditions:** Reference: MIL-STD-202 Method 108 Test Temperature: +105+/-2°C Test Duration: 1000 +24/-0 hours measurement at 24±4 hours after test conclusion **Performance:** Capacitance Change Rate (△C/C): ≤±3% DF change(△tgδ): ≤50*10⁻⁴ at 1 KHz Insulation Resistance: ≥50% of initial limit

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

Environmental Test

Moisture Resistance	**Test Conditions:** Reference: MIL-STD-202 Method 106 Test Temperature: +40+/-2°C Test Humidity: 90% to 95% R.H. Test Duration: 1344 +24/-0 hours Unpowered measurement at 24±4hours after test conclusion **Performance:** Capacitance Change Rate (△C/C): ≤±5% DF change (△tgδ): ≤50*10⁻⁴ at 1 KHz. Insulation Resistance: ≥50% of initial limit
Solderability	**Test Conditions:** Reference: J-STD-002 Soldering temperature: +245 +/-5°C Immersion duration: 2 +/-0.5 seconds **Performance:** More than 95% of circumferential surface of lead wire shall be covered with new solder.
Soldering Heat Resistance	**Test Conditions:** Reference: MIL-STD-202 Method 210 Flow Soldering: Preheat temperature 100°C~120°C Preheat Duration: 100 seconds maximum Soldering Temperature: +260 +/-5°C Immersion Duration: ≤10 seconds Immersion Depth: 1.5 +/- 0.5 mm from roots. Iron Soldering: Soldering Temperature: +400°C Immersion Duration: ≤3 seconds After test, allow it stay alone for 1.5 +/- 0.5 hours at standard temperature and humidity before making measurements. **Performance:** Capacitance Change Rate (△C/C): ≤±0.5% DF change (△tgδ): ≤50*10⁻⁴ at 1 KHz. Insulation Resistance: ≥50% of initial limit
Temperature Humidity Cycle	**Test Conditions:** Reference: MIL-STD-202 Method 106 Test Temperature Cycle: Total 10 cycles Each cycle includes: 1. +25 +/-2°C to 65 +/-3°C for 2.5 hours 2. +65 +/-3°C for 3 hours 3. +65 +/-3°C to +25 +/-2°C for 2.5 hours 4. +25 +/-3°C to +65 +/-2°C for 2.5 hours 5. +65 +/-3°C for 3 hours 6. +65 +/-3°C to +25 +/-2°C for 2.5 hours 7. +25 +/-2°C for 8 hours Test Humidity: 90% to 95% R.H. **Performance:** Capacitance Change Rate (△C/C): ≤±5% DF change (△tgδ): ≤50*10⁻⁴ at 1 KHz. Insulation Resistance: ≥50% of initial limit

FDU series

Mechanical Test

Resistance to Solvent	**Test Conditions:** Reference: MIL-STD-202 Method 215 Solvent: propanol (isopropyl alcohol) Temperature: 23±5°C Immersion time: 5 ±0.5min Drying time: 5 mins Mechanical treatment: 10 rubbing (with cotton-wool) **Performance:** Capacitance Change Rate (△C/C): ≤±1% DF change(△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Terminal Strength	**Test Conditions:** Reference: MIL-STD-202 Method 211 Tension: 0.50 < D ≤0.80, 10N 0.80 < D ≤1.25, 20N Bending test: Bending force: 0.50 < D ≤0.80, 5N 0.80 < D ≤1.25, 10N Make two successive bends in each direction **Performance:** No visible damage to appearance
Vibration Resistance	**Test Conditions:** Reference: MIL-STD-202 Method 204 5g force 20 minutes, three directions, 12 cycles in each direction. Test Frequency 10~2000 Hz **Performance:** Connection Strength: Shall be no open nor short-circuiting. The connection shall be stable Capacitance Change Rate (△C/C): ≤±1% DF change (△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Mechanical Shock	**Test Conditions:** Reference: MIL-STD-202 Method 213 Pulse-shape: half-sine wave Acceleration: 500 m/s2 Duration of pulse: 11 ms **Performance:** Capacitance Change Rate (△C/C): ≤±1% DF change (△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Bump	**Test Conditions:** Reference: MIL-STD-202 Method 213 Total number of bumps: 1 000 times or 4 000 times Acceleration: 400 m/s2 Pulse duration: 6 ms **Performance:** Capacitance Change Rate (△C/C): ≤±1% DF change (△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit

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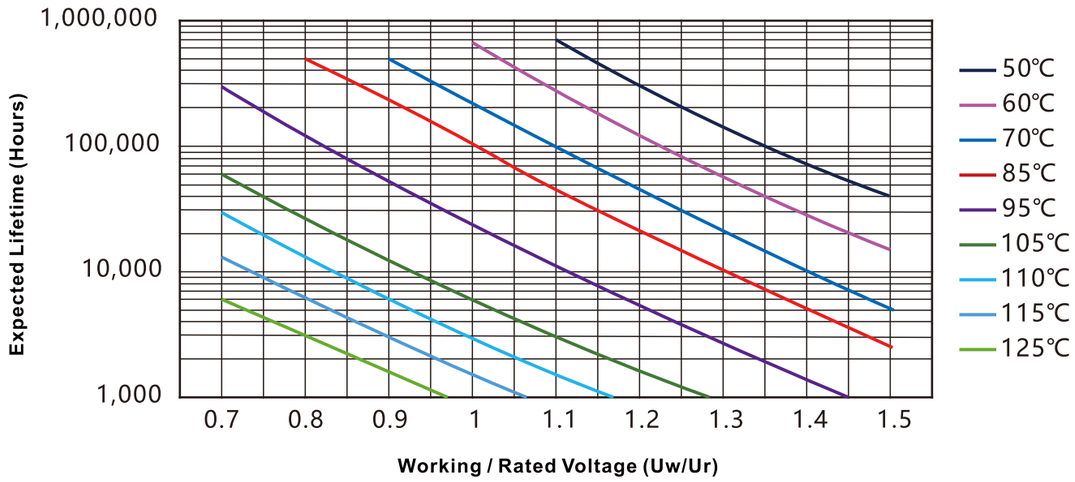
Electrical Test

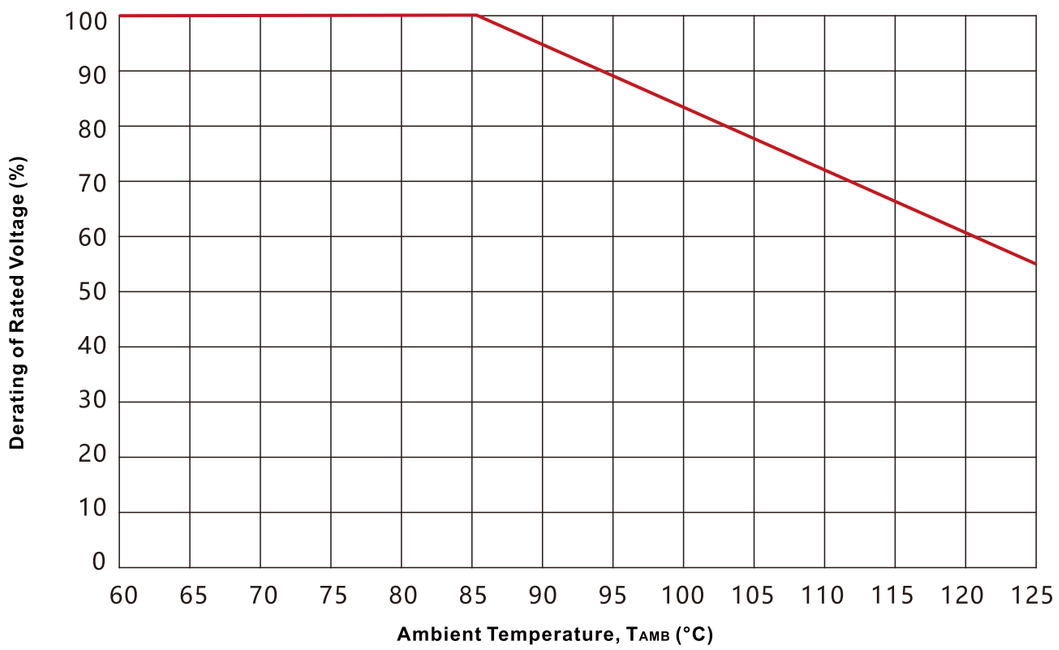
Self-Healing Test	**Test Conditions:** Apply 150% of rated voltage Duration: 10 seconds Number of clearings ≤5 Clearing = voltage drop of 5 % increase the voltage at 100 V/s till 5 clearings occur with a maximum of 2.5 x UNDC for a duration of 10 seconds **Performance:** Capacitance Change Rate (△C/C): ≤±2% DF change(△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Surge Discharge Test	**Test Conditions:** Five charges and discharges in ten minutes. Test voltage: 1.1 Un Test current: 1.1 times the maximum impulse current. The interelectrode withstand voltage was tested within five minutes after the test. **Performance:** Capacitance Change Rate (△C/C): ≤±1.0% DF change(△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Thermal Stability Test	**Test Conditions:** Temperature: Ambient temperature Test current: 1.1Irms Test frequency: 10Khz Test time: 48 hours During the last 6 hours, the temperature of the case near the top shall be measured per 1.5h. **Performance:** Throughout the last 6 hours, the temperature rise of the case near the top shall not increase by more than 1°C Capacitance Change Rate (△C/C): ≤±2.0% DF change(△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Hight Temperature Features	**Test Conditions:** Test Temperature: 105+/-2°C Test Duration:16 +1/-0 hours **Performance:** Capacitance Change Rate (△C/C): -0%~-5% DF change (△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit
Low Temperature Features	**Test Conditions:** Test Temperature: -40+/-2°C Test Duration:2 +1/-0 hours **Performance:** Capacitance Change Rate (△C/C): +0%~+5% DF change (△tgδ): ≤50*10^{-4} at 1 KHz. Insulation Resistance: ≥50% of initial limit

FDU series

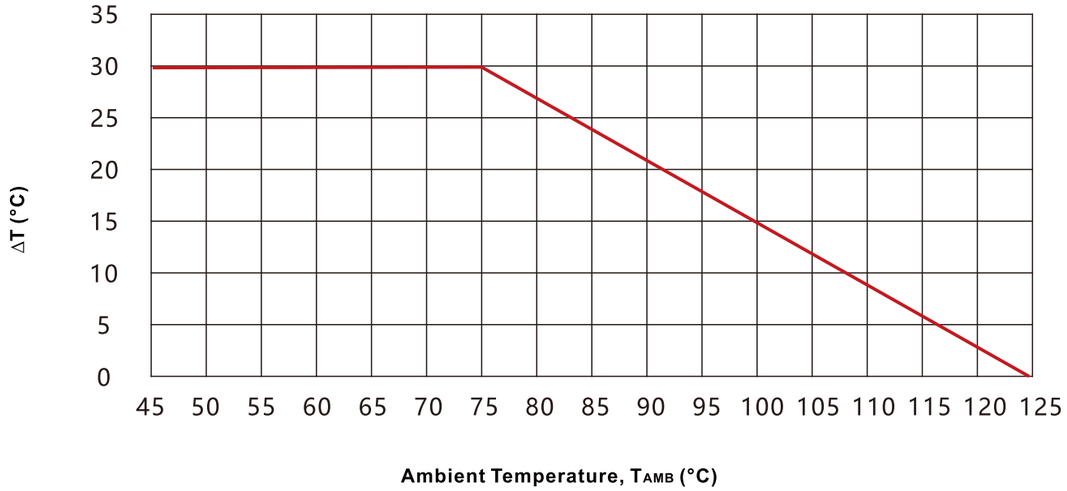
Expected Life Curve at Hot Spot Temperature (T_{HS})



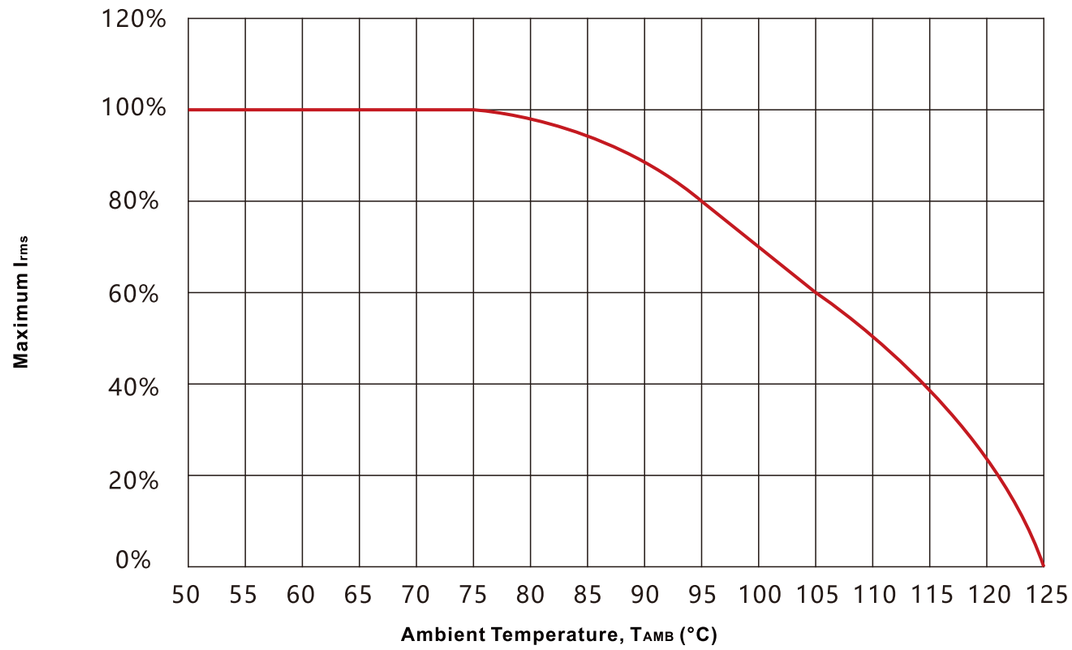
Derating of Rated Voltage Vs Ambient Temperature (T_{AMB})



Maximum Over-Temperature (ΔT) Vs Ambient Temperature (T_{AMB})



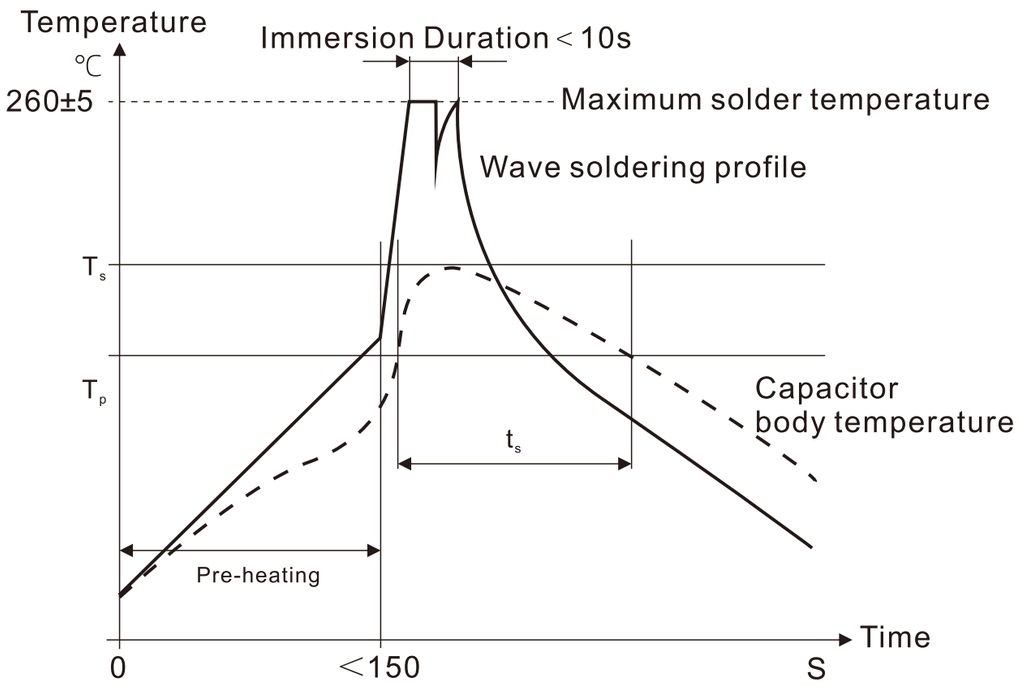
Maximum I_{rms} VS Ambient Temperature (T_{AMB})



V_{OP} = Maximum operating Voltage
T_{HS} = Highest hot spot temperature in the capacitor
T_{AMB} = Highest ambient temperature surrounding the capacitor

FDU series

Wave Soldering Recommendations

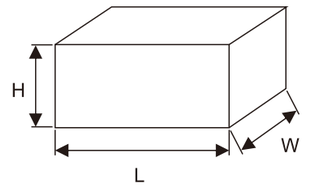


Ts: Capacitor body maximum temperature at wave soldering
Tp: Capacitor body maximum temperature at pre-heating

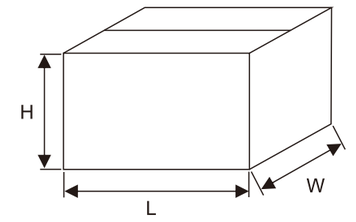
Polypropylene Capacitors	Polyester Capacitors
During pre-heating: Tp≤110°C During soldering: Ts ≤120°C, ts≤60	During pre-heating: Tp≤130°C During soldering: Ts≤160°C, ts≤60s

Packaging Information

Inner Box Specifications (Dimensions)			
Box#	L ±3mm	W ±3mm	H ±3mm
#1	331	331	25
#2	331	331	35
#3	331	331	50
#4	331	331	80
#5	350	170	35
#6	350	170	50
#7	350	170	80



Outer Box Specifications (Dimensions)			
Box#	L ±5mm	W ±5mm	H ±5mm
#1	350	340	265
#2	370	360	350



Packaging Quantity

Pitch	Size	Dimension			Packaging Quantity	
	Code	W	H	T	Long Leads	Short Leads
27.5	G15	32	18	9	340	340
	G18	32	20	11	280	280
	G21	32	22	13	230	230
	G22	32	24.5	13	230	230
	G25	32	24	14	220	220
	G26	32	28	14	220	220
	G27	32	24.5	15	200	200
	G32	32	30	16	190	190
	G33	32	28	18	170	170
	G34	32	33	18	170	170
	G40	32	37	22	140	140

FDU series

Packaging Quantity

Pitch	Size	Dimension			Packaging Quantity	
	Code	W	H	T	Long Leads	Short Leads
37.5	K17	42	28	17	126	126
	K18	42	29	17	126	126
	K21	42	32	19	112	112
	K24	42	40	20	105	105
	K27	42	37	22	98	98
	K32	42	44	24	91	91
	K37	42	37	28	77	77
	K39	42	43	28	77	77
	K42	42	45	30	70	70
	K46	42	45	35	63	63
	K47	42	50	35	63	63
	K49	42	55	40	49	49
	K52	42	60	45	49	49
52.5	M10	57.5	45	25	60	60
	M16	57.5	45	30	50	50
	M20	57.5	50	35	45	45
	M22	57.5	60	35	45	45
	M23	57.5	65	35	45	45
	M32	57.5	55	45	35	35
	M34	57.5	65	45	35	35

Cautions and Warnings

- Don't exceed the upper category temperature.
- For longtime storage, maximum relative humidity 80%, no dew allowed on the capacitor.
- Do not use or store capacitor in corrosive atmosphere, in the dusty environment's regular maintenance and cleaning especially of the terminals is required to avoid conductive path between terminal / or terminal and ground.
- Don't apply any mechanical stress to the capacitor terminals, and avoid any compressive, tensile or flexural stress.
- Don't move the capacitor after fixed to the PC board, and don't pick up the PC bord by the fixed capacitor.
- Don't place the capacitor on a PC board whose holes pacse differs from the specified space.
- Avoid overload of the capacitors
- Do not have unlimited service life expectancy, the max service life expectancy may vary depending on the application the capacitor is used in.

Disclaimer

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FDE series

Overview

The FDE capacitor is constructed of segmented metallized polypropylene film in customized PPS case, specially treated to have a very high dielectric strength in operating conditions up to 105°C.

Applications

Specially design for DC filtering and DC-Link circuits for EV/HEV.

Features

- Low ESR
- Low ESL
- Self-healing technology
- High ripple current
- UL 94 V-0 PPS Plastic Case
- Automotive Grade (AEC-Q200D)
- THB Grade IIIB

Qualification

Reference Standard	IEC 61071, AEC-Q200D	RoHS · REACH · AUTOMOTIVE GRADE Available
Climate Category	40/105/56 IEC 60068-1	

General Technical Data

Application	DC Link / DC Filtering
Dielectric	Segmented Metallized Polypropylene Film
Reference Standard	IEC 61071 / AEC-Q200D
Climatic Category	40/105/56 IEC 60068-1
Rated Temperature T_R	+85°C
Operating Temperature Range	-40°C ~ +105°C (85°C ~105°C, decreasing factor 1.25% per °C for Rated Voltage)
Storage Temperature	-40°C ~ +105°C
Storage Conditions	Storage time: ≤24 months from the date marked on the label package. Temperature and relative humidity should be -10°C ~ +40°C and not more than 75%RH. RH ≤85% for 30 days randomly distributed throughout the year.
Storage Life	Product that passed less than 2 years from production, No need reconfirmation
RoHS Compliance	Compliant with the restricted substance requirement of Directive 2011/65/EU

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

Electrical Characteristics

Voltage Range	450Vdc ~ 900Vdc
Capacitance Range	300μF ~ 1000μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 100 Hz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Visual examination, Marking (Non-Destructive)	Appearance:no remarkable abnormality
Voltage Between Terminals U_{TT}	1.5 Un / 10s (25±5°C)
Voltage Between Terminals and Case U_{TC}	3000V_{AC} 50/60Hz 10 s
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}
Dissipation Factor	0.0010 (20°C， 100Hz)
Insulation Resistance	⩾10 000 s (25°C, 500V, 1min)
Hot-Spot	⩽105°C
Life Expectancy	⩾100,000 hours at rated voltage and Hot-Spot Temperature T=+70°C
Failure Rate	⩽50FIT
Degree of protection	IP00 rating
Overvoltage	**Maximum duration within one day**
Apply 110% of rated voltage	30% of on-load duration
Apply 115% of rated voltage	30 mins
Apply 120% of rated voltage	5 mins
Apply 130% of rated voltage	1 min
Apply 150% of rated voltage	30 ms every time, 100 ms/day

Part Number System

F	DE	2H	K	507	X51	RNS	E
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	DC Link, Customized PPS Plastic Case, Metallized Segmented PP Film	450=2W 500=2H 550=2J 600=2K 700=2M 800=2N 900=2Q	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Customized Case Code Table	Refer to Terminal Code Table	Internal Code

FDE series

Customized Case Code Table

Drawing Code 1	Drawing Code 2	Drawing Code 3
A~Z	0~9	0~9

Terminal Code

Digit One (Terminal Type)		Digit Two (Terminal Space)		Digit Three (No. of Terminal)	
EV Terminal	R	N/A	N	2	Q
				4	R
				6	S
				8	T
				10	U
				12	V
				14	W
				16	X

Terminal Configuration

Fig. 2a

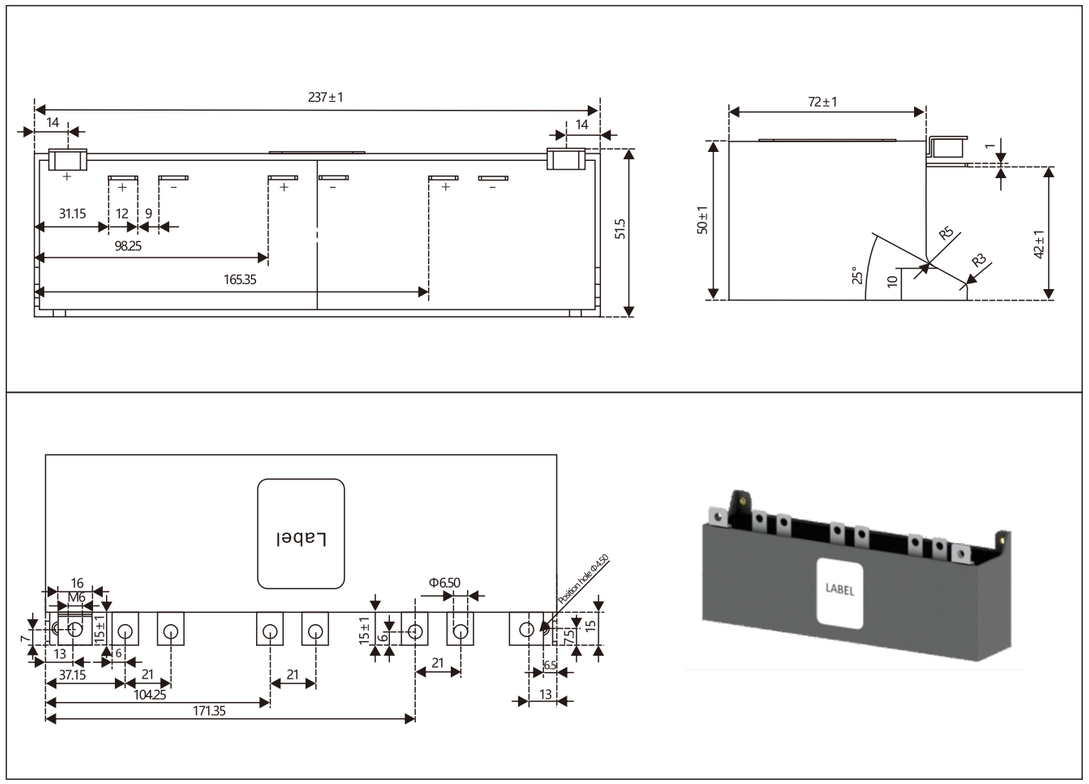
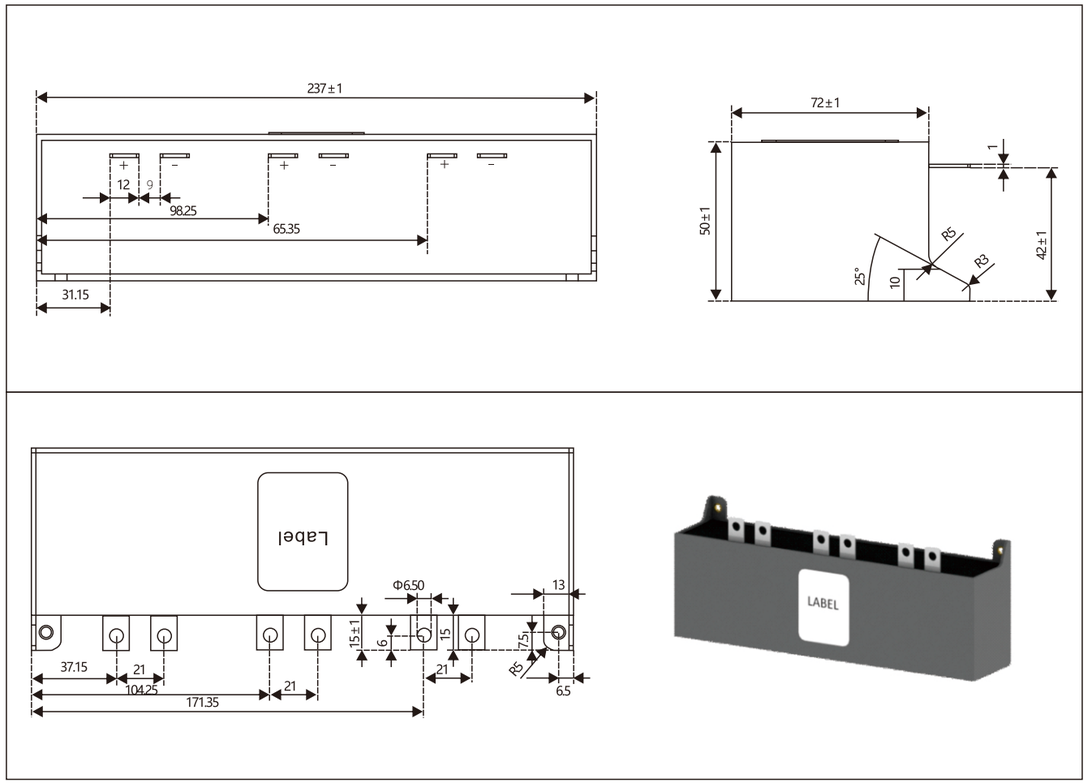


Fig. 2b



Rating and Part Number

Vndc V	Cn μF	Imax A	Lself nH	Rs mΩ	Ipk kA	Is kA	DF max 100Hz	Dimension LxHxW mm	Weight kg	Fig-	Ordering Code
450	500	120	15	1.0	1.5	4.5	$10*10^{-4}$	237*72*50	1.2	2a	FDE2WK507X14RNTN
450	500	170	15	0.7	1.8	5.5	$10*10^{-4}$	237*72*50	1.2	2b	FDE2WK507X14RNSN
450	700	170	15	0.7	2.8	8.4	$10*10^{-4}$	237*72*50	1.2	2a	FDE2WK707X14RNTN
450	700	170	15	0.7	2.8	8.4	$10*10^{-4}$	237*72*50	1.2	2b	FDE2WK707X14RNSN
450	900	170	15	0.7	3.3	9.9	$10*10^{-4}$	237*72*50	1.2	2a	FDE2WK907X14RNTN
450	900	170	15	0.7	3.3	9.9	$10*10^{-4}$	237*72*50	1.2	2b	FDE2WK907X14RNSN

FDE series

Terminal Configuration

Fig. 3a

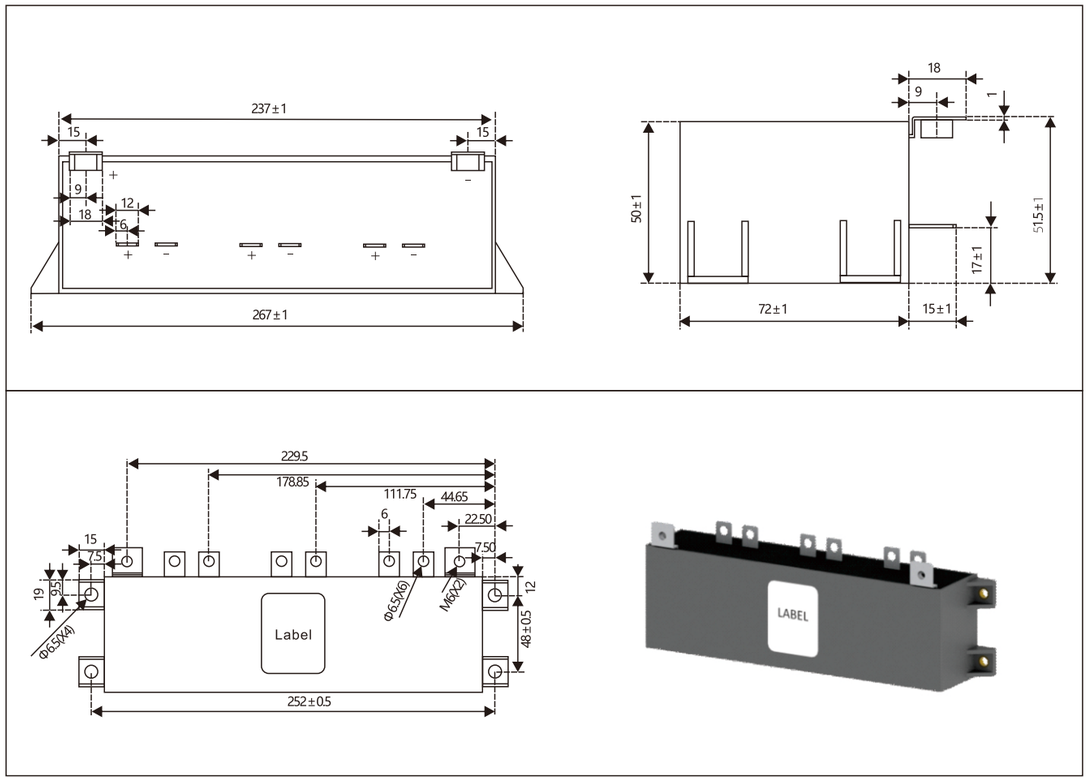
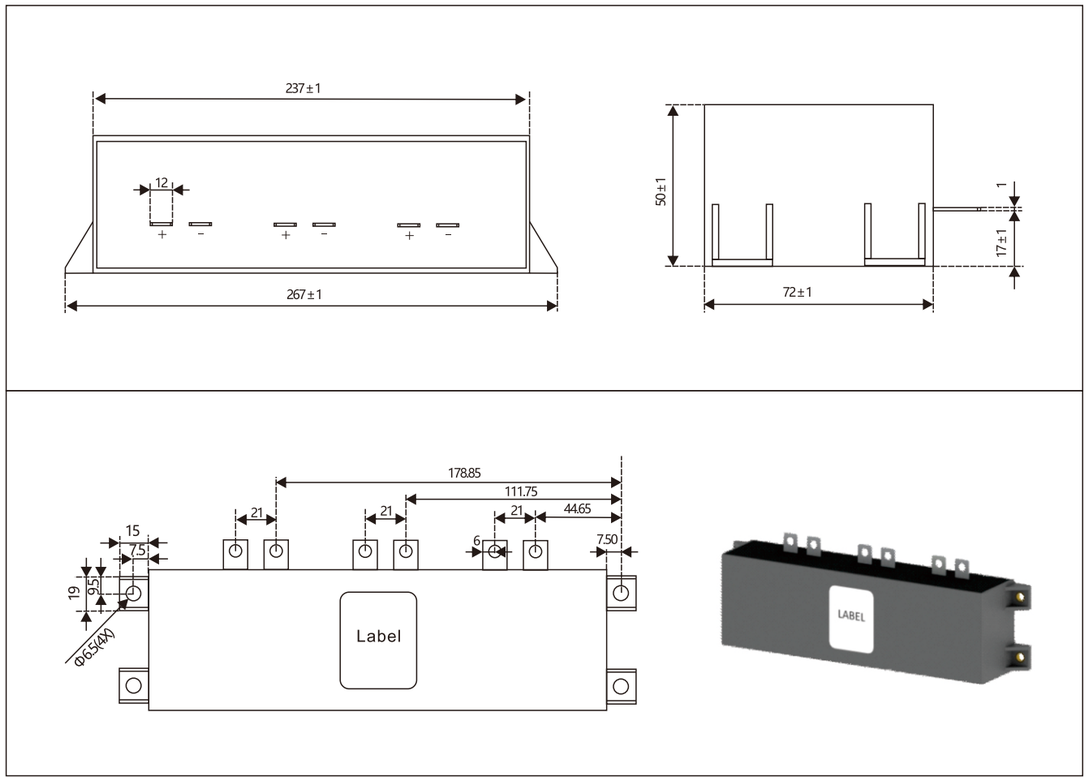


Fig. 3b



Rating and Part Number

Vndc V	Cn µF	Imax A	Lself nH	Rs mΩ	Ipk kA	Is kA	DF max 100Hz	Dimension LxHxW mm	Weight kg	Fig-	Ordering Code
450	500	170	15	0.7	1.8	5.5	$10*10^{-4}$	237*72*50	1.2	3a	FDE2WK507X15RNTN
450	500	170	15	0.7	1.8	5.5	$10*10^{-4}$	237*72*50	1.2	3b	FDE2WK507X15RNSN
450	700	190	15	0.5	2.5	7.5	$10*10^{-4}$	237*72*50	1.2	3a	FDE2WK707X15RNTN
450	700	170	15	0.7	2.8	8.4	$10*10^{-4}$	237*72*50	1.2	3b	FDE2WK707X15RNSN
450	900	190	15	0.5	3.0	9.0	$10*10^{-4}$	237*72*50	1.2	3a	FDE2WK907X15RNTN
450	900	170	15	0.7	3.3	9.9	$10*10^{-4}$	237*72*50	1.2	3b	FDE2WK907X15RNSN

FAQ series

Overview

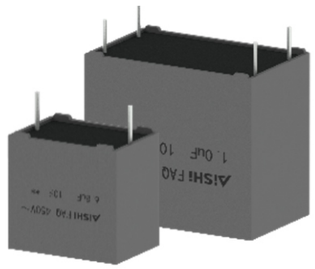
The FAQ series is constructed of metallized polypropylene film encapsulated with epoxy resin in a plastic box, with 2 or 4 tinned copper wire. These FAQ series is suitable for harsh environment condition and qualify in accordance to AEC-Q200 requirement.

Features

- High ripple current
- Self-healing and low loss
- Operating temperature range: -55°C to 105°C
- Optimized AC voltage performance
- Suitable for high frequency applications
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{RAC}
- Automotive Grade (AEC-Q200)

Applications

Suitable for used in Clamping, AC and Harmonic Filtering, UPS Systems, Solar Inverter with LCL Filter, Motor Drive and automotive applications.



Qualification

Reference Standard	IEC 61071, EN 61071, AEC-Q200
Climate Category	55/105/56 IEC 60068-1

RoHS COMPLIANT COMPLIANT REACH AUTOMOTIVE GRADE Available

General Technical Data

Application	AC Filtering
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 61071/EN 61071/AEC-Q200D
Climatic Category	55/105/56 IEC 60068-1
Operating Temperature Range	−55°C ~ +105°C (85°C ~105°C, decreasing factor 1.35% per °C for Rated Voltage)

Electrical Characteristics

Voltage Range	180Vdc ~ 760Vdc
Capacitance Range	0.1μF ~ 60μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	1.5 x V_R V_{AC} for 10 seconds (between terminations) @ +25°C ±5°C
Voltage Between Terminals and Case U_{TC}	3000V_{AC}, 50/60Hz 60s（at +25 +/-5°C)
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}
Dissipation Factor	≤0.002 (0.2%) at 1KHz; C ≤20μF at 25°C ≤0.003 (0.3%) at 1KHz; C >20μF at 25°C
Insulation Resistance	RC between leads, IR xC≥30,000 s at 100vdc 1minute at +25°C
Self-Inductance	<1nH per mm of lead spacing
Hot-Spot	≤85°C
Life Expectancy	100,000 hours (UR， Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	4000m
Overvoltage Apply 110% of rated voltage Apply 115% of rated voltage Apply 120% of rated voltage Apply 130% of rated voltage	**Maximum duration within one day** 30% of on-load duration 30 mins 5 mins 1 min

FAQ series

Part Number System

F	AQ	76	K	205	K42	2KL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	AC Filtering AEC-Q200 Metallized PP Film	180=18 250=25 300=30 350=35 400=40 450=45 500=50 600=60 760=76	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

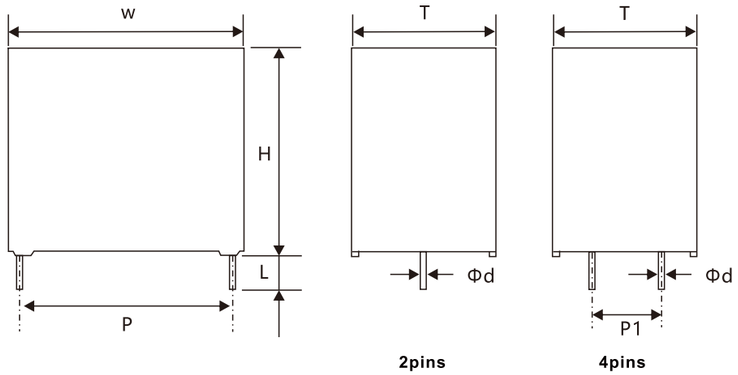
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	27.5mm	G	10.2mm	B
2 leads for straight cut	2	37.5mm	K	12.7mm	G
2 leads for forming cut	E	52.5mm	M	20.3mm	D
4 leads for straight cut	4	N/A	N	N/A	L

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
20.0mm min	L

Dimension (mm)



Size Code Table (mm)

Size	Dimension						Pitch				Φd		
Code	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	P1	Tolerance	4 Leads	2 Leads	Tolerance
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	\	\	\	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	\	\	\	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05
G25	32	0.8	24	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05
G27	32	0.8	24.5	0.8	15	0.8	27.5	0.5	\	\	\	0.8	0.05
G33	32	0.8	28	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	\	\	\	0.8	0.05
K14	42	1.0	30	1.0	16	1.0	37.5	0.5	\	\	\	1.0	0.05
k21	42	1.0	32	1.0	19	1.0	37.5	0.5	\	\	\	1.0	0.05
K27	42	1.0	37	1.0	22	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K32	42	1.0	44	1.0	24	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K39	42	1.0	43	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	1.0	0.05
K42	42	1.0	45	1.0	30	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
K47	42	1.0	50	1.0	35	1.0	37.5	0.5	20.3	0.5	1.2	1.0	0.05
M16	57.5	1.0	45	1.0	30	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M20	57.5	1.0	50	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M32	57.5	1.0	55	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M34	57.5	1.0	65	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05
M47	57.5	1.0	57.5	1.0	38	1.0	52.5	0.5	20.3	0.5	1.2	1.2	0.05

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70°C)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
180	4.0	32	22	13	27.5	\	7.0	300	900	6.8	16	45.0	75	0.8	FAQ18K405G212GL5
180	5.0	32	28	18	27.5	\	8.0	375	1125	5.5	18	42.6	75	0.8	FAQ18K505G332GL5
180	6.8	32	33	18	27.5	\	11.0	510	1530	4.0	20	31.0	75	0.8	FAQ18K685G342GL5
180	10	32	37	22	27.5	\	13.0	750	2250	2.8	22	31.7	75	1.0	FAQ18K106G402GL5
180	10	42	32	19	37.5	\	10.0	450	1350	5.0	24	30.0	45	1.0	FAQ18K106K212KL5
180	15	42	37	22	37.5	\	14.0	675	2025	3.5	24	21.9	45	1.0	FAQ18K156K274KL5
180	18	42	44	24	37.5	\	14.0	810	2430	2.8	24	27.3	45	1.0	FAQ18K186K324KL5
180	20	42	44	24	37.5	\	15.0	900	2700	2.5	24	26.7	45	1.0	FAQ18K206K322KL5
180	22	42	44	24	37.5	\	15.0	990	2970	2.2	26	30.3	45	1.0	FAQ18K226K322KL5
180	25	42	45	30	37.5	\	15.0	1125	3375	2.0	26	33.3	45	1.0	FAQ18K256K422KL5
180	30	42	50	35	37.5	20.3	18.0	1350	4050	1.8	28	25.7	45	1.2	FAQ18K306K472KL5
180	33	42	50	35	37.5	20.3	18.0	1485	4455	1.6	28	28.9	45	1.2	FAQ18K336K472KL5
180	40	57.5	45	30	52.5	20.3	20.0	1000	3000	2.5	30	15.0	25	1.2	FAQ18K406M164MD5
180	50	57.5	50	35	52.5	20.3	24.0	1250	3750	2.2	32	11.8	25	1.2	FAQ18K506M204MD5
180	60	57.5	57.5	38	52.5	20.3	26.0	1500	4500	1.8	32	12.3	25	1.2	FAQ18K606M474MD5

FAQ series

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70°C)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
250	1.0	32	18	9	27.5	\	3.0	90	270	16.5	16	101.0	90	0.8	FAQ25K405G212GL5
250	1.5	32	20	11	27.5	\	4.0	135	405	10.5	16	89.3	90	0.8	FAQ25K155G182GL5
250	2.0	32	22	13	27.5	\	5.0	180	540	8.5	16	70.6	90	0.8	FAQ25K205G212GL5
250	2.2	32	22	13	27.5	\	6.0	198	594	7.8	16	53.4	90	0.8	FAQ25K225G212GL5
250	2.5	32	22	13	27.5	\	6.0	225	675	7.5	16	55.6	90	0.8	FAQ25K255G212GL5
250	3.0	32	24.5	15	27.5	\	7.0	270	810	6.5	16	47.1	90	0.8	FAQ25K305G272GL5
250	3.3	32	24.5	15	27.5	\	8.0	297	891	6.2	16	37.8	90	0.8	FAQ25K335G272GL5
250	3.5	32	28	14	27.5	\	8.0	315	945	5.8	18	40.4	90	0.8	FAQ25K355G262GL5
250	4.0	32	28	18	27.5	\	10.0	360	1080	4.8	20	31.3	90	0.8	FAQ25K405G332GL5
250	4.5	32	33	18	27.5	\	10.0	405	1215	4.5	20	33.3	90	0.8	FAQ25K455G342GL5
250	5.0	32	33	18	27.5	\	11.0	450	1350	4.0	20	31.0	90	0.8	FAQ25K505G342GL5
250	6.8	32	37	22	27.5	\	14.0	612	1836	2.8	22	27.3	90	1.0	FAQ25K106G402GL5
250	4.7	42	30	16	37.5	\	7.0	282	846	7.5	24	40.8	60	1.0	FAQ25K475K142KL5
250	5.0	42	30	16	37.5	\	8.0	300	900	7.0	24	33.5	60	1.0	FAQ25K505K142KL5
250	6.0	42	30	16	37.5	\	9.0	360	1080	6.0	24	30.9	60	1.0	FAQ25K605K142KL5
250	6.5	42	30	16	37.5	\	10.0	390	1170	5.6	24	26.8	60	1.0	FAQ25K655K142KL5
250	6.8	42	32	19	37.5	\	10.5	408	1224	5.4	24	25.2	60	1.0	FAQ25K685K212KL5
250	7.5	42	32	19	37.5	\	11.0	450	1350	5.0	24	24.8	60	1.0	FAQ25K755K212KL5
250	8.0	42	37	22	37.5	\	12.0	480	1440	4.5	24	23.1	60	1.0	FAQ25K805K274KL5
250	10	42	37	22	37.5	\	13.0	600	1800	3.6	24	24.7	60	1.0	FAQ25K106K274KL5
250	12	42	44	24	37.5	\	14.0	720	2160	3.0	24	25.5	60	1.0	FAQ25K126K324KL5
250	15	42	44	24	37.5	\	14.0	900	2700	2.5	24	30.6	60	1.0	FAQ25K156K322KL5
250	18	42	43	28	37.5	\	15.0	1080	3240	2.2	26	30.3	60	1.0	FAQ25K186K392KL5
250	20	42	45	30	37.5	\	15.0	1200	3600	2.0	26	33.3	60	1.0	FAQ25K206K422KL5
250	22	42	50	35	37.5	20.3	18.0	1320	3960	1.8	28	25.7	60	1.2	FAQ25K226K474KD5
250	25	57.5	45	30	52.5	20.3	18.0	750	2250	3.2	30	14.5	30	1.2	FAQ25K256M164MD5
250	30	57.5	45	30	52.5	20.3	20.0	900	2700	2.8	30	13.4	30	1.2	FAQ25K306M164MD5
250	35	57.5	50	35	52.5	20.3	24.0	1050	3150	2.4	32	10.9	30	1.2	FAQ25K356M204MD5
250	40	57.5	57.5	38	52.5	20.3	26.0	1200	3600	2.0	32	11.1	30	1.2	FAQ25K406M474MD5

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70°C)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
300	1.0	32	20	11	27.5	\	4.0	90	270	12.5	16	75.0	90	0.8	FAQ30K105G182GL5
300	1.5	32	22	13	27.5	\	5.0	135	405	8.5	16	70.6	90	0.8	FAQ30K155G212GL5
300	2.0	32	24.5	15	27.5	\	6.0	180	540	7.5	16	55.6	90	0.8	FAQ30K205G272GL5
300	2.2	32	24.5	15	27.5	\	7.0	198	594	6.8	16	45.0	90	0.8	FAQ30K225G272GL5
300	2.5	32	28	14	27.5	\	8.0	225	675	6.5	18	36.1	90	0.8	FAQ30K255G262GL5
300	3.0	32	28	18	27.5	\	9.0	270	810	6.0	20	30.9	90	0.8	FAQ30K305G332GL5
300	3.3	32	33	18	27.5	\	10.0	297	891	4.8	20	31.3	90	0.8	FAQ30K335G342GL5
300	3.5	32	33	18	27.5	\	10.5	315	945	4.6	20	29.6	90	0.8	FAQ30K355G342GL5
300	4.0	32	33	18	27.5	\	11.0	360	1080	4.2	20	29.5	90	0.8	FAQ30K405G342GL5
300	4.7	32	37	22	27.5	\	13.0	423	1269	3.8	22	23.4	90	1.0	FAQ30K475G402GL5
300	5.0	32	37	22	27.5	\	13.5	450	1350	3.6	22	22.9	90	1.0	FAQ30K505G402GL5
300	5.6	32	37	22	27.5	\	14.0	504	1512	3.0	22	25.5	90	1.0	FAQ30K565G402GL5
300	3.0	42	30	16	37.5	\	6.0	180	540	9.0	24	46.3	60	1.0	FAQ30K305K142KL5
300	3.3	42	30	16	37.5	\	7.0	198	594	8.5	24	36.0	60	1.0	FAQ30K335K142KL5
300	3.5	42	30	16	37.5	\	7.0	210	630	8.0	24	38.3	60	1.0	FAQ30K335K142KL5
300	4.0	42	30	16	37.5	\	8.0	240	720	6.8	24	34.5	60	1.0	FAQ30K405K142KL5
300	4.5	42	30	16	37.5	\	9.0	270	810	6.0	24	30.9	60	1.0	FAQ30K455K142KL5
300	4.7	42	30	16	37.5	\	9.0	282	846	5.8	24	31.9	60	1.0	FAQ30K475K142KL5
300	5.0	42	32	19	37.5	\	10.0	300	900	5.5	24	27.3	60	1.0	FAQ30K505K212KL5
300	6.0	42	32	19	37.5	\	11.0	360	1080	5.0	24	24.8	60	1.0	FAQ30K605K212KL5
300	6.8	42	37	22	37.5	\	12.0	408	1224	4.5	24	23.1	60	1.0	FAQ30K685K274KL5
300	8.0	42	37	22	37.5	\	13.0	480	1440	3.6	24	24.7	60	1.0	FAQ30K805K274KL5
300	10	42	44	24	37.5	\	14.0	600	1800	3.0	24	25.5	60	1.0	FAQ30K106K324KL5
300	12	42	43	28	37.5	\	15.0	720	2160	2.4	26	27.8	60	1.0	FAQ30K126K392KL5
300	15	42	45	30	37.5	\	15.0	900	2700	2.2	26	30.3	60	1.0	FAQ30K156K422KL5
300	18	42	50	35	37.5	20.3	18.0	1080	3240	2.0	28	23.1	60	1.2	FAQ30K186K474KD5
300	18	57.5	45	30	52.5	20.3	16.0	540	1620	3.5	30	16.7	30	1.2	FAQ30K186M164MD5
300	20	57.5	45	30	52.5	20.3	18.0	600	1800	3.2	30	14.5	30	1.2	FAQ30K206M164MD5
300	25	57.5	50	35	52.5	20.3	20.0	750	2250	3.0	32	12.5	30	1.2	FAQ30K256M204MD5
300	30	57.5	57.5	38	52.5	20.3	24.0	900	2700	2.4	32	10.9	30	1.2	FAQ30K606M474MD5

FAQ series

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70℃)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
350	0.33	32	18	9	27.5	\	1.5	33	99	45.0	16	148.1	100	0.8	FAQ35K334G152GL5
350	0.39	32	18	9	27.5	\	1.6	39	117	40.0	16	146.5	100	0.8	FAQ35K394G152GL5
350	0.47	32	18	9	27.5	\	2.0	47	141	35.0	16	107.1	100	0.8	FAQ35K474G152GL5
350	0.68	32	20	11	27.5	\	2.5	68	204	24.0	16	100.0	100	0.8	FAQ35K684G182GL5
350	0.82	32	22	13	27.5	\	3.0	82	246	20.5	16	81.3	100	0.8	FAQ35K824G212GL5
350	1.0	32	22	13	27.5	\	3.2	100	300	15.5	16	94.5	100	0.8	FAQ35K105G212GL5
350	1.5	32	24.5	15	27.5	\	4.0	150	450	13.0	16	72.1	100	0.8	FAQ35K155G272GL5
350	2.0	32	28	18	27.5	\	4.8	200	600	10.8	18	60.3	100	0.8	FAQ35K205G332GL5
350	2.2	32	28	18	27.5	\	5.0	220	660	10.2	18	58.8	100	0.8	FAQ35K225G332GL5
350	2.5	32	33	18	27.5	\	6.0	250	750	8.0	20	59.5	100	0.8	FAQ35K255G342GL5
350	3.0	32	37	22	27.5	\	7.0	300	900	5.8	22	52.8	100	1.0	FAQ35K305G402GL5
350	3.3	32	37	22	27.5	\	7.5	330	990	5.2	22	51.3	100	1.0	FAQ35K335G402GL5
350	3.5	32	37	22	27.5	\	7.8	350	1050	5.0	22	49.3	100	1.0	FAQ35K355G402GL5
350	4.0	32	37	22	27.5	\	8.0	400	1200	4.5	22	52.1	100	1.0	FAQ35K405G402GL5
350	2.0	42	30	16	37.5	\	4.5	140	420	12.8	24	57.9	70	1.0	FAQ35K205K142KL5
350	2.2	42	30	16	37.5	\	4.8	154	462	12.5	24	52.1	70	1.0	FAQ35K225K142KL5
350	2.5	42	30	16	37.5	\	5.2	175	525	11.8	24	47.0	70	1.0	FAQ35K255K142KL5
350	3.0	42	30	16	37.5	\	5.5	210	630	10.8	24	45.9	70	1.0	FAQ35K305K142KL5
350	3.3	42	30	16	37.5	\	6.0	231	693	8.8	24	47.3	70	1.0	FAQ35K335K142KL5
350	3.5	42	30	16	37.5	\	6.5	245	735	8.6	24	41.3	70	1.0	FAQ35K355K142KL5
350	4.0	42	32	19	37.5	\	7.0	280	840	8.0	24	38.3	70	1.0	FAQ35K405K212KL5
350	4.5	42	37	22	37.5	\	8.0	315	945	7.0	24	33.5	70	1.0	FAQ35K455K274KL5
350	5.0	42	37	22	37.5	\	8.5	350	1050	6.8	24	30.5	70	1.0	FAQ35K805K274KL5
350	5.5	42	37	22	37.5	\	8.8	385	1155	6.4	24	30.3	70	1.0	FAQ35K888K274KL5
350	6.0	42	44	24	37.5	\	9.5	420	1260	6.0	24	27.7	70	1.0	FAQ35K605K324KL5
350	6.5	42	44	24	37.5	\	10.0	455	1365	5.5	24	27.3	70	1.0	FAQ35K655K324KL5
350	7.0	42	44	24	37.5	\	10.5	490	1470	5.2	24	26.2	70	1.0	FAQ35K705K324KL5
350	8.0	42	44	24	37.5	\	10.5	560	1680	5.2	24	26.2	70	1.0	FAQ35K805K324KL5
350	8.5	42	43	28	37.5	\	11.0	595	1785	4.8	26	25.8	70	1.0	FAQ35K855K392KL5
350	9.0	42	43	28	37.5	\	11.0	630	1890	4.6	26	26.9	70	1.0	FAQ35K905K392KL5
350	9.5	42	45	30	37.5	\	11.5	665	1995	4.4	26	25.8	70	1.0	FAQ35K955K422KL5
350	10	42	45	30	37.5	\	12.0	700	2100	4.2	26	24.8	70	1.0	FAQ35K106K422KL5
350	12	42	50	35	37.5	20.3	14.0	840	2520	3.6	28	21.3	70	1.2	FAQ35K126K474KD5
350	15	57.5	45	30	52.5	20.3	16.5	600	1800	3.5	30	15.7	40	1.2	FAQ35K156M164MD5
350	18	57.5	50	35	52.5	20.3	18.0	720	2160	3.0	32	15.4	40	1.2	FAQ35K186M204MD5
350	20	57.5	57.5	38	52.5	20.3	20.0	800	2400	2.8	32	13.4	40	1.2	FAQ35K206M474MD5
350	22	57.5	57. 5	38	52.5	20.3	22.0	880	2640	2.6	32	11.9	40	1.2	FAQ35K226M474MD5
350	25	57.5	55	45	52.5	20.3	24.0	1000	3000	2.4	32	10.9	40	1.2	FAQ35K256M324MD5
350	30	57.5	65	45	52.5	20.3	26.0	1200	3600	2.2	32	10.1	40	1.2	FAQ35K306M474MD5

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70℃)	Peak Current	Surge Current	$ESR_{Typical}$ 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
400	0.33	32	18	9	27.5	\	1.5	40	119	45.0	16	148.1	120	0.8	FAQ40K334G152GL5
400	0.39	32	18	9	27.5	\	1.6	47	140	40.0	16	146.5	120	0.8	FAQ40K394G152GL5
400	0.47	32	18	9	27.5	\	2.0	56	169	35.0	16	107.1	120	0.8	FAQ40K474G152GL5
400	0.68	32	20	11	27.5	\	2.5	82	245	24.0	16	100.0	120	0.8	FAQ40K684G182GL5
400	0.82	32	22	13	27.5	\	3.0	98	295	20.5	16	81.3	120	0.8	FAQ40K824G212GL5
400	1.0	32	24	14	27.5	\	3.2	120	360	15.5	16	94.5	120	0.8	FAQ40K105G252GL5
400	1.5	32	28	18	27.5	\	4.8	180	540	10.8	18	60.3	120	0.8	FAQ40K155G332GL5
400	2.0	32	33	18	27.5	\	6.0	240	720	7.0	20	59.5	120	0.8	FAQ40K205G342GL5
400	2.2	32	33	18	27.5	\	6.0	264	792	7.0	20	59.5	120	0.8	FAQ40K225G342GL5
400	2.5	32	37	22	27.5	\	7.0	300	900	5.8	22	52.8	120	1.0	FAQ40K255G402GL5
400	3.0	32	37	22	27.5	\	7.5	360	1080	5.2	22	51.3	120	1.0	FAQ40K305G402GL5
400	2.0	42	30	16	37.5	\	4.5	160	480	12.8	24	57.9	80	1.0	FAQ40K205K142KL5
400	2.2	42	30	16	37.5	\	4.8	176	528	12.5	24	52.1	80	1.0	FAQ40K225K142KL5
400	2.5	42	30	16	37.5	\	5.2	200	600	11.8	24	47.0	80	1.0	FAQ40K255K142KL5
400	3.0	42	32	19	37.5	\	6.0	240	720	8.8	24	47.3	80	1.0	FAQ40K305K212KL5
400	3.3	42	32	19	37.5	\	6.5	264	792	8.6	24	41.3	80	1.0	FAQ40K335K212KL5
400	3.5	42	37	22	37.5	\	7.0	280	840	8.0	24	38.3	80	1.0	FAQ40K355K274KL5
400	4.0	42	37	22	37.5	\	8.0	320	960	7.0	24	33.5	80	1.0	FAQ40K405K274KL5
400	4.5	42	37	22	37.5	\	8.5	360	1080	6.8	24	30.5	80	1.0	FAQ40K455K274KL5
400	5.0	42	44	24	37.5	\	9.5	400	1200	6.0	24	27.7	80	1.0	FAQ40K505K324KL5
400	5.5	42	44	24	37.5	\	10.0	440	1320	5.5	24	27.3	80	1.0	FAQ40K555K324KL5
400	6.0	42	43	28	37.5	\	10.5	480	1440	4.8	26	28.3	80	1.0	FAQ40K605K392KL5
400	6.5	42	43	28	37.5	\	10.5	520	1560	4.6	26	29.6	80	1.0	FAQ40K655K392KL5
400	7.0	42	43	28	37.5	\	11.0	560	1680	4.4	26	28.2	80	1.0	FAQ40K705K392KL5
400	7.5	42	45	30	37.5	\	11.0	600	1800	4.4	26	28.2	80	1.0	FAQ40K755K422KL5
400	8.0	42	45	30	37.5	\	11.5	640	1920	4.2	26	27.0	80	1.0	FAQ40K805K422KL5
400	9.0	42	50	35	37.5	20.3	12.5	720	2160	4.0	28	24.0	80	1.2	FAQ40K905K474KD5
400	10	42	50	35	37.5	20.3	14.0	800	2400	3.6	28	21.3	80	1.2	FAQ40K106K474KD5
400	10	57.5	45	30	52.5	20.3	12.5	500	1500	4.2	30	22.9	50	1.2	FAQ40K106M164MD5
400	12	57.5	50	35	52.5	20.3	14.0	600	1800	3.8	32	20.1	50	1.2	FAQ40K126M204MD5
400	14	57.5	50	35	52.5	20.3	16.0	700	2100	3.6	32	16.3	50	1.2	FAQ40K146M204MD5
400	18	57.5	57.5	38	52.5	20.3	20.0	900	2700	3.0	32	12.5	50	1.2	FAQ40K186M474MD5
400	20	57.5	55	45	52.5	20.3	22.0	1000	3000	2.8	32	11.1	50	1.2	FAQ40K206M324MD5
400	22	57.5	65	45	52.5	20.3	24.0	1100	3300	2.5	32	10.4	50	1.2	FAQ40K226M344MD5
400	25	57.5	65	45	52.5	20.3	26.0	1250	3750	2.2	32	10.1	50	1.2	FAQ40K256M344MD5

FAQ series

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
500	0.22	32	18	9	27.5	\	1.5	31	92	45.0	16	148.1	140	0.8	FAQ50K224G152GL5
500	0.27	32	20	9	27.5	\	1.6	38	113	40.0	16	146.5	140	0.8	FAQ50K274G152GL5
500	0.33	32	20	11	27.5	\	2.5	46	139	24.0	16	100.0	140	0.8	FAQ50K334G182GL5
500	0.39	32	20	11	27.5	\	2.5	55	164	24.0	16	100.0	140	0.8	FAQ50K394G182GL5
500	0.47	32	22	13	27.5	\	2.8	66	197	21.5	16	89.0	140	0.8	FAQ50K474G212GL5
500	0.56	32	22	13	27.5	\	3.0	78	235	20.5	16	81.3	140	0.8	FAQ50K564G212GL5
500	0.68	32	24.5	15	27.5	\	3.5	95	286	15.5	16	79.0	140	0.8	FAQ50K684G272GL5
500	0.82	32	28	18	27.5	\	4.8	115	344	12.5	18	52.1	140	0.8	FAQ50K824G332GL5
500	1.0	32	33	18	27.5	\	6.0	140	420	9.0	20	46.3	140	0.8	FAQ50K105G342GL5
500	1.2	32	33	18	27.5	\	6.0	168	504	9.0	20	46.3	140	0.8	FAQ50K125G342GL5
500	1.5	32	37	22	27.5	\	7.0	210	630	8.5	22	36.0	140	1.0	FAQ50K155G402GL5
500	1.8	32	37	22	27.5	\	7.5	252	756	7.8	22	34.2	140	1.0	FAQ50K185G402GL5
500	1.0	42	30	16	37.5	\	4.5	90	270	12.8	24	57.9	90	1.0	FAQ50K105K142KL5
500	1.2	42	30	16	37.5	\	4.8	108	324	12.5	24	52.1	90	1.0	FAQ50K125K142KL5
500	1.5	42	30	16	37.5	\	5.2	135	405	11.8	24	47.0	90	1.0	FAQ50K155K142KL5
500	1.8	42	32	19	37.5	\	6.0	162	486	9.0	24	46.3	90	1.0	FAQ50K185K212KL5
500	2.0	42	32	19	37.5	\	6.5	180	540	8.6	24	41.3	90	1.0	FAQ50K205K212KL5
500	2.5	42	37	22	37.5	\	7.0	225	675	8.0	24	38.3	90	1.0	FAQ50K255K274KL5
500	2.8	42	37	22	37.5	\	8.0	252	756	7.0	24	33.5	90	1.0	FAQ50K285K274KL5
500	3.0	42	37	22	37.5	\	8.5	270	810	6.8	24	30.5	90	1.0	FAQ50K305K274KL5
500	3.5	42	44	24	37.5	\	9.5	315	945	6.0	24	27.7	90	1.0	FAQ50K355K324KL5
500	4.0	42	43	28	37.5	\	10.5	360	1080	4.8	26	28.3	90	1.0	FAQ50K405K392KL5
500	4.5	42	43	28	37.5	\	10.5	405	1215	4.8	26	28.3	90	1.0	FAQ50K455K392KL5
500	5.0	42	45	30	37.5	\	11.0	450	1350	4.5	26	27.5	90	1.0	FAQ50K505K422KL5
500	5.5	42	50	35	37.5	20.3	12.5	495	1485	4.2	28	22.9	90	1.2	FAQ50K555K474KD5
500	6.0	42	50	35	37.5	20.3	14.0	540	1620	3.8	28	20.1	90	1.2	FAQ50K605K474KD5
500	7.0	57.5	45	30	52.5	20.3	12.5	420	1260	4.2	30	22.9	60	1.2	FAQ50K705M164MD5
500	8.0	57.5	50	35	52.5	20.3	14.0	480	1440	3.8	32	20.1	60	1.2	FAQ50K805M204MD5
500	9.0	57.5	50	35	52.5	20.3	16.0	540	1620	3.6	32	16.3	60	1.2	FAQ50K905M204MD5
500	10	57.5	57.5	38	52.5	20.3	18.0	600	1800	3.4	32	13.6	60	1.2	FAQ50K106M474MD5
500	12	57.5	57. 5	38	52.5	20.3	20.0	720	2160	3.2	32	11.7	60	1.2	FAQ50K126M474MD5
500	15	57.5	65	45	52.5	20.3	22.0	900	2700	3.0	32	10.3	60	1.2	FAQ50K156M344MD5

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70℃)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
600	0.15	32	18	9	27.5	\	1.5	24	72	45.0	16	148.1	160	0.8	FAQ60K154G152GL5
600	0.22	32	20	11	27.5	\	2.5	35	106	24.0	16	100.0	160	0.8	FAQ60K224G182GL5
600	0.33	32	22	13	27.5	\	2.8	53	158	21.5	16	89.0	160	0.8	FAQ60K334G212GL5
600	0.47	32	24.5	15	27.5	\	3.2	75	226	15.5	16	94.5	160	0.8	FAQ60K474G272GL5
600	0.56	32	28	14	27.5	\	4.0	90	269	12.5	18	75.0	160	0.8	FAQ60K564G262GL5
600	0.68	32	28	18	27.5	\	4.8	109	326	10.8	18	60.3	160	0.8	FAQ60K684G332GL5
600	0.82	32	33	18	27.5	\	6.0	131	394	7.0	20	59.5	160	0.8	FAQ60K824G342GL5
600	1.0	32	33	18	27.5	\	6.0	160	480	7.0	20	59.5	160	0.8	FAQ60K105G342GL5
600	1.2	32	37	22	27.5	\	7.0	192	576	5.8	22	52.8	160	1.0	FAQ60K125G402GL5
600	1.0	42	30	16	37.5	\	4.5	100	300	12.8	24	57.9	100	1.0	FAQ60K105K142KL5
600	1.2	42	32	19	37.5	\	6.0	120	360	8.8	24	47.3	100	1.0	FAQ60K125K142KL5
600	1.5	42	32	19	37.5	\	6.5	150	450	8.6	24	41.3	100	1.0	FAQ60K155K142KL5
600	1.8	42	37	22	37.5	\	7.0	180	540	8.0	24	38.3	100	1.0	FAQ60K185K274KL5
600	2.0	42	37	22	37.5	\	8.0	200	600	7.0	24	33.5	100	1.0	FAQ60K205K274KL5
600	2.2	42	44	24	37.5	\	9.0	220	660	6.5	24	28.5	100	1.0	FAQ60K225K324KL5
600	2.5	42	44	24	37.5	\	9.5	250	750	6.0	24	27.7	100	1.0	FAQ60K255K324KL5
600	2.8	42	43	28	37.5	\	10.0	280	840	5.5	26	27.3	100	1.0	FAQ60K285K392KL5
600	3.0	42	45	30	37.5	\	10.5	300	900	5.0	26	27.2	100	1.0	FAQ60K305K422KL5
600	3.5	42	50	35	37.5	20.3	12.5	350	1050	4.5	28	21.3	100	1.2	FAQ60K335K474KD5
600	4.0	42	50	35	37.5	20.3	14.0	400	1200	4.0	28	19.1	100	1.2	FAQ60K405K474KD5
600	4.5	57.5	45	30	52.5	20.3	12.5	315	945	4.5	30	21.3	70	1.2	FAQ60K455M164MD5
600	5.0	57.5	45	30	52.5	20.3	13.5	350	1050	4.2	30	19.6	70	1.2	FAQ60K505M164MD5
600	6.0	57.5	50	35	52.5	20.3	14.0	420	1260	4.0	32	19.1	70	1.2	FAQ60K605M204MD5
600	6.5	57.5	50	35	52.5	20.3	16.0	455	1365	3.8	32	15.4	70	1.2	FAQ60K655M204MD5
600	7.0	57.5	57.5	38	52.5	20.3	18.0	490	1470	3.6	32	12.9	70	1.2	FAQ60K206M324MD5
600	7.5	57.5	57.5	38	52.5	20.3	19.0	525	1575	3.4	32	12.2	70	1.2	FAQ60K755M474MD5
600	8.0	57.5	57.5	38	52.5	20.3	20.0	560	1680	3.2	32	11.7	70	1.2	FAQ6005K8M474MD5
600	10	57.5	65	45	52.5	20.3	22.0	700	2100	3.0	32	10.3	70	1.2	FAQ60K106M344MD5

FAQ series

Rating and Part Number

Vac	Cap Value	Dimensions					Irms max (10KHz70°C)	Peak Current	Surge Current	ESR Typical 10KHz	ESL	Thermal Res	dv/dt	Lead Wrie	Part Number
		W	H	T	P	P1									
	μF	mm	mm	mm	mm	mm	A	A	A	mΩ	nH	℃/W	V/us	mm	
760	0.1	32	18	9	27.5	\	1.5	20	60	45.0	16	148.1	200	0.8	FAQ76K104G152GL5
760	0.15	32	20	11	27.5	\	2.5	30	90	24.0	16	100.0	200	0.8	FAQ76K154G182GL5
760	0.22	32	22	13	27.5	\	2.8	44	132	21.5	16	89.0	200	0.8	FAQ76K224G212GL5
760	0.33	32	24.5	15	27.5	\	3.2	66	198	15.5	16	94.5	200	0.8	FAQ76K334G272GL5
760	0.47	32	28	18	27.5	\	4.5	94	282	12.0	18	61.7	200	0.8	FAQ76K474G332GL5
760	0.56	32	33	18	27.5	\	5.0	112	336	10.5	20	57.1	200	0.8	FAQ76K564G342GL5
760	0.68	32	37	22	27.5	\	6.0	136	408	9.5	22	43.9	200	1.0	FAQ76K684G402GL5
760	0.68	42	30	16	37.5	\	4.5	82	245	12.8	24	57.9	120	1.0	FAQ76K684K142KL5
760	0.82	42	32	19	37.5	\	5.5	98	295	10.0	24	49.6	120	1.0	FAQ76K248K212KL5
760	1.0	42	32	19	37.5	\	6.5	120	360	9.0	24	39.4	120	1.0	FAQ76K105K212KL5
760	1.2	42	37	22	37.5	\	7.0	144	432	8.5	24	36.0	120	1.0	FAQ76K125K274KL5
760	1.5	42	44	24	37.5	\	8.0	180	540	7.5	24	31.3	120	1.0	FAQ76K155K324KL5
760	1.8	42	43	28	37.5	\	9.5	216	648	6.5	26	25.6	120	1.0	FAQ76K185K392KL5
760	2.0	42	45	30	37.5	\	10.5	240	720	5.0	26	27.2	120	1.0	FAQ76K205K422KL5
760	2.5	42	50	35	37.5	20.3	12.5	300	900	4.5	28	21.3	120	1.2	FAQ76K255K474KD5
760	3.0	57.5	45	30	52.5	20.3	12.5	240	720	4.5	30	21.3	80	1.2	FAQ76K305M164MD5
760	4.0	57.5	50	35	52.5	20.3	14.0	320	960	4.0	32	19.1	80	1.2	FAQ76K405M204MD5
760	5.0	57.5	57.5	38	52.5	20.3	16.0	400	1200	3.6	32	16.3	80	1.2	FAQ76K505M474MD5
760	6.0	57.5	55	45	52.5	20.3	18.0	480	1440	3.4	32	13.6	80	1.2	FAQ76K605M324MD5
760	7.0	57.5	65	45	52.5	20.3	20.0	560	1680	3.2	32	11.7	80	1.2	FAQ76K705M344MD5

FSQ series

Overview

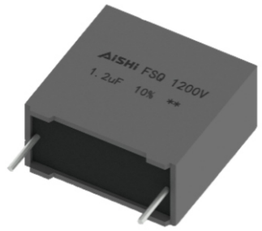
The FSQ series is constructed of metallized polypropylene film with double-sided metallized film encapsulated with epoxy resin in a plastic box, with 2 tinned copper wires. The FSQ series is suitable for harsh environmental condition and qualify in accordance to AEC-Q200 requirement.

Applications

Widely used in snubber and silicon-controlled rectifier (SCR and IGBT) and SiC (MOSFET) commutation circuits. Suitable for applications with high frequency, high current, high voltage, and high temperature.

Features

- High ripple current
- Self-healing property
- Low losses
- Small inherent temperature rise
- High contact reliability
- Operating temperature range: -55°C to +105°C
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{NDC}
- Automotive Grade (AEC-Q200)



Qualification

Reference Standard	IEC 61071, EN 61071, AEC-Q200
Climate Category	40/105/56 IEC 60068-1

RoHS COMPLIANT REACH COMPLIANT AUTOMOTIVE GRADE Available

General Technical Data

Application	High voltage, high frequency and pulse circuit / IGBT Modules Protection
Dielectric	Double Metallized Polypropylene Film
Reference Standard	IEC 61071,EN 61071,AEC-Q200D
Climatic Category	55/105/56 IEC 60068-1
Operating Temperature Range	−55°C ~ +105°C (85°C ~105°C, decreasing factor 1.25% per °C for Rated Voltage)

FSQ series

Electrical Characteristics

Voltage Range	630Vdc ~2000Vdc
Capacitance Range	0.001μF ~ 4.7μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	1.5 x V_R VDC for 10 seconds (between terminations) @ +25°C ±5°C
Voltage Between Terminals and Case U_{TC}	3000V_{AC}, 60s (at +20 +/-2°C)
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}
Dissipation Factor	≤0.0010 (0.1%)at 25°C,1KHz
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 100 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 30 000 s
Self-Inductance	<1nH per mm of lead spacing
Hot-Spot	≤85°C
Life Expectancy	100,000 hours (U_R, Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	4000m
Overvoltage	**Maximum duration within one day**
Apply 110% of rated voltage	30% of on-load duration
Apply 115% of rated voltage	30 mins
Apply 120% of rated voltage	5 mins
Apply 130% of rated voltage	1 min

Part Number System

F	SQ	3D	K	153	E34	2EL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	Snubber, pulse Capacitor, AEC-Q200, Double-sided Metallized PP Film	630=2L 1000=3K 1300=3S 1600=3W 2000=3D	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

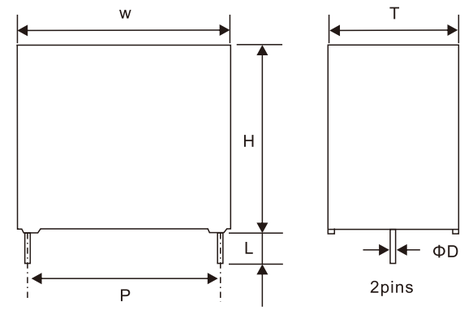
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	15.0mm	G	N/A	L
2 leads for straight cut	2	22.5mm	F		
2 leads for forming cut	E	27.5mm	G		
4 leads for straight cut	4	37.5mm	K		

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
20.0mm min	L

Dimension (mm)



FSQ series

Size Code Table (mm)

Size	Dimension						Pitch		Lead Wire	
Code	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.8	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.8	0.05
E21	18	0.5	13	0.5	7	0.5	15	0.5	0.8	0.05
E29	18	0.5	13.5	0.5	7.5	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E38	18	0.5	16	0.5	9	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F14	26	0.5	15.5	0.5	6	0.5	22.5	0.5	0.8	0.05
F17	26	0.5	16.5	0.5	7	0.5	22.5	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	22.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	22.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	22.5	0.5	0.8	0.05
F27	26	0.5	22	0.5	12	0.5	22.5	0.5	0.8	0.05
G14	32	0.8	17	0.8	8	0.8	27.5	0.5	0.8	0.05
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	0.8	0.05
G22	32	0.8	24.5	0.8	13	0.8	27.5	0.5	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	0.8	0.05
K11	42	0.8	24	0.8	13	0.8	37.5	0.5	1.0	0.05
K17	42	0.8	28	0.8	17	0.8	37.5	0.5	1.0	0.05
K21	42	0.8	32	0.8	19	0.8	37.5	0.5	1.0	0.05
K24	42	0.8	40	0.8	20	0.8	37.5	0.5	1.0	0.05
K32	42	0.8	44	0.8	24	0.8	37.5	0.5	1.0	0.05
K42	42	0.8	45	0.8	30	0.8	37.5	0.5	1.0	0.05
K47	42	0.8	50	0.8	35	0.8	37.5	0.5	1.0	0.05
K85	42	0.8	22	0.8	11	0.8	37.5	0.5	1.0	0.05
K86	42	0.8	28.5	0.8	16	0.8	37.5	0.5	1.0	0.05

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions W	H	T	P	Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
630	400	0.01	18	11	5	15	1.8	30	62	12	3000	0.8	FSQ2LK103E142EL5
630	400	0.012	18	11	5	15	2.2	36	52	12	3000	0.8	FSQ2LK123E142EL5
630	400	0.015	18	11	5	15	2.5	44	42	12	3000	0.8	FSQ2LK153E142EL5
630	400	0.018	18	11	5	15	2.7	54	35	12	3000	0.8	FSQ2LK183E142EL5
630	400	0.02	18	11	5	15	2.8	60	32	12	3000	0.8	FSQ2LK203E142EL5
630	400	0.022	18	11	5	15	2.9	66	30	12	3000	0.8	FSQ2LK223E142EL5
630	400	0.027	18	12	6	15	3.2	81	25	12	3000	0.8	FSQ2LK273E172EL5
630	400	0.033	18	12	6	15	3.7	99	20	12	3000	0.8	FSQ2LK333E172EL5
630	400	0.039	18	12	6	15	3.9	117	16	12	3000	0.8	FSQ2LK393E172EL5
630	400	0.047	18	13.5	7.5	15	4.5	141	15	12	3000	0.8	FSQ2LK473E292EL5
630	400	0.056	18	13.5	7.5	15	4.6	168	14	12	3000	0.8	FSQ2LK563E292EL5
630	400	0.068	18	14.5	8.5	15	4.7	204	13.5	12	3000	0.8	FSQ2LK683E342EL5
630	400	0.082	18	16	10	15	4.8	246	13.2	12	3000	0.8	FSQ2LK823E432EL5
630	400	0.1	18	16	10	15	5	300	13	12	3000	0.8	FSQ2LK104E432EL5
630	400	0.12	18	19	11	15	5.4	360	12.5	12	3000	0.8	FSQ2LK124E472EL5
630	400	0.047	26	15.5	6	22.5	3.8	70.5	20	15	1500	0.8	FSQ2LK473F142FL5
630	400	0.056	26	15.5	6	22.5	4	84	19.5	15	1500	0.8	FSQ2LK563F142FL5
630	400	0.068	26	15.5	6	22.5	4.2	102	19	15	1500	0.8	FSQ2LK683F142FL5
630	400	0.082	26	15.5	6	22.5	4.5	123	18	15	1500	0.8	FSQ2LK823F142FL5
630	400	0.1	26	15.5	6	22.5	5	150	16	15	1500	0.8	FSQ2LK104F142FL5
630	400	0.12	26	16.5	7	22.5	5.3	180	14	15	1500	0.8	FSQ2LK124F172FL5
630	400	0.15	26	17	8.5	22.5	6	225	11	15	1500	0.8	FSQ2LK154F202FL5
630	400	0.18	26	17	8.5	22.5	6.5	270	10	15	1500	0.8	FSQ2LK184F202FL5
630	400	0.22	26	19	10	22.5	7.5	330	8.5	15	1500	0.8	FSQ2LK224F242FL5
630	400	0.27	26	20	11	22.5	8.5	405	6.5	15	1500	0.8	FSQ2LK274F262FL5
630	400	0.33	26	20	11	22.5	9	495	6	15	1500	0.8	FSQ2LK334F262FL5
630	400	0.39	26	22	12	22.5	10	585	5	15	1500	0.8	FSQ2LK394F272FL5
630	400	0.15	32	17	8	27.5	4.6	135	25	20	900	0.8	FSQ2LK154G142GL5
630	400	0.18	32	17	8	27.5	4.8	162	22	20	900	0.8	FSQ2LK184G142GL5
630	400	0.22	32	18	9	27.5	5	198	20	20	900	0.8	FSQ2LK224G152GL5
630	400	0.27	32	20	11	27.5	5.5	243	17.5	20	900	0.8	FSQ2LK274G182GL5
630	400	0.33	32	20	11	27.5	5.8	297	16.5	20	900	0.8	FSQ2LK334G182GL5
630	400	0.39	32	20	11	27.5	6	351	16	20	900	0.8	FSQ2LK394G182GL5
630	400	0.47	32	22	13	27.5	6.5	423	14	20	900	0.8	FSQ2LK474G212GL5
630	400	0.56	32	22	13	27.5	7	504	12	20	900	0.8	FSQ2LK564G212GL5
630	400	0.68	32	24.5	13	27.5	7.5	612	10.5	20	900	0.8	FSQ2LK684G222GL5
630	400	0.82	32	28	14	27.5	8.5	738	9	20	900	0.8	FSQ2LK824G262GL5
630	400	1	32	33	18	27.5	10	900	7	20	900	0.8	FSQ2LK105G342GL5
630	400	1.2	32	33	18	27.5	13	1080	6	20	900	0.8	FSQ2LK125G342GL5
630	400	1.5	32	37	22	27.5	15	1350	5	20	900	0.8	FSQ2LK155G402GL5
630	400	1.8	32	37	22	27.5	16	1620	4	20	900	0.8	FSQ2LK185G402GL5
630	400	0.33	42	22	11	37.5	6.8	165	13	25	500	1.0	FSQ2LK334K852KL5
630	400	0.47	42	22	11	37.5	7	235	12.5	25	500	1.0	FSQ2LK447K852KL5
630	400	0.56	42	22	11	37.5	7.5	280	11	25	500	1.0	FSQ2LK564K852KL5
630	400	0.68	42	22	11	37.5	8	340	10.5	25	500	1.0	FSQ2LK684K852KL5
630	400	0.83	42	28.5	16	37.5	8	410	10.5	25	500	1.0	FSQ2LK824K862KL5
630	400	1.0	42	28.5	16	37.5	8.5	500	10	25	500	1.0	FSQ2LK105K862KL5
630	400	1.5	42	28.5	16	37.5	9.5	750	9	25	500	1.0	FSQ2LK155K862KL5
630	400	1.8	42	32	19	37.5	10.5	900	8.5	25	500	1.0	FSQ2LK185K212KL5
630	400	2.2	42	40	20	37.5	11.5	1100	8	25	500	1.0	FSQ2LK225K242KL5
630	400	2.7	42	40	20	37.5	13	1350	7	25	500	1.0	FSQ2LK275K242KL5
630	400	3.3	42	44	24	37.5	14	1650	6	25	500	1.0	FSQ2LK335K322KL5
630	400	3.9	42	45	30	37.5	15	1950	5	25	500	1.0	FSQ2LK395K422KL5
630	400	4.7	42	50	35	37.5	16	2350	4	25	500	1.0	FSQ2LK475K472KL5

FSQ series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
1000	600	0.0082	18	11	5	15	1. 5	28.7	80	10	3500	0.8	FSQ3KK822E142EL5
1000	600	0.01	18	11	5	15	1.8	35	62	12	3500	0.8	FSQ3KK103E142EL5
1000	600	0.012	18	11	5	15	2.2	42	52	12	3500	0.8	FSQ3KK123E142EL5
1000	600	0.015	18	11	5	15	2.5	52.5	42	12	3500	0.8	FSQ3KK153E142EL5
1000	600	0.018	18	11	5	15	2.7	63	35	12	3500	0.8	FSQ3KK183E142EL5
1000	600	0.02	18	12	6	15	2.8	70	32	10	3500	0.8	FSQ3KK203E172EL5
1000	600	0.022	18	12	6	15	3	77	29	10	3500	0.8	FSQ3KK223E172EL5
1000	600	0.027	18	13.5	7.5	15	3.5	94.5	24	12	3500	0.8	FSQ3KK273E292EL5
1000	600	0.033	18	13.5	7.5	15	4	115.5	19	12	3500	0.8	FSQ3KK333E292EL5
1000	600	0.039	18	14.5	8.5	15	4.5	136.5	16	12	3500	0.8	FSQ3KK393E342EL5
1000	600	0.047	18	14.5	8.5	15	4.9	164.5	14	12	3500	0.8	FSQ3KK473E342EL5
1000	600	0.027	26	15.5	6	22.5	3.8	56.7	24	15	2100	0.8	FSQ3KK273F142FL5
1000	600	0.033	26	15.5	6	22.5	4.3	69.3	19	15	2100	0.8	FSQ3KK333F142FL5
1000	600	0.039	26	15.5	6	22.5	4.8	81.9	16	15	2100	0.8	FSQ3KK393F142FL5
1000	600	0.047	26	16.5	7	22.5	5	98.7	15	15	2100	0.8	FSQ3KK473F172FL5
1000	600	0.056	26	16.5	7	22.5	5.4	117.6	14.5	15	2100	0.8	FSQ3KK563F172FL5
1000	600	0.068	26	17	8.5	22.5	5.6	142.8	14	15	2100	0.8	FSQ3KK683F202FL5
1000	600	0.082	26	19	10	22.5	5.8	172.2	13.5	15	2100	0.8	FSQ3KK823F242FL5
1000	600	0.1	26	19	10	22.5	6	210	13	15	2100	0.8	FSQ3KK104F242FL5
1000	600	0.12	26	20	11	22.5	6.5	180	12. 5	15	1500	0.8	FSQ3KK124F262FL5
1000	600	0.15	26	22	12	22.5	7	225	11	15	1500	0.8	FSQ3KK154F272FL5
1000	600	0.1	32	17	8	27.5	4.5	90	25	20	900	0.8	FSQ3KK104G142GL5
1000	600	0.12	32	18	9	27.5	4.8	108	22	20	900	0.8	FSQ3KK124G152GL5
1000	600	0.15	32	20	11	27.5	5	135	21	20	900	0.8	FSQ3KK154G182GL5
1000	600	0.18	32	22	13	27.5	5.5	162	18	20	900	0.8	FSQ3KK184G212GL5
1000	600	0.22	32	22	13	27.5	6	198	14	20	900	0.8	FSQ3KK224G212GL5
1000	600	0.27	32	24.5	13	27.5	6.5	243	13.5	20	900	0.8	FSQ3KK274G222GL5
1000	600	0.33	32	28	14	27.5	7	297	12	20	900	0.8	FSQ3KK334G262GL5
1000	600	0.39	32	33	18	27.5	7.5	351	11	20	900	0.8	FSQ3KK394G342GL5
1000	600	0.47	32	33	18	27.5	8	423	10	20	900	0.8	FSQ3KK474G342GL5
1000	600	0.56	32	37	22	27.5	8.5	504	9	20	900	0.8	FSQ3KK564G402GL5
1000	600	0.68	32	37	22	27.5	9.5	612	8	20	900	0.8	FSQ3KK684G402GL5
1000	600	0.18	42	22	11	37.5	6	90	18	25	500	1.0	FSQ3KK184K852KL5
1000	600	0.22	42	22	11	37.5	6.5	110	14	25	500	1.0	FSQ3KK224K852KL5
1000	600	0.27	42	24	13	37.5	6.8	135	13	25	500	1.0	FSQ3KK274K112KL5
1000	600	0.33	42	24	13	37.5	7.2	165	12	25	500	1.0	FSQ3KK334K112KL5
1000	600	0.39	42	28	17	37.5	7.4	195	11.5	25	500	1.0	FSQ3KK394K172KL5
1000	600	0.47	42	28	17	37.5	7.6	235	11	25	500	1.0	FSQ3KK474K172KL5
1000	600	0.56	42	28	17	37.5	8	280	10.5	25	500	1.0	FSQ3KK564K172KL5
1000	600	0.68	42	32	19	37.5	8.5	340	10	25	500	1.0	FSQ3KK684K212KL5
1000	600	0.82	42	40	20	37.5	10	410	9	25	500	1.0	FSQ3KK824K242KL5
1000	600	1.0	42	40	20	37.5	11	500	7	25	500	1.0	FSQ3KK105K242KL5
1000	600	1.2	42	44	24	37.5	12	600	6.5	25	500	1.0	FSQ3KK125K322KL5
1000	600	1.5	42	44	24	37.5	13	750	6	25	500	1.0	FSQ3KK155K322KL5
1000	600	1.8	42	45	30	37.5	15	900	5	25	500	1.0	FSQ3KK185K422KL5
1000	600	2.2	42	45	35	37.5	16	1100	4	25	500	1.0	FSQ3KK225K422KL5

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
1300	620	0.0082	18	11	5	15	1.7	28.7	95	10	3500	0.8	FSQ3SK822E142EL5
1300	620	0.01	18	11	5	15	2	35	65	12	3500	0.8	FSQ3SK103E142EL5
1300	620	0.012	18	11	5	15	2.2	42	52	12	3500	0.8	FSQ3SK123E142EL5
1300	620	0.015	18	11	5	15	2.5	52.5	42	12	3500	0.8	FSQ3SK153E142EL5
1300	620	0.018	18	12	6	15	2.8	63	38	12	3500	0.8	FSQ3SK183E172EL5
1300	620	0.02	18	12	6	15	2.9	70	36	10	3500	0.8	FSQ3SK203E172EL5
1300	620	0.022	18	13	7	15	3.1	77	32	10	3500	0.8	FSQ3SK223E212EL5
1300	620	0.027	18	13.5	7.5	15	3.7	94.5	26	12	3500	0.8	FSQ3SK273E292EL5
1300	620	0.033	18	14.5	8.5	15	4	115.5	19	12	3500	0.8	FSQ3SK333E342EL5
1300	620	0.039	18	16	9	15	4.5	136.5	16	12	3500	0.8	FSQ3SK393E382EL5
1300	620	0.047	18	16	10	15	4.8	164.5	15	12	3500	0.8	FSQ3SK473E432EL5
1300	620	0.056	18	19	11	15	5	196	14	12	3500	0.8	FSQ3SK563E472EL5
1300	620	0.027	26	15.5	6	22.5	3.5	56.7	24	15	2100	0.8	FSQ3SK273F142FL5
1300	620	0.033	26	15.5	6	22.5	4	69.3	19	15	2100	0.8	FSQ3SK333F142FL5
1300	620	0.039	26	15.5	6	22.5	4.8	81.9	16	15	2100	0.8	FSQ3SK393F142FL5
1300	620	0.047	26	16.5	7	22.5	5	98.7	15	15	2100	0.8	FSQ3SK473F172FL5
1300	620	0.056	26	16.5	7	22.5	5.4	117.6	14.5	15	2100	0.8	FSQ3SK563F172FL5
1300	620	0.068	26	17	8.5	22.5	6	142.8	14	15	2100	0.8	FSQ3SK683F202FL5
1300	620	0.082	26	19	10	22.5	6.5	172.2	13.5	15	2100	0.8	FSQ3SK823F242FL5
1300	620	0.1	26	19	10	22.5	7	210	13	15	2100	0.8	FSQ3SK104F242FL5
1300	620	0.12	26	20	11	22.5	6.5	180	12.5	15	1500	0.8	FSQ3SK124F262FL5
1300	620	0.15	26	22	12	22.5	7	225	12	15	1500	0.8	FSQ3SK154F272FL5
1300	620	0.18	26	24.5	13	22.5	7.5	270	11	15	1500	0.8	FSQ3SK184F302FL5
1300	620	0.22	26	29.5	14.5	22.5	8.5	330	9.5	15	1500	0.8	FSQ3SK224F342FL5
1300	620	0.1	32	17	8	27.5	5.8	90	19	20	900	0.8	FSQ3SK104G142GL5
1300	620	0.12	32	18	9	27.5	6.2	108	18	20	900	0.8	FSQ3SK124G152GL5
1300	620	0.15	32	20	11	27.5	6.8	135	15	20	900	0.8	FSQ3SK154G182GL5
1300	620	0.18	32	22	13	27.5	7	162	14	20	900	0.8	FSQ3SK184G212GL5
1300	620	0.22	32	22	13	27.5	7.5	198	12	20	900	0.8	FSQ3SK224G212GL5
1300	620	0.27	32	24	14	27.5	8	243	11	20	900	0.8	FSQ3SK274G252GL5
1300	620	0.33	32	28	14	27.5	8.5	297	10	20	900	0.8	FSQ3SK334G262GL5
1300	620	0.39	32	30	16	27.5	9	351	9.5	20	900	0.8	FSQ3SK394G322GL5
1300	620	0.47	32	33	18	27.5	9.5	423	9	20	900	0.8	FSQ3SK474G342GL5
1300	620	0.56	32	37	22	27.5	10	504	8.5	20	900	1.0	FSQ3SK564G402GL5
1300	620	0.68	32	37	22	27.5	11	612	8	20	900	0.8	FSQ3SK684G402GL5
1300	620	0.18	42	22	11	37.5	5.8	90	19	25	500	1.0	FSQ3SK184K852KL5
1300	620	0.22	42	22	11	37.5	6	110	18	25	500	1.0	FSQ3SK224K852KL5
1300	620	0.27	42	24	13	37.5	6.2	135	16.5	25	500	1.0	FSQ3SK274K112KL5
1300	620	0.33	42	24	13	37.5	6.5	165	15	25	500	1.0	FSQ3SK334K112KL5
1300	620	0.39	42	28	17	37.5	7.4	195	13	25	500	1.0	FSQ3SK334K172KL5
1300	620	0.47	42	28	17	37.5	7.6	235	12.5	25	500	1.0	FSQ3SK474K172KL5
1300	620	0.56	42	28	17	37.5	8.5	280	11.5	25	500	1.0	FSQ3SK564K172KL5
1300	620	0.68	42	32	19	37.5	9	340	11	25	500	1.0	FSQ3SK684K212KL5
1300	620	0.82	42	40	20	37.5	10	410	9	25	500	1.0	FSQ3SK684K242KL5
1300	620	1.0	42	40	20	37.5	11.5	500	8	25	500	1.0	FSQ3SK105K242KL5
1300	620	1.2	42	44	24	37.5	12.5	600	7	25	500	1.0	FSQ3SK105K322KL5
1300	620	1.5	42	43	28	37.5	14	750	5.8	25	500	1.0	FSQ3SK155K392KL5
1300	620	1.8	42	45	30	37.5	16	900	5	25	500	1.0	FSQ3SK185K422KL5

FSQ series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
1600	650	0.0033	18	11	5	15	1.1	19.8	190	12	6000	0.8	FSQ3WK332E142EL5
1600	650	0.0047	18	11	5	15	1.3	28.2	165	12	6000	0.8	FSQ3WK472E142EL5
1600	650	0.0056	18	11	5	15	1.4	33.6	120	12	6000	0.8	FSQ3WK562E142EL5
1600	650	0.0068	18	11	5	15	1.6	40.8	100	12	6000	0.8	FSQ3WK682E142EL5
1600	650	0.0082	18	11	5	15	1.8	49.2	95	12	6000	0.8	FSQ3WK822E142EL5
1600	650	0.01	18	11	5	15	2	60	65	12	6000	0.8	FSQ3WK103E142EL5
1600	650	0.012	18	12	6	15	2.3	72	50	12	6000	0.8	FSQ3WK123E172EL5
1600	650	0.015	18	12	6	15	2.5	90	45	12	6000	0.8	FSQ3WK153E172EL5
1600	650	0.018	18	13.5	7.5	15	3	108	35	12	6000	0.8	FSQ3WK183E292EL5
1600	650	0.022	18	13.5	7.5	15	3.2	132	30	12	6000	0.8	FSQ3WK223E292EL5
1600	650	0.027	18	14.5	8.5	15	3.8	162	25	12	6000	0.8	FSQ3WK273E342EL5
1600	650	0.033	18	14.5	8.5	15	4	198	20	12	6000	0.8	FSQ3WK333E342EL5
1600	650	0.015	26	15.5	6	22.5	2.8	45	40	15	3000	0.8	FSQ3WK153F142FL5
1600	650	0.022	26	15.5	6	22.5	3.5	66	30	15	3000	0.8	FSQ3WK223F142FL5
1600	650	0.033	26	15.5	6	22.5	4	99	20	15	3000	0.8	FSQ3WK333F142FL5
1600	650	0.039	26	16.5	7	22.5	4.8	117	16	15	3000	0.8	FSQ3WK393F172FL5
1600	650	0.047	26	16.5	7	22.5	5.2	141	15	15	3000	0.8	FSQ3WK473F172FL5
1600	650	0.056	26	17	8.5	22.5	5.4	168	14	15	3000	0.8	FSQ3WK563F202FL5
1600	650	0.068	26	19	10	22.5	5.8	204	13	15	3000	0.8	FSQ3WK683F242FL5
1600	650	0.082	26	19	10	22.5	6	246	12	15	3000	0.8	FSQ3WK823F242FL5
1600	650	0.1	26	20	11	22.5	6.5	300	11	15	3000	0.8	FSQ3WK104F262FL5
1600	650	0.039	32	17	8	27.5	3.8	78	30	20	2000	0.8	FSQ3WK393G142GL5
1600	650	0.047	32	17	8	27.5	4	94	29	20	2000	0.8	FSQ3WK473G142GL5
1600	650	0.056	32	17	8	27.5	4.5	112	28	20	2000	0.8	FSQ3WK563G142GL5
1600	650	0.068	32	18	9	27.5	5	136	24	20	2000	0.8	FSQ3WK683G152GL5
1600	650	0.082	32	20	11	27.5	5.5	164	20	20	2000	0.8	FSQ3WK823G182GL5
1600	650	0.1	32	22	13	27.5	6	200	18	20	2000	0.8	FSQ3WK104G212GL5
1600	650	0.12	32	22	13	27.5	6.5	240	16	20	2000	0.8	FSQ3WK124G212GL5
1600	650	0.15	32	24.5	13	27.5	7	300	14	20	2000	0.8	FSQ3WK154G222GL5
1600	650	0.18	32	28	14	27.5	7.5	360	12	20	2000	0.8	FSQ3WK184G262GL5
1600	650	0.22	32	33	18	27.5	8.5	440	10	20	2000	0.8	FSQ3WK224G342GL5
1600	650	0.27	32	33	18	27.5	9	540	9.5	20	2000	0.8	FSQ3WK274G342GL5
1600	650	0.33	32	33	18	27.5	10	660	8	20	2000	0.8	FSQ3WK334G342GL5
1600	650	0.39	32	37	22	27.5	11	780	7	20	2000	0.8	FSQ3WK394G402GL5
1600	650	0.47	32	37	22	27.5	12	940	6	20	2000	0.8	FSQ3WK474G402GL5
1600	650	0.082	42	22	11	37.5	4.8	98.4	28	25	1200	1.0	FSQ3WK823K852KL5
1600	650	0.1	42	22	11	37.5	5	120	24	25	1200	1.0	FSQ3WK104K852KL5
1600	650	0.12	42	22	11	37.5	5.5	144	22	25	1200	1.0	FSQ3WK124K852KL5
1600	650	0.15	42	22	11	37.5	5.8	180	20	25	1200	1.0	FSQ3WK154K852KL5
1600	650	0.18	42	24	13	37.5	6	216	18	25	1200	1.0	FSQ3WK184K112KL5
1600	650	0.22	42	24	13	37.5	6.2	264	17	25	1200	1.0	FSQ3WK224K112KL5
1600	650	0.27	42	24	13	37.5	6.5	324	15	25	1200	1.0	FSQ3WK274K112KL5
1600	650	0.33	42	28.5	16	37.5	6.8	396	14	25	1200	1.0	FSQ3WK334K862KL5
1600	650	0.39	42	28.5	16	37.5	7.5	468	12.5	25	1200	1.0	FSQ3WK394K862KL5
1600	650	0.47	42	32	16	37.5	8	564	12	25	1200	1.0	FSQ3WK474K212KL5
1600	650	0.56	42	40	19	37.5	9	672	11	25	1200	1.0	FSQ3WK564K242KL5
1600	650	0.68	42	40	20	37.5	9.5	816	10.5	25	1200	1.0	FSQ3WK684K242KL5
1600	650	0.82	42	44	24	37.5	10.5	984	9	25	1200	1.0	FSQ3WK824K322KL5
1600	650	1	42	44	24	37.5	12	1200	7.5	25	1200	1.0	FSQ3WK105K322KL5
1600	650	1.2	42	45	30	37.5	14	1440	6	25	1200	1.0	FSQ3WK125K422KL5

AUTOMOTIVE SERIES CAPACITORS
AiSHi THINK AHEAD

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
2000	700	0.001	18	11	5	15	0.5	9.5	630	12	9500	0.8	FSQ3DK102E142EL5
2000	700	0.0012	18	11	5	15	0.6	11.4	500	12	9500	0.8	FSQ3DK122E142EL5
2000	700	0.0015	18	11	5	15	0.7	14.25	420	12	9500	0.8	FSQ3DK152E142EL5
2000	700	0.0018	18	11	5	15	0.8	17.1	350	12	9500	0.8	FSQ3DK182E142EL5
2000	700	0.0022	18	11	5	15	0.9	20.9	300	12	9500	0.8	FSQ3DK222E142EL5
2000	700	0.0027	18	11	5	15	1	26.65	240	12	9500	0.8	FSQ3DK272E142EL5
2000	700	0.0033	18	11	5	15	1.2	31.35	190	12	9500	0.8	FSQ3DK332E142EL5
2000	700	0.0039	18	11	5	15	1.3	37.05	165	12	9500	0.8	FSQ3DK392E142EL5
2000	700	0.0047	18	11	5	15	1.4	44.65	135	12	9500	0.8	FSQ3DK472E142EL5
2000	700	0.0056	18	12	6	15	1.6	53.2	110	12	9500	0.8	FSQ3DK562E172EL5
2000	700	0.0068	18	12	6	15	1.8	64.6	95	12	9500	0.8	FSQ3DK682E172EL5
2000	700	0.0082	18	12	6	15	2	77.9	80	12	9500	0.8	FSQ3DK822E172EL5
2000	700	0.01	18	13.5	7.5	15	2.5	95	65	12	9500	0.8	FSQ3DK103E292EL5
2000	700	0.012	18	14.5	8.5	15	2.8	114	50	12	9500	0.8	FSQ3DK123E342EL5
2000	700	0.015	18	14.5	8.5	15	3	142.5	45	12	9500	0.8	FSQ3DK153E342EL5
2000	700	0.018	18	16	10	15	3.8	171	35	12	9500	0.8	FSQ3DK183E432EL5
2000	700	0.001	26	15.5	6	22.5	0.6	4.5	550	15	4500	0.8	FSQ3DK102F142FL5
2000	700	0.0012	26	15.5	6	22.5	0.7	5.4	450	15	4500	0.8	FSQ3DK122F142FL5
2000	700	0.0015	26	15.5	6	22.5	0.8	6.75	360	15	4500	0.8	FSQ3DK152F142FL5
2000	700	0.0018	26	15.5	6	22.5	0.9	8.1	300	15	4500	0.8	FSQ3DK182F142FL5
2000	700	0.0022	26	15.5	6	22.5	1	9.9	250	15	4500	0.8	FSQ3DK222F142FL5
2000	700	0.0027	26	15.5	6	22.5	1.2	12.15	230	15	4500	0.8	FSQ3DK272F142FL5
2000	700	0.0033	26	15.5	6	22.5	1.2	14.85	200	15	4500	0.8	FSQ3DK332F142FL5
2000	700	0.0039	26	15.5	6	22.5	1.4	17.55	180	15	4500	0.8	FSQ3DK392F142FL5
2000	700	0.0047	26	15.5	6	22.5	1.6	21.15	140	15	4500	0.8	FSQ3DK472F142FL5
2000	700	0.0056	26	15.5	6	22.5	1.8	25.2	120	15	4500	0.8	FSQ3DK562F142FL5
2000	700	0.0068	26	15.5	6	22.5	2	30.6	95	15	4500	0.8	FSQ3DK682F142FL5
2000	700	0.0082	26	15.5	6	22.5	2.2	36.9	75	15	4500	0.8	FSQ3DK822F142FL5
2000	700	0.01	26	15.5	6	22.5	2.3	45	65	15	4500	0.8	FSQ3DK103F142FL5
2000	700	0.012	26	15.5	6	22.5	2.5	54	60	15	4500	0.8	FSQ3DK123F142FL5
2000	700	0.015	26	15.5	6	22.5	2.8	67.5	45	15	4500	0.8	FSQ3DK153F142FL5
2000	700	0.018	26	15.5	6	22.5	3.2	81	35	15	4500	0.8	FSQ3DK183F142FL5
2000	700	0.022	26	16.5	7	22.5	4	99	26	15	4500	0.8	FSQ3DK223F172FL5
2000	700	0.027	26	16.5	7	22.5	4.5	121.5	20	15	4500	0.8	FSQ3DK273F172FL5
2000	700	0.033	26	17	8.5	22.5	5.2	148.5	18	15	4500	0.8	FSQ3DK333F202FL5
2000	700	0.039	26	19	10	22.5	5.8	175.5	15	15	4500	0.8	FSQ3DK393F242FL5
2000	700	0.047	26	19	10	22.5	6	211.5	13	15	4500	0.8	FSQ3DK473F242FL5
2000	700	0.056	26	20	11	22.5	6.5	252	12	15	4500	0.8	FSQ3DK563F262FL5
2000	700	0.022	32	17	8	27.5	3	55	45	20	2500	0.8	FSQ3DK223G142GL5
2000	700	0.027	32	17	8	27.5	3.5	67.5	40	20	2500	0.8	FSQ3DK273G142GL5
2000	700	0.033	32	18	9	27.5	4	82.5	35	20	2500	0.8	FSQ3DK333G152GL5
2000	700	0.039	32	20	11	27.5	4.5	97.5	28	20	2500	0.8	FSQ3DK393G182GL5
2000	700	0.047	32	20	11	27.5	4.8	117.5	25	20	2500	0.8	FSQ3DK473G182GL5
2000	700	0.056	32	22	13	27.5	5	140	24	20	2500	0.8	FSQ3DK563G212GL5
2000	700	0.068	32	22	13	27.5	5.5	170	22	20	2500	0.8	FSQ3DK683G212GL5
2000	700	0.082	32	24.5	13	27.5	6	205	20	20	2500	0.8	FSQ3DK823G222GL5
2000	700	0.1	32	28	14	27.5	6.5	250	18	20	2500	0.8	FSQ3DK104G262GL5
2000	700	0.12	32	33	18	27.5	7	300	16	20	2500	0.8	FSQ3DK124G342GL5
2000	700	0.15	32	33	18	27.5	7.5	375	14	20	2500	0.8	FSQ3DK154G342GL5
2000	700	0.18	32	37	22	27.5	8	450	12	20	2500	0.8	FSQ3DK184G402GL5

FSQ series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	ESR Typical 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
2000	700	0.22	32	37	22	27.5	8.5	550	10	20	2500	0.8	FSQ3DK224G402GL5
2000	700	0.033	42	22	11	37.5	4	49.5	35	25	1500	1.0	FSQ3DK184K852KL5
2000	700	0.039	42	22	11	37.5	4.5	58.5	28	25	1500	1.0	FSQ3DK333K852KL5
2000	700	0.047	42	22	11	37.5	4.8	70.5	26	25	1500	1.0	FSQ3DK393K852KL5
2000	700	0.056	42	22	11	37.5	5	84	24	25	1500	1.0	FSQ3DK563K852KL5
2000	700	0.068	42	22	11	37.5	5.4	102	23	25	1500	1.0	FSQ3DK683K852KL5
2000	700	0.082	42	22	11	37.5	5.8	123	22	25	1500	1.0	FSQ3DK823K852KL5
2000	700	0.1	42	24	13	37.5	6.5	150	18	25	1500	1.0	FSQ3DK104K112KL5
2000	700	0.12	42	24	13	37.5	7	180	16	25	1500	1.0	FSQ3DK124K112KL5
2000	700	0.15	42	28.5	16	37.5	7.5	225	15	25	1500	1.0	FSQ3DK154K862KL5
2000	700	0.18	42	28.5	16	37.5	8	270	14	25	1500	1.0	FSQ3DK184K862KL5
2000	700	0.22	42	32	19	37.5	8.5	330	12	25	1500	1.0	FSQ3DK224K212KL5
2000	700	0.27	42	40	20	37.5	9	405	11	25	1500	1.0	FSQ3DK274K242KL5
2000	700	0.33	42	40	20	37.5	9.5	495	10.5	25	1500	1.0	FSQ3DK334K242KL5
2000	700	0.39	42	44	24	37.5	10	585	9.5	25	1500	1.0	FSQ3DK394K322KL5
2000	700	0.47	42	44	24	37.5	10.5	705	9	25	1500	1.0	FSQ3DK474K322KL5
2000	700	0.56	42	45	30	37.5	12	840	7.5	25	1500	1.0	FSQ3DK564K422KL5
2000	700	0.68	42	45	30	37.5	14	1020	6	25	1500	1.0	FSQ3DK684K422KL5

FSU series

Overview

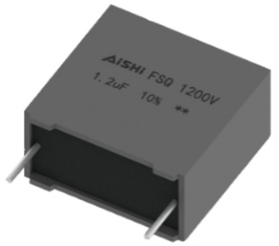
The FSU series is constructed of metallized polypropylene film with double-sided metallized film encapsulated with epoxy resin in a plastic box, with 2 tinned copper wires. This FSU series is suitable for harsh environmental condition and qualify in accordance to AEC-Q200 requirement.

Applications

Widely used in snubber and silicon-controlled rectifier (SCR and IGBT) and SiC (MOSFET) commutation circuits. Suitable for applications with high frequency, high current, high voltage, and high temperature.

Features

- High ripple current, low losses
- Self-healing property
- Small inherent temperature rise
- High contact reliability
- Operating temperature range: -55°C to +125°C
- Suitable for harsh environmental conditions
- THB 2000H - 85°C 85%RH, 2000 Hours, U_{NDC}
- Automotive Grade (AEC-Q200)



Qualification

Reference Standard	IEC 61071, EN 61071, AEC-Q200
Climate Category	40/105/56 IEC 60068-1

General Technical Data

Application	High voltage, high frequency and pulse circuit / IGBT Modules Protection
Dielectric	Double Metallized Polypropylene Film
Reference Standard	IEC 61071/EN 61071/AEC-Q200D
Climatic Category	55/105/56 IEC 60068-1
Rated Temperature T_R	+105°C for V_{NDC} (DC and AC)
Operating Temperature Range	-55°C ~ +105°C (105°C ~125°C, decreasing factor 1.25% per °C for Rated Voltage)

FSU series

Electrical Characteristics

Voltage Range	630Vdc ~ 2000Vdc					
Capacitance Range	0.001μF ~ 4.7μF					
Capacitance Tolerance	±5% or ±10% at +25°C					
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V					
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)					
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)					
	Air pressure 86 kPa to 106 kPa.					
Voltage Between Terminals U_{TT}	1.5 x V_R VDC for 10 seconds (between terminations) @ +25°C ±5°C					
Voltage Between Terminals and Case U_{TC}	3000V_{AC}, 60s（at +20 +/-2°C)					
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}					
Dissipation Factor	0.0010（0.1%）at 25°C，1KHz					
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 100 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 30 000 s					
Self-Inductance	<1nH per mm of lead spacing					
Rated Temperature T_R	+105°C for V_{NDC} (DC and AC)					
Capacitance Drop at end of life	-5% (Typical)					
Failure Rate	≤50 Fit V_{NDC} at hot spot temperature (T_{HS}) = 85°C					
Max. Altitude	4000m					
Overvoltage	**Maximum duration within one day**					
Apply 110% of rated voltage	30% of on-load duration					
Apply 115% of rated voltage	30 mins					
Apply 120% of rated voltage	5 mins					
Apply 130% of rated voltage	1 min					
Operative Voltage Derating	Symbol	Voltage (VDC)				
Rated Voltage at 105°C (T_{HS})	V_{OP105}	630	1000	1300	1600	2000
Rated Voltage at 115°C (T_{HS})	V_{OP115}	551	8 7 5	1138	1400	1750
Rated Voltage at 125°C (T_{HS})	V_{OP125}	473	750	975	1200	1500
Life Expectancy	Symbol	Life				
Rated Voltage at 85°C (T_{HS})	V_{NDC}	200,000hours				
Rated Voltage at 105°C (T_{HS})	V_{OP105}	100,000hours				
Rated Voltage at 115°C (T_{HS})	V_{OP115}	9,000hours				
Rated Voltage at 125°C (T_{HS})	V_{OP125}	5,000hours				

T_{HS} = Highest hot spot tem

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

Part Number System

F	SU	D	K	153	E34	2EL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	Snubber,and pulse Capacitor, AEC-Q200	630=2L 1000=3K 1300=3S 1600=3W 2000=3D	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

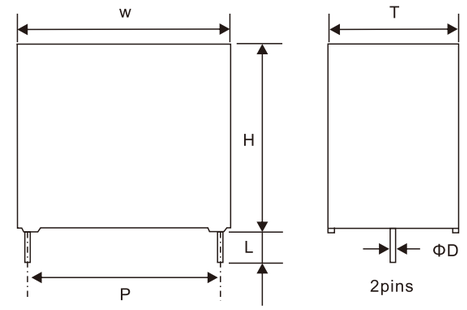
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	15.0mm	E	N/A	L
2 leads for straight cut	2	22.5mm	F		
4 leads for straight cut	4	27.5mm	G		
		37.5mm	K		

Lead Length Code

Lead Length	
3.0mm	3
4.0mm	4
5.0mm	5
N/A	N

Dimension (mm)



FSU series

Size Code Table (mm)

Size	Dimension						Pitch		Lead Wire	
Code	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.8	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.8	0.05
E21	18	0.5	13	0.5	7	0.5	15	0.5	0.8	0.05
E29	18	0.5	13.5	0.5	7.5	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E38	18	0.5	16	0.5	9	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F14	26	0.5	15.5	0.5	6	0.5	22.5	0.5	0.8	0.05
F17	26	0.5	16.5	0.5	7	0.5	22.5	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	22.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	22.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	22.5	0.5	0.8	0.05
F27	26	0.5	22	0.5	12	0.5	22.5	0.5	0.8	0.05
G14	32	0.8	17	0.8	8	0.8	27.5	0.5	0.8	0.05
G15	32	0.8	18	0.8	9	0.8	27.5	0.5	0.8	0.05
G18	32	0.8	20	0.8	11	0.8	27.5	0.5	0.8	0.05
G21	32	0.8	22	0.8	13	0.8	27.5	0.5	0.8	0.05
G22	32	0.8	24.5	0.8	13	0.8	27.5	0.5	0.8	0.05
G26	32	0.8	28	0.8	14	0.8	27.5	0.5	0.8	0.05
G34	32	0.8	33	0.8	18	0.8	27.5	0.5	0.8	0.05
G40	32	0.8	37	0.8	22	0.8	27.5	0.5	0.8	0.05
K11	42	0.8	24	0.8	13	0.8	37.5	0.5	1.0	0.05
K17	42	0.8	28	0.8	17	0.8	37.5	0.5	1.0	0.05
K21	42	0.8	32	0.8	19	0.8	37.5	0.5	1.0	0.05
K24	42	0.8	40	0.8	20	0.8	37.5	0.5	1.0	0.05
K32	42	0.8	44	0.8	24	0.8	37.5	0.5	1.0	0.05
K42	42	0.8	45	0.8	30	0.8	37.5	0.5	1.0	0.05
K47	42	0.8	50	0.8	35	0.8	37.5	0.5	1.0	0.05
K85	42	0.8	22	0.8	11	0.8	37.5	0.5	1.0	0.05
K86	42	0.8	28.5	0.8	16	0.8	37.5	0.5	1.0	0.05

AUTOMOTIVE SERIES CAPACITORS AiSHi THINK AHEAD

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions W	H	T	P	Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
630	400	0.01	18	11	5	15	1.8	30	62	12	3000	0.8	FSU2LK103E142EL5
630	400	0.012	18	11	5	15	2.2	36	52	12	3000	0.8	FSU2LK123E142EL5
630	400	0.015	18	11	5	15	2.5	45	42	12	3000	0.8	FSU2LK153E142EL5
630	400	0.018	18	11	5	15	2.7	54	35	12	3000	0.8	FSU2LK183E142EL5
630	400	0.02	18	11	5	15	2.8	60	32	12	3000	0.8	FSU2LK203E142EL5
630	400	0.022	18	11	5	15	2.9	66	30	12	3000	0.8	FSU2LK223E142EL5
630	400	0.027	18	12	6	15	3.2	81	25	12	3000	0.8	FSU2LK273E172EL5
630	400	0.033	18	12	6	15	3.7	99	20	12	3000	0.8	FSU2LK333E172EL5
630	400	0.039	18	12	6	15	3.9	117	16	12	3000	0.8	FSU2LK393E172EL5
630	400	0.047	18	13.5	7.5	15	4.5	141	15	12	3000	0.8	FSU2LK473E292EL5
630	400	0.056	18	13.5	7.5	15	4.6	168	14	12	3000	0.8	FSU2LK563E292EL5
630	400	0.068	18	14.5	8.5	15	4.7	204	13.5	12	3000	0.8	FSU2LK683E342EL5
630	400	0.082	18	16	10	15	4.8	246	13.2	12	3000	0.8	FSU2LK823E432EL5
630	400	0.1	18	16	10	15	5	300	13	12	3000	0.8	FSU2LK104E432EL5
630	400	0.12	18	19	11	15	5.4	360	12.5	12	3000	0.8	FSU2LK124E472EL5
630	400	0.047	26	15.5	6	22.5	3.8	70.5	20	15	1500	0.8	FSU2LK473F142FL5
630	400	0.056	26	15.5	6	22.5	4	84	19.5	15	1500	0.8	FSU2LK563F142FL5
630	400	0.068	26	15.5	6	22.5	4.2	102	19	15	1500	0.8	FSU2LK683F142FL5
630	400	0.082	26	15.5	6	22.5	4.5	123	18	15	1500	0.8	FSU2LK823F142FL5
630	400	0.1	26	15.5	6	22.5	5	150	16	15	1500	0.8	FSU2LK104F142FL5
630	400	0.12	26	16.5	7	22.5	5.3	180	14	15	1500	0.8	FSU2LK124F172FL5
630	400	0.15	26	17	8.5	22.5	6	225	11	15	1500	0.8	FSU2LK154F202FL5
630	400	0.18	26	17	8.5	22.5	6.5	270	10	15	1500	0.8	FSU2LK184F202FL5
630	400	0.22	26	19	10	22.5	7.5	330	8.5	15	1500	0.8	FSU2LK224F242FL5
630	400	0.27	26	20	11	22.5	8.5	405	6.5	15	1500	0.8	FSU2LK274F262FL5
630	400	0.33	26	20	11	22.5	9	495	6	15	1500	0.8	FSU2LK334F262FL5
630	400	0.39	26	22	12	22.5	10	585	5	15	1500	0.8	FSU2LK394F272FL5
630	400	0.15	32	17	8	27.5	4.6	135	25	20	900	0.8	FSU2LK154G142GL5
630	400	0.18	32	17	8	27.5	4.8	162	22	20	900	0.8	FSU2LK184G142GL5
630	400	0.22	32	18	9	27.5	5	198	20	20	900	0.8	FSU2LK224G152GL5
630	400	0.27	32	20	11	27.5	5.5	243	17.5	20	900	0.8	FSU2LK274G182GL5
630	400	0.33	32	20	11	27.5	5.8	297	16.5	20	900	0.8	FSU2LK334G182GL5
630	400	0.39	32	20	11	27.5	6	351	16	20	900	0.8	FSU2LK394G182GL5
630	400	0.47	32	22	13	27.5	6.5	423	14	20	900	0.8	FSU2LK474G212GL5
630	400	0.56	32	22	13	27.5	7	504	12	20	900	0.8	FSU2LK564G212GL5
630	400	0.68	32	24.5	13	27.5	7.5	612	10.5	20	900	0.8	FSU2LK684G222GL5
630	400	0.82	32	28	14	27.5	8.5	738	9	20	900	0.8	FSU2LK824G262GL5
630	400	1	32	33	18	27.5	10	900	7	20	900	0.8	FSU2LK105G342GL5
630	400	1.2	32	33	18	27.5	13	1080	6	20	900	0.8	FSU2LK125G342GL5
630	400	1.5	32	37	22	27.5	15	1350	5	20	900	0.8	FSU2LK155G402GL5
630	400	1.8	32	37	22	27.5	16	1620	4	20	900	0.8	FSU2LK185G402GL5
630	400	0.33	42	22	11	37.5	6.8	165	13	25	500	1.0	FSU2LK334K852KL5
630	400	0.47	42	22	11	37.5	7	235	12.5	25	500	1.0	FSU2LK447K852KL5
630	400	0.56	42	22	11	37.5	7.5	280	11	25	500	1.0	FSU2LK564K852KL5
630	400	0.68	42	22	11	37.5	8	340	10.5	25	500	1.0	FSU2LK684K852KL5
630	400	0.83	42	28.5	16	37.5	8	410	10.5	25	500	1.0	FSU2LK824K862KL5
630	400	1.0	42	28.5	16	37.5	8.5	500	10	25	500	1.0	FSU2LK105K862KL5
630	400	1.5	42	28.5	16	37.5	9.5	750	9	25	500	1.0	FSU2LK155K862KL5
630	400	1.8	42	32	19	37.5	10.5	900	8.5	25	500	1.0	FSU2LK185K212KL5
630	400	2.2	42	40	20	37.5	11.5	1100	8	25	500	1.0	FSU2LK225K242KL5
630	400	2.7	42	40	20	37.5	13	1350	7	25	500	1.0	FSU2LK275K242KL5
630	400	3.3	42	44	24	37.5	14	1650	6	25	500	1.0	FSU2LK335K322KL5
630	400	3.9	42	45	30	37.5	15	1950	5	25	500	1.0	FSU2LK395K422KL5
630	400	4.7	42	50	35	37.5	16	2350	4	25	500	1.0	FSU2LK475K472KL5

FSU series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
1000	600	0.0082	18	11	5	15	1. 5	28.7	80	10	3500	0.8	FSU3KK822E142EL5
1000	600	0.01	18	11	5	15	1.8	35	62	12	3500	0.8	FSU3KK103E142EL5
1000	600	0.012	18	11	5	15	2.2	42	52	12	3500	0.8	FSU3KK123E142EL5
1000	600	0.015	18	11	5	15	2.5	52.5	42	12	3500	0.8	FSU3KK153E142EL5
1000	600	0.018	18	11	5	15	2.7	63	35	12	3500	0.8	FSU3KK183E142EL5
1000	600	0.02	18	12	6	15	2.8	70	32	10	3500	0.8	FSU3KK203E172EL5
1000	600	0.022	18	12	6	15	3	77	29	10	3500	0.8	FSU3KK223E172EL5
1000	600	0.027	18	13.5	7.5	15	3.5	94.5	24	12	3500	0.8	FSU3KK273E292EL5
1000	600	0.033	18	13.5	7.5	15	4	115.5	19	12	3500	0.8	FSU3KK333E292EL5
1000	600	0.039	18	14.5	8.5	15	4.5	136.5	16	12	3500	0.8	FSU3KK393E342EL5
1000	600	0.047	18	14.5	8.5	15	4.9	164.5	14	12	3500	0.8	FSU3KK473E342EL5
1000	600	0.027	26	15.5	6	22.5	3.8	56.7	24	15	2100	0.8	FSU3KK273F142FL5
1000	600	0.033	26	15.5	6	22.5	4.3	69.3	19	15	2100	0.8	FSU3KK333F142FL5
1000	600	0.039	26	15.5	6	22.5	4.8	81.9	16	15	2100	0.8	FSU3KK393F142FL5
1000	600	0.047	26	16.5	7	22.5	5	98.7	15	15	2100	0.8	FSU3KK473F172FL5
1000	600	0.056	26	16.5	7	22.5	5.4	117.6	14.5	15	2100	0.8	FSU3KK563F172FL5
1000	600	0.068	26	17	8.5	22.5	5.6	142.8	14	15	2100	0.8	FSU3KK683F202FL5
1000	600	0.082	26	19	10	22.5	5.8	172.2	13.5	15	2100	0.8	FSU3KK823F242FL5
1000	600	0.1	26	19	10	22.5	6	210	13	15	2100	0.8	FSU3KK104F242FL5
1000	600	0.12	26	20	11	22.5	6.5	180	12. 5	15	1500	0.8	FSU3KK124F262FL5
1000	600	0.15	26	22	12	22.5	7	225	11	15	1500	0.8	FSU3KK154F272FL5
1000	600	0.1	32	17	8	27.5	4.5	90	25	20	900	0.8	FSU3KK104G142GL5
1000	600	0.12	32	18	9	27.5	4.8	108	22	20	900	0.8	FSU3KK124G152GL5
1000	600	0.15	32	20	11	27.5	5	135	21	20	900	0.8	FSU3KK154G182GL5
1000	600	0.18	32	22	13	27.5	5.5	162	18	20	900	0.8	FSU3KK184G212GL5
1000	600	0.22	32	22	13	27.5	6	198	14	20	900	0.8	FSU3KK224G212GL5
1000	600	0.27	32	24.5	13	27.5	6.5	243	13.5	20	900	0.8	FSU3KK274G222GL5
1000	600	0.33	32	28	14	27.5	7	297	12	20	900	0.8	FSU3KK334G262GL5
1000	600	0.39	32	33	18	27.5	7.5	351	11	20	900	0.8	FSU3KK394G342GL5
1000	600	0.47	32	33	18	27.5	8	423	10	20	900	0.8	FSU3KK474G342GL5
1000	600	0.56	32	37	22	27.5	8.5	504	9	20	900	0.8	FSU3KK564G402GL5
1000	600	0.68	32	37	22	27.5	9.5	612	8	20	900	0.8	FSU3KK684G402GL5
1000	600	0.18	42	22	11	37.5	6	90	18	25	500	1.0	FSU3KK184K852KL5
1000	600	0.22	42	22	11	37.5	6.5	110	14	25	500	1.0	FSU3KK224K852KL5
1000	600	0.27	42	24	13	37.5	6.8	135	13	25	500	1.0	FSU3KK274K112KL5
1000	600	0.33	42	24	13	37.5	7.2	165	12	25	500	1.0	FSU3KK334K112KL5
1000	600	0.39	42	28	17	37.5	7.4	195	11.5	25	500	1.0	FSU3KK394K172KL5
1000	600	0.47	42	28	17	37.5	7.6	235	11	25	500	1.0	FSU3KK474K172KL5
1000	600	0.56	42	28	17	37.5	8	280	10.5	25	500	1.0	FSU3KK564K172KL5
1000	600	0.68	42	32	19	37.5	8.5	340	10	25	500	1.0	FSU3KK684K212KL5
1000	600	0.82	42	40	20	37.5	10	410	9	25	500	1.0	FSU3KK824K242KL5
1000	600	1.0	42	40	20	37.5	11	500	7	25	500	1.0	FSU3KK105K242KL5
1000	600	1.2	42	44	24	37.5	12	600	6.5	25	500	1.0	FSU3KK125K322KL5
1000	600	1.5	42	44	24	37.5	13	750	6	25	500	1.0	FSU3KK155K322KL5
1000	600	1.8	42	45	30	37.5	15	900	5	25	500	1.0	FSU3KK185K422KL5
1000	600	2.2	42	45	30	37.5	16	1100	4	25	500	1.0	FSU3KK225K422KL5

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
1300	620	0.0082	18	11	5	15	1.7	28.7	95	10	3500	0.8	FSU3SK822E142EL5
1300	620	0.01	18	11	5	15	2	35	65	12	3500	0.8	FSU3SK103E142EL5
1300	620	0.012	18	11	5	15	2.2	42	52	12	3500	0.8	FSU3SK123E142EL5
1300	620	0.015	18	11	5	15	2.5	52.5	42	12	3500	0.8	FSU3SK153E142EL5
1300	620	0.018	18	12	6	15	2.8	63	38	12	3500	0.8	FSU3SK183E172EL5
1300	620	0.02	18	12	6	15	2.9	70	36	10	3500	0.8	FSU3SK203E172EL5
1300	620	0.022	18	13	7	15	3.1	77	32	10	3500	0.8	FSU3SK223E212EL5
1300	620	0.027	18	13.5	7.5	15	3.7	94.5	26	12	3500	0.8	FSU3SK273E292EL5
1300	620	0.033	18	14.5	8.5	15	4	115.5	19	12	3500	0.8	FSU3SK333E342EL5
1300	620	0.039	18	16	9	15	4.5	136.5	16	12	3500	0.8	FSU3SK393E382EL5
1300	620	0.047	18	16	10	15	4.8	164.5	15	12	3500	0.8	FSU3SK473E432EL5
1300	620	0.056	18	19	11	15	5	196	14	12	3500	0.8	FSU3SK563E472EL5
1300	620	0.027	26	15.5	6	22.5	3.5	56.7	24	15	2100	0.8	FSU3SK273F142FL5
1300	620	0.033	26	15.5	6	22.5	4	69.3	19	15	2100	0.8	FSU3SK333F142FL5
1300	620	0.039	26	15.5	6	22.5	4.8	81.9	16	15	2100	0.8	FSU3SK393F142FL5
1300	620	0.047	26	16.5	7	22.5	5	98.7	15	15	2100	0.8	FSU3SK473F172FL5
1300	620	0.056	26	16.5	7	22.5	5.4	117.6	14.5	15	2100	0.8	FSU3SK563F172FL5
1300	620	0.068	26	17	8.5	22.5	6	142.8	14	15	2100	0.8	FSU3SK683F202FL5
1300	620	0.082	26	19	10	22.5	6.5	172.2	13.5	15	2100	0.8	FSU3SK823F242FL5
1300	620	0.1	26	19	10	22.5	7	210	13	15	2100	0.8	FSU3SK104F242FL5
1300	620	0.12	26	20	11	22.5	6.5	180	12.5	15	1500	0.8	FSU3SK124F262FL5
1300	620	0.15	26	22	12	22.5	7	225	12	15	1500	0.8	FSU3SK154F272FL5
1300	620	0.18	26	24.5	13	22.5	7.5	270	11	15	1500	0.8	FSU3SK184F302FL5
1300	620	0.22	26	29.5	14.5	22.5	8.5	330	9.5	15	1500	0.8	FSU3SK224F342FL5
1300	620	0.1	32	17	8	27.5	5.8	90	19	20	900	0.8	FSU3SK104G142GL5
1300	620	0.12	32	18	9	27.5	6.2	108	18	20	900	0.8	FSU3SK124G152GL5
1300	620	0.15	32	20	11	27.5	6.8	135	15	20	900	0.8	FSU3SK154G182GL5
1300	620	0.18	32	22	13	27.5	7	162	14	20	900	0.8	FSU3SK184G212GL5
1300	620	0.22	32	22	13	27.5	7.5	198	12	20	900	0.8	FSU3SK224G212GL5
1300	620	0.27	32	24	14	27.5	8	243	11	20	900	0.8	FSU3SK274G252GL5
1300	620	0.33	32	28	14	27.5	8.5	297	10	20	900	0.8	FSU3SK334G262GL5
1300	620	0.39	32	30	16	27.5	9	351	9.5	20	900	0.8	FSU3SK394G322GL5
1300	620	0.47	32	33	18	27.5	9.5	423	9	20	900	0.8	FSU3SK474G342GL5
1300	620	0.56	32	37	22	27.5	10	504	8.5	20	900	1.0	FSU3SK564G402GL5
1300	620	0.68	32	37	22	27.5	11	612	8	20	900	0.8	FSU3SK684G402GL5
1300	620	0.18	42	22	11	37.5	5.8	90	19	25	500	1.0	FSU3SK184K852KL5
1300	620	0.22	42	22	11	37.5	6	110	18	25	500	1.0	FSU3SK224K852KL5
1300	620	0.27	42	24	13	37.5	6.2	135	16.5	25	500	1.0	FSU3SK274K112KL5
1300	620	0.33	42	24	13	37.5	6.5	165	15	25	500	1.0	FSU3SK334K112KL5
1300	620	0.39	42	28	17	37.5	7.4	195	13	25	500	1.0	FSU3SK334K172KL5
1300	620	0.47	42	28	17	37.5	7.6	235	12.5	25	500	1.0	FSU3SK474K172KL5
1300	620	0.56	42	28	17	37.5	8.5	280	11.5	25	500	1.0	FSU3SK564K172KL5
1300	620	0.68	42	32	19	37.5	9	340	11	25	500	1.0	FSU3SK684K212KL5
1300	620	0.82	42	40	20	37.5	10	410	9	25	500	1.0	FSU3SK684K242KL5
1300	620	1.0	42	40	20	37.5	11.5	500	8	25	500	1.0	FSU3SK105K242KL5
1300	620	1.2	42	44	24	37.5	12.5	600	7	25	500	1.0	FSU3SK105K322KL5
1300	620	1.5	42	43	28	37.5	14	750	5.8	25	500	1.0	FSU3SK155K392KL5
1300	620	1.8	42	45	30	37.5	16	900	5	25	500	1.0	FSU3SK185K422KL5

FSU series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
1600	650	0.0033	18	11	5	15	1.1	19.8	190	12	6000	0.8	FSU3WK332E142EL5
1600	650	0.0047	18	11	5	15	1.3	28.2	165	12	6000	0.8	FSU3WK472E142EL5
1600	650	0.0056	18	11	5	15	1.4	33.6	120	12	6000	0.8	FSU3WK562E142EL5
1600	650	0.0068	18	11	5	15	1.6	40.8	100	12	6000	0.8	FSU3WK682E142EL5
1600	650	0.0082	18	11	5	15	1.8	49.2	95	12	6000	0.8	FSU3WK822E142EL5
1600	650	0.01	18	11	5	15	2	60	65	12	6000	0.8	FSU3WK103E142EL5
1600	650	0.012	18	12	6	15	2.3	72	50	12	6000	0.8	FSU3WK123E172EL5
1600	650	0.015	18	12	6	15	2.5	90	45	12	6000	0.8	FSU3WK153E172EL5
1600	650	0.018	18	13.5	7.5	15	3	108	35	12	6000	0.8	FSU3WK183E292EL5
1600	650	0.022	18	13.5	7.5	15	3.2	132	30	12	6000	0.8	FSU3WK223E292EL5
1600	650	0.027	18	14.5	8.5	15	3.8	162	25	12	6000	0.8	FSU3WK273E342EL5
1600	650	0.033	18	14.5	8.5	15	4	198	20	12	6000	0.8	FSU3WK333E342EL5
1600	650	0.015	26	15.5	6	22.5	2.8	45	40	15	3000	0.8	FSU3WK153F142FL5
1600	650	0.022	26	15.5	6	22.5	3.5	66	30	15	3000	0.8	FSU3WK223F142FL5
1600	650	0.033	26	15.5	6	22.5	4	99	20	15	3000	0.8	FSU3WK333F142FL5
1600	650	0.039	26	16.5	7	22.5	4.8	117	16	15	3000	0.8	FSU3WK393F172FL5
1600	650	0.047	26	16.5	7	22.5	5.2	141	15	15	3000	0.8	FSU3WK473F172FL5
1600	650	0.056	26	17	8.5	22.5	5.4	168	14	15	3000	0.8	FSU3WK563F202FL5
1600	650	0.068	26	19	10	22.5	5.8	204	13	15	3000	0.8	FSU3WK683F242FL5
1600	650	0.082	26	19	10	22.5	6	246	12	15	3000	0.8	FSU3WK823F242FL5
1600	650	0.1	26	20	11	22.5	6.5	300	11	15	3000	0.8	FSU3WK104F262FL5
1600	650	0.039	32	17	8	27.5	3.8	78	30	20	2000	0.8	FSU3WK393G142GL5
1600	650	0.047	32	17	8	27.5	4	94	29	20	2000	0.8	FSU3WK473G142GL5
1600	650	0.056	32	17	8	27.5	4.5	112	28	20	2000	0.8	FSU3WK563G142GL5
1600	650	0.068	32	18	9	27.5	5	136	24	20	2000	0.8	FSU3WK683G152GL5
1600	650	0.082	32	20	11	27.5	5.5	164	20	20	2000	0.8	FSU3WK823G182GL5
1600	650	0.1	32	22	13	27.5	6	200	18	20	2000	0.8	FSU3WK104G212GL5
1600	650	0.12	32	22	13	27.5	6.5	240	16	20	2000	0.8	FSU3WK124G212GL5
1600	650	0.15	32	24.5	13	27.5	7	300	14	20	2000	0.8	FSU3WK154G222GL5
1600	650	0.18	32	28	14	27.5	7.5	360	12	20	2000	0.8	FSU3WK184G262GL5
1600	650	0.22	32	33	18	27.5	8.5	440	10	20	2000	0.8	FSU3WK224G342GL5
1600	650	0.27	32	33	18	27.5	9	540	9.5	20	2000	0.8	FSU3WK274G342GL5
1600	650	0.33	32	33	18	27.5	10	660	8	20	2000	0.8	FSU3WK334G342GL5
1600	650	0.39	32	37	22	27.5	11	780	7	20	2000	0.8	FSU3WK394G402GL5
1600	650	0.47	32	37	22	27.5	12	940	6	20	2000	0.8	FSU3WK474G402GL5
1600	650	0.082	42	22	11	37.5	4.8	98.4	28	25	1200	1.0	FSU3WK823K852KL5
1600	650	0.1	42	22	11	37.5	5	120	24	25	1200	1.0	FSU3WK104K852KL5
1600	650	0.12	42	22	11	37.5	5.5	144	22	25	1200	1.0	FSU3WK124K852KL5
1600	650	0.15	42	22	11	37.5	5.8	180	20	25	1200	1.0	FSU3WK154K852KL5
1600	650	0.18	42	24	13	37.5	6	216	18	25	1200	1.0	FSU3WK184K112KL5
1600	650	0.22	42	24	13	37.5	6.2	264	17	25	1200	1.0	FSU3WK224K112KL5
1600	650	0.27	42	24	13	37.5	6.5	324	15	25	1200	1.0	FSU3WK274K112KL5
1600	650	0.33	42	28.5	16	37.5	6.8	396	14	25	1200	1.0	FSU3WK334K862KL5
1600	650	0.39	42	28.5	16	37.5	7.5	468	12.5	25	1200	1.0	FSU3WK394K862KL5
1600	650	0.47	42	32	19	37.5	8	564	12	25	1200	1.0	FSU3WK474K212KL5
1600	650	0.56	42	40	20	37.5	9	672	11	25	1200	1.0	FSU3WK564K242KL5
1600	650	0.68	42	40	20	37.5	9.5	816	10.5	25	1200	1.0	FSU3WK684K242KL5
1600	650	0.82	42	44	24	37.5	10.5	984	9	25	1200	1.0	FSU3WK824K322KL5
1600	650	1	42	44	24	37.5	12	1200	7.5	25	1200	1.0	FSU3WK105K322KL5
1600	650	1.2	42	45	30	37.5	14	1440	6	25	1200	1.0	FSU3WK125K422KL5

AUTOMOTIVE SERIES CAPACITORS
AiSHi THINK AHEAD

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	$ESR_{Typical}$ 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
2000	700	0.001	18	11	5	15	0.5	9.5	630	12	9500	0.8	FSU3DK102E142EL5
2000	700	0.0012	18	11	5	15	0.6	11.4	500	12	9500	0.8	FSU3DK122E142EL5
2000	700	0.0015	18	11	5	15	0.7	14.25	420	12	9500	0.8	FSU3DK152E142EL5
2000	700	0.0018	18	11	5	15	0.8	17.1	350	12	9500	0.8	FSU3DK182E142EL5
2000	700	0.0022	18	11	5	15	0.9	20.9	300	12	9500	0.8	FSU3DK222E142EL5
2000	700	0.0027	18	11	5	15	1	25.65	240	12	9500	0.8	FSU3DK272E142EL5
2000	700	0.0033	18	11	5	15	1.2	31.35	190	12	9500	0.8	FSU3DK332E142EL5
2000	700	0.0039	18	11	5	15	1.3	37.05	165	12	9500	0.8	FSU3DK392E142EL5
2000	700	0.0047	18	11	5	15	1.4	44.65	135	12	9500	0.8	FSU3DK472E142EL5
2000	700	0.0056	18	12	6	15	1.6	53.2	110	12	9500	0.8	FSU3DK562E172EL5
2000	700	0.0068	18	12	6	15	1.8	64.6	95	12	9500	0.8	FSU3DK682E172EL5
2000	700	0.0082	18	12	6	15	2	77.9	80	12	9500	0.8	FSU3DK822E172EL5
2000	700	0.01	18	13.5	7.5	15	2.5	95	65	12	9500	0.8	FSU3DK103E292EL5
2000	700	0.012	18	14.5	8.5	15	2.8	114	50	12	9500	0.8	FSU3DK123E342EL5
2000	700	0.015	18	14.5	8.5	15	3	142.5	45	12	9500	0.8	FSU3DK153E342EL5
2000	700	0.018	18	16	10	15	3.8	171	35	12	9500	0.8	FSU3DK183E432EL5
2000	700	0.001	26	15.5	6	22.5	0.6	4.5	550	15	4500	0.8	FSU3DK102F142FL5
2000	700	0.0012	26	15.5	6	22.5	0.7	5.4	450	15	4500	0.8	FSU3DK122F142FL5
2000	700	0.0015	26	15.5	6	22.5	0.8	6.75	360	15	4500	0.8	FSU3DK152F142FL5
2000	700	0.0018	26	15.5	6	22.5	0.9	8.1	300	15	4500	0.8	FSU3DK182F142FL5
2000	700	0.0022	26	15.5	6	22.5	1	9.9	250	15	4500	0.8	FSU3DK222F142FL5
2000	700	0.0027	26	15.5	6	22.5	1.2	12.15	230	15	4500	0.8	FSU3DK272F142FL5
2000	700	0.0033	26	15.5	6	22.5	1.2	14.85	200	15	4500	0.8	FSU3DK332F142FL5
2000	700	0.0039	26	15.5	6	22.5	1.4	17.55	180	15	4500	0.8	FSU3DK392F142FL5
2000	700	0.0047	26	15.5	6	22.5	1.6	21.15	140	15	4500	0.8	FSU3DK472F142FL5
2000	700	0.0056	26	15.5	6	22.5	1.8	25.2	120	15	4500	0.8	FSU3DK562F142FL5
2000	700	0.0038	26	15.5	6	22.5	2	30.6	95	15	4500	0.8	FSU3DK682F142FL5
2000	700	0.0082	26	15.5	6	22.5	2.2	36.9	75	15	4500	0.8	FSU3DK822F142FL5
2000	700	0.01	26	15.5	6	22.5	2.3	45	65	15	4500	0.8	FSU3DK103F142FL5
2000	700	0.012	26	15.5	6	22.5	2.5	54	60	15	4500	0.8	FSU3DK123F142FL5
2000	700	0.015	26	15.5	6	22.5	2.8	67.5	45	15	4500	0.8	FSU3DK153F142FL5
2000	700	0.018	26	15.5	6	22.5	3.2	81	35	15	4500	0.8	FSU3DK183F142FL5
2000	700	0.022	26	16.5	7	22.5	4	99	26	15	4500	0.8	FSU3DK223F172FL5
2000	700	0.027	26	16.5	7	22.5	4.5	121.5	20	15	4500	0.8	FSU3DK273F172FL5
2000	700	0.033	26	17	8.5	22.5	5.2	148.5	18	15	4500	0.8	FSU3DK333F202FL5
2000	700	0.039	26	19	10	22.5	5.8	175.5	15	15	4500	0.8	FSU3DK393F242FL5
2000	700	0.047	26	19	10	22.5	6	211.5	13	15	4500	0.8	FSU3DK473F242FL5
2000	700	0.056	26	20	11	22.5	6.5	252	12	15	4500	0.8	FSU3DK563F262FL5
2000	700	0.022	32	17	8	27.5	3	55	45	20	2500	0.8	FSU3DK223G142GL5
2000	700	0.027	32	17	8	27.5	3.5	67.5	40	20	2500	0.8	FSU3DK273G142GL5
2000	700	0.033	32	18	9	27.5	4	82.5	35	20	2500	0.8	FSU3DK333G152GL5
2000	700	0.039	32	20	11	27.5	4.5	97.5	28	20	2500	0.8	FSU3DK393G182GL5
2000	700	0.047	32	20	11	27.5	4.8	117.5	25	20	2500	0.8	FSU3DK473G182GL5
2000	700	0.056	32	22	13	27.5	5	140	24	20	2500	0.8	FSU3DK563G212GL5
2000	700	0.068	32	22	13	27.5	5.5	170	22	20	2500	0.8	FSU3DK683G212GL5
2000	700	0.082	32	24.5	13	27.5	6	205	20	20	2500	0.8	FSU3DK823G222GL5
2000	700	0.1	32	28	14	27.5	6.5	250	18	20	2500	0.8	FSU3DK104G262GL5
2000	700	0.12	32	33	18	27.5	7	300	16	20	2500	0.8	FSU3DK124G342GL5
2000	700	0.15	32	33	18	27.5	7.5	375	14	20	2500	0.8	FSU3DK154G342GL5
2000	700	0.18	32	37	22	27.5	8	450	12	20	2500	0.8	FSU3DK184G402GL5

FSU series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Irms max (10KHz70°C)	Peak Current	ESR Typical 10KHz	ESL	dv/dt	Lead Wrie	Part Number
			W	H	T	P							
		μF	mm	mm	mm	mm	A	A	mΩ	nH	V/us	mm	
2000	700	0.22	32	37	22	27.5	8.5	550	10	20	2500	0.8	FSU3DK224G402GL5
2000	700	0.033	42	22	11	37.5	4	49.5	35	25	1500	1.0	FSU3DK333K852KL5
2000	700	0.039	42	22	11	37.5	4.5	58.5	28	25	1500	1.0	FSU3DK393K852KL5
2000	700	0.047	42	22	11	37.5	4.8	70.5	26	25	1500	1.0	FSU3DK473K852KL5
2000	700	0.056	42	22	11	37.5	5	84	24	25	1500	1.0	FSU3DK563K852KL5
2000	700	0.068	42	22	11	37.5	5.4	102	23	25	1500	1.0	FSU3DK683K852KL5
2000	700	0.082	42	22	11	37.5	5.8	123	22	25	1500	1.0	FSU3DK823K852KL5
2000	700	0.1	42	24	13	37.5	6.5	150	18	25	1500	1.0	FSU3DK104K112KL5
2000	700	0.12	42	24	13	37.5	7	180	16	25	1500	1.0	FSU3DK124K112KL5
2000	700	0.15	42	28.5	16	37.5	7.5	225	15	25	1500	1.0	FSU3DK154K862KL5
2000	700	0.18	42	28.5	16	37.5	8	270	14	25	1500	1.0	FSU3DK184K862KL5
2000	700	0.22	42	32	19	37.5	8.5	330	12	25	1500	1.0	FSU3DK224K212KL5
2000	700	0.27	42	40	20	37.5	9	405	11	25	1500	1.0	FSU3DK274K242KL5
2000	700	0.33	42	40	20	37.5	9.5	495	10.5	25	1500	1.0	FSU3DK334K242KL5
2000	700	0.39	42	44	24	37.5	10	585	9.5	25	1500	1.0	FSU3DK394K322KL5
2000	700	0.47	42	44	24	37.5	10.5	705	9	25	1500	1.0	FSU3DK474K322KL5
2000	700	0.56	42	45	30	37.5	12	840	7.5	25	1500	1.0	FSU3DK564K422KL5
2000	700	0.68	42	45	30	37.5	14	1020	6	25	1500	1.0	FSU3DK684K422KL5

FGQ series

Overview

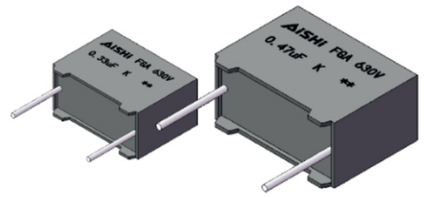
The FGQ series is constructed of metallized polypropylene film encapsulated in plastic cases, sealed with epoxy resin. These FGQ robustness design is suitable for harsh environmental conditions and qualify in accordance to AEC-Q200 requirement.

Applications

Suitable for used in power supplies, SMPS, inverters and automotive applications.

Features

- High ripple current
- Self-healing property
- High contact reliability, low losses
- Operating temperature range: -40°C to 105°C
- Lead Space (Pitch): 10mm ~ 22.5mm
- Suitable for harsh environmental conditions
- THB Grade IIIB - 85°C 85%RH, 1000 Hours, U_{NDC}
- Automotive Grade (AEC-Q200)



General Technical Data

Application	PFC Applications
Dielectric	Polypropylene Metallized Film
Reference Standard	IEC 60384-16 / AEC-Q200
Climatic Category	40/105/56 IEC 60068-1
Operating Temperature Range	−40°C ~ +105°C (85°C ~105°C, decreasing factor 1.25% per °C for Rated Voltage)

FGQ series

Electrical Characteristics

Voltage Range	450Vdc ~ 630Vdc
Capacitance Range	0.01μF ~ 3.3μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	1.5 x V_R VDC for 10 seconds (between terminations) @ +25°C ±5°C
Voltage Between Terminals and Case U_{TC}	2000VAC, 60 seconds（at+25+/-2°C）
Dielectric Dissipation Factor $Tg\delta_0$	$\leq 2\times10^{-4}$
Dissipation Factor	0.0010(25°C， 1KHz)
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 30 000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 10 000 MΩ*uF
Self-Inductance	<1nH per mm of lead spacing
Hot-Spot	≤85°C
Life Expectancy	100,000 hours (UR， Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	4000m
Overvoltage	**Maximum duration within one day**
Apply 110% of rated voltage	30% of on-load duration
Apply 115% of rated voltage	30 mins
Apply 120% of rated voltage	5 mins
Apply 130% of rated voltage	1 min

Part Number System

F	GQ	2W	K	225	E45	2EL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	DC Film, Metallized PP Film	450=2W 550=2J 630=2L	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

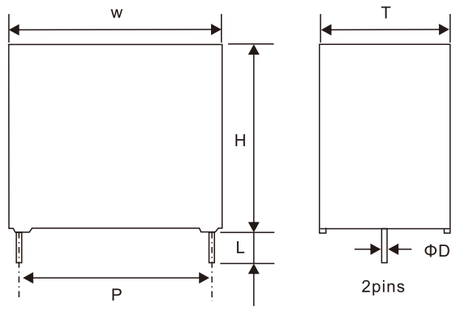
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	10.0mm	C	N/A	L
2 leads for straight cut	2	15.0mm	E		
2 leads for forming cut	E	22.5mm	F		
2 leads for taping forming	T				
2 leads for taping straight	V				
2 leads for 90°C bent cut	Y				

Lead Length Code

Lead Length	
20mm min	L
3.2mm	1
3.5mm	2
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
Taping	T
N/A	N

Dimension (mm)



FGQseries

Size Code Table (mm)

Size	Dimension						Pitch		Lead Wire	
Code	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
C13	13	0.5	11	0.5	5	0.5	10	0.5	0.8	0.05
C16	13	0.5	12	0.5	6	0.5	10	0.5	0.8	0.05
C24	13	0.5	13	0.5	7	0.5	10	0.5	0.8	0.05
C26	13	0.5	14	0.5	8	0.5	10	0.5	0.8	0.05
C27	13	0.5	16	0.5	8	0.5	10	0.5	0.8	0.05
C31	13	0.5	18	0.5	9	0.5	10	0.5	0.8	0.05
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.8	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.8	0.05
E21	18	0.5	13	0.5	7	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E45	18	0.5	18	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	27.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	27.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	27.5	0.5	0.8	0.05

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Peak Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P				
		μF	mm	mm	mm	mm	A	V/us	mm	
450	220	0.1	13.0	11.0	5.0	10.0	25	250	0.6	FGQ2WK104C132CL5
450	220	0.15	13.0	11.0	5.0	10.0	37.5	250	0.6	FGQ2WK154C132CL5
450	220	0.22	13.0	11.0	5.0	10.0	55	250	0.6	FGQ2WK224C132CL5
450	220	0.33	13.0	12.0	6.0	10.0	82.5	250	0.6	FGQ2WK334C162CL5
450	220	0.39	13.0	13.0	7.0	10.0	97.5	250	0.6	FGQ2WK394C242CL5
450	220	0.47	13.0	12.0	6.0	10.0	94	200	0.6	FGQ2WK474C162CL5
450	220	0.56	13.0	13.0	7.0	10.0	140	250	0.6	FGQ2WK564C242CL5
450	220	0.68	13.0	14.0	8.0	10.0	170	250	0.6	FGQ2WK684C262CL5
450	220	0.82	13.0	16.0	8.0	10.0	205	250	0.6	FGQ2WK824C272CL5
450	220	1	13.0	18.0	9.0	10.0	200	200	0.6	FGQ2WK105C312CL5
450	220	0.1	18.0	11.0	5.0	15.0	16	160	0.6	FGQ2WK104E142EL5
450	220	0.15	18.0	11.0	5.0	15.0	24	160	0.6	FGQ2WK154E142EL5
450	220	0.22	18.0	11.0	5.0	15.0	26.4	120	0.6	FGQ2WK224E142EL5
450	220	0.33	18.0	11.0	5.0	15.0	39.6	120	0.6	FGQ2WK334E142EL5
450	220	0.47	18.0	11.0	5.0	15.0	56.4	120	0.6	FGQ2WK474E142EL5
450	220	0.68	18.0	12.0	6.0	15.0	81.6	120	0.6	FGQ2WK684E172EL5
450	220	0.82	18.0	13.0	7.0	15.0	131.2	160	0.8	FGQ2WK824E212EL5
450	220	1	18.0	13.0	7.0	15.0	120	120	0.8	FGQ2WK105E212EL5
450	220	1.5	18.0	14.5	8.5	15.0	180	120	0.8	FGQ2WK155E342EL5
450	220	2	18.0	18.0	9.0	15.0	240	120	0.8	FGQ2WK205E392EL5
450	220	2.2	18.0	18.0	10.0	15.0	264	120	0.8	FGQ2WK225E452EL5
450	220	2.2	26.0	17.0	8.5	22.5	220	100	0.8	FGQ2WK225F202FL5
450	220	3.3	26.0	19.0	10.0	22.5	330	100	0.8	FGQ2WK335F242FL5

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Peak Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P				
		μF	mm	mm	mm	mm	A	V/us	mm	
550	250	0.1	13.0	11.0	5.0	10.0	30	300	0.6	FGQ2JK104C132CL5
550	250	0.15	13.0	11.0	5.0	10.0	45	300	0.6	FGQ2JK154C132CL5
550	250	0.22	13.0	12.0	6.0	10.0	66	300	0.6	FGQ2JK224C162CL5
550	250	0.33	13.0	14.0	8.0	10.0	99	300	0.6	FGQ2JK334C262CL5
550	250	0.47	13.0	16.0	8.0	10.0	141	300	0.6	FGQ2JK474C272CL5
550	250	0.1	18.0	11.0	5.0	15.0	20	200	0.6	FGQ2JK104E142EL5
550	250	0.15	18.0	11.0	5.0	15.0	30	200	0.6	FGQ2JK154E142EL5
550	250	0.22	18.0	11.0	5.0	15.0	44	200	0.6	FGQ2JK224E142EL5
550	250	0.33	18.0	12.0	6.0	15.0	66	200	0.6	FGQ2JK334E172EL5
550	250	0.47	18.0	13.0	7.0	15.0	94	200	0.8	FGQ2JK474E212EL5
550	250	0.68	18.0	14.5	8.5	15.0	136	200	0.8	FGQ2JK684E342EL5
550	250	0.82	18.0	14.5	8.5	15.0	164	200	0.8	FGQ2JK824E342EL5
550	250	1	18.0	16.0	10.0	15.0	200	200	0.8	FGQ2JK105E432EL5
550	250	1.5	18.0	19.0	11.0	15.0	300	200	0.8	FGQ2JK105E472EL5
550	250	1.5	26.0	19.0	10.0	22.5	180	120	0.8	FGQ2JK155F242FL5
550	250	2.2	26.0	20.0	11.0	22.5	264	120	0.8	FGQ2JK225F262FL5

FGQ series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Peak Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P				
		μF	mm	mm	mm	mm	A	V/us	mm	
630	275	0.01	13.0	11.0	5.0	10.0	4	400	0.6	FGQ2LK103C132CL5
630	275	0.015	13.0	11.0	5.0	10.0	6	400	0.6	FGQ2LK153C132CL5
630	275	0.022	13.0	11.0	5.0	10.0	8.8	400	0.6	FGQ2LK223C132CL5
630	275	0.033	13.0	11.0	5.0	10.0	13.2	400	0.6	FGQ2LK333C132CL5
630	275	0.047	13.0	11.0	5.0	10.0	18.8	400	0.6	FGQ2LK473C132CL5
630	275	0.068	13.0	11.0	5.0	10.0	27.2	400	0.6	FGQ2LK683C132CL5
630	275	0.082	13.0	11.0	5.0	10.0	32.8	400	0.6	FGQ2LK823C132CL5
630	275	0.1	13.0	11.0	5.0	10.0	40	400	0.6	FGQ2LK104C132CL5
630	275	0.047	18.0	11.0	5.0	15.0	11.75	250	0.6	FGQ2LK473E142EL5
630	275	0.056	18.0	11.0	5.0	15.0	14	250	0.6	FGQ2LK563E142EL5
630	275	0.068	18.0	11.0	5.0	15.0	17	250	0.6	FGQ2LK683E142EL5
630	275	0.082	18.0	11.0	5.0	15.0	20.5	250	0.6	FGQ2LK823E142EL5
630	275	0.1	18.0	11.0	5.0	15.0	25	250	0.6	FGQ2LK104E142EL5
630	275	0.15	18.0	11.0	5.0	15.0	37.5	250	0.6	FGQ2LK154E142EL5
630	275	0.22	18.0	12.0	6.0	15.0	55	250	0.6	FGQ2LK224E172EL5
630	275	0.33	18.0	13.0	7.0	15.0	82.5	250	0.8	FGQ2LK334E212EL5
630	275	0.47	18.0	14.0	8.5	15.0	117.5	250	0.8	FGQ2LK474E342EL5
630	275	0.68	18.0	16.0	10.0	15.0	170	250	0.8	FGQ2LK684E432EL5
630	275	0.82	18.0	18.0	10.0	15.0	205	250	0.8	FGQ2LK684E452EL5
630	275	1	18.0	19.0	11.0	15.0	250	250	0.8	FGQ2LK684E472EL5
630	275	1	26.0	17.0	8.5	22.5	160	160	0.8	FGQ2LK824F202FL5
630	275	1.5	26.0	20.0	11.0	22.5	240	160	0.8	FGQ2LK105F262FL5

FGU series

Overview

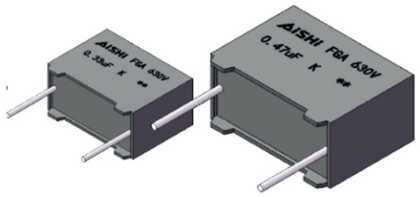
The FGU series is constructed of metallized polypropylene film encapsulated in plastic cases, sealed with epoxy resin. These FGU robustness design is suitable for harsh environmental conditions and qualify in accordance to AEC-Q200 requirement.

Applications

Suitable for used in power supplies, SMPS, inverters and automotive applications.

Features

- High ripple current
- Self-healing property
- High contact reliability, low losses
- Operating temperature range: -55°C to 125°C
- Lead Space (Pitch): 10mm ~ 22.5mm
- Automotive Grade (AEC-Q200)
- THB Grade IIIB



Qualification

Reference Standard	IEC 60384-16	RoHS REACH
Climate Category	40/105/56 IEC 60068-1	

General Technical Data

Application	PFC Applications
Dielectric	Polypropylene Metallized Film
Reference Standard	IEC 60384-16
Climatic Category	40/105/56 IEC 60068-1
Operating Temperature Range	Rated Temperature： 85°C Max Operating Temperature: 125°C (Case) Upper category temperature: 105°C Lower category temperature: -55°C

FGU series

Electrical Characteristics

Voltage Range	450Vdc ~ 630Vdc
Capacitance Range	0.01μF ~ 3.3μF
Capacitance Tolerance	±5% or ±10% at +25°C
Capacitance	Measuring Frequency at 1kHz Measuring Voltage:1±0.2V
Standard Atmospheric Conditions for Static Test	**Ambient temperature** 15°C to 35°C (If there is any doubt on the results, the measurements shall be made at +20 +/- 5°C)
	Relative humidity 45% to 75% (If there is any doubt on the results, the measurements shall be made at 60% to 70%)
	Air pressure 86 kPa to 106 kPa.
Voltage Between Terminals U_{TT}	1.5 x V_R VDC for 10 seconds (between terminations) @ +25°C ±5°C
Voltage Between Terminals and Case U_{TC}	2000V_{AC}, 60 seconds（at+25+/-2°C）
Dielectric Dissipation Factor $Tg\delta_0$	≤2×10^{-4}
Dissipation Factor	0.0010(25°C， 1KHz)
Insulation Resistance	R between leads, for C ≤ 0.33 μF at 100 V; 1 min > 30,000 MΩ RC between leads, for C > 0.33 μF at 100 V; 1 min > 10,000 MΩ*uF
Self-Inductance	<1nH per mm of lead spacing
Hot-Spot	≤85°C
Life Expectancy	100,000 hours (UR， Θhotspot=85°C)
Failure Rate	100 Fit
Max. Altitude	2000m
Overvoltage	**Maximum duration within one day**
Apply 110% of rated voltage	30% of on-load duration
Apply 115% of rated voltage	30 mins
Apply 120% of rated voltage	5 mins
Apply 130% of rated voltage	1 min

Part Number System

F	GU	2W	K	105	E43	2EL	5
Capacitor Type	Series	Voltage (VAC)	Tolerance	Capacitance (pF)	Size Code	Terminal Code	Lead Length Code
F = Film	DC Film, Metallized PP Film, 125°C	450=2W 550=2J 630=2L	J = ±5% K = ±10%	First two digits = significant figures. Third digit = Number of zeros.	Refer to Size Code Table	Refer to Terminal Code Table	Refer to Lead Length Code Table

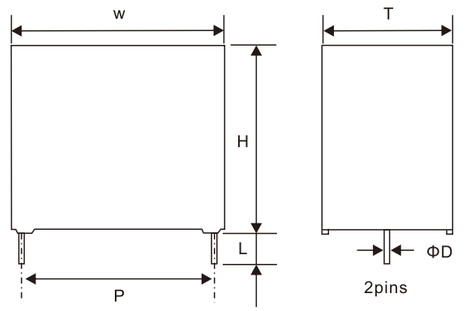
Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	10.0mm	C	N/A	L
2 leads for straight cut	2	15.0mm	E		
2 leads for forming cut	E	22.5mm	F		
2 leads for taping forming	T				
2 leads for taping straight	V				
2 leads for 90°C bent cut	Y				

Lead Length Code

Lead Length	
20mm min	L
3.2mm	1
3.5mm	2
3.0mm	3
4.0mm	4
5.0mm	5
7.0mm	7
Taping	T
N/A	N

Dimension (mm)



FGU series

Size Code Table (mm)

Size	Dimension						Pitch		Lead Wire	
Code	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Φd	Tolerance
C13	13	0.5	11	0.5	5	0.5	10	0.5	0.6	0.05
C16	13	0.5	12	0.5	6	0.5	10	0.5	0.6	0.05
C24	13	0.5	13	0.5	7	0.5	10	0.5	0.8	0.05
C26	13	0.5	14	0.5	8	0.5	10	0.5	0.8	0.05
C27	13	0.5	16	0.5	8	0.5	10	0.5	0.8	0.05
C31	13	0.5	18	0.5	9	0.5	10	0.5	0.8	0.05
E14	18	0.5	11	0.5	5	0.5	15	0.5	0.8	0.05
E17	18	0.5	12	0.5	6	0.5	15	0.5	0.8	0.05
E21	18	0.5	13	0.5	7	0.5	15	0.5	0.8	0.05
E34	18	0.5	14.5	0.5	8.5	0.5	15	0.5	0.8	0.05
E43	18	0.5	16	0.5	10	0.5	15	0.5	0.8	0.05
E45	18	0.5	18	0.5	10	0.5	15	0.5	0.8	0.05
E47	18	0.5	19	0.5	11	0.5	15	0.5	0.8	0.05
F20	26	0.5	17	0.5	8.5	0.5	27.5	0.5	0.8	0.05
F24	26	0.5	19	0.5	10	0.5	27.5	0.5	0.8	0.05
F26	26	0.5	20	0.5	11	0.5	27.5	0.5	0.8	0.05

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Peak Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P				
		μF	mm	mm	mm	mm	A	V/us	mm	
450	220	0.1	13.0	11.0	5.0	10.0	25	250	0.6	FGU2WK104C132CL5
450	220	0.15	13.0	11.0	5.0	10.0	37.5	250	0.6	FGU2WK154C132CL5
450	220	0.22	13.0	11.0	5.0	10.0	55	250	0.6	FGU2WK224C132CL5
450	220	0.33	13.0	12.0	6.0	10.0	82.5	250	0.6	FGU2WK334C162CL5
450	220	0.39	13.0	13.0	7.0	10.0	97.5	250	0.6	FGU2WK394C242CL5
450	220	0.47	13.0	12.0	6.0	10.0	94	200	0.6	FGU2WK474C162CL5
450	220	0.56	13.0	13.0	7.0	10.0	140	250	0.6	FGU2WK564C242CL5
450	220	0.68	13.0	14.0	8.0	10.0	170	250	0.6	FGU2WK684C262CL5
450	220	0.82	13.0	16.0	8.0	10.0	205	250	0.6	FGU2WK824C272CL5
450	220	1	13.0	18.0	9.0	10.0	200	200	0.6	FGU2WK105C312CL5
450	220	0.1	18.0	11.0	5.0	15.0	16	160	0.6	FGU2WK104E142EL5
450	220	0.15	18.0	11.0	5.0	15.0	24	160	0.6	FGU2WK154E142EL5
450	220	0.22	18.0	11.0	5.0	15.0	26.4	120	0.6	FGU2WK224E142EL5
450	220	0.33	18.0	11.0	5.0	15.0	39.6	120	0.6	FGU2WK334E142EL5
450	220	0.47	18.0	11.0	5.0	15.0	56.4	120	0.6	FGU2WK474E142EL5
450	220	0.68	18.0	12.0	6.0	15.0	81.6	120	0.6	FGU2WK684E172EL5
450	220	0.82	18.0	13.0	7.0	15.0	131.2	160	0.8	FGU2WK824E212EL5
450	220	1	18.0	13.0	7.0	15.0	120	120	0.8	FGU2WK105E212EL5
450	220	1.5	18.0	14.5	8.5	15.0	180	120	0.8	FGU2WK155E342EL5
450	220	2	18.0	18.0	9.0	15.0	240	120	0.8	FGU2WK205E392EL5
450	220	2.2	18.0	18.0	10.0	15.0	264	120	0.8	FGU2WK225E452EL5
450	220	2.2	26.0	17.0	8.5	22.5	220	100	0.8	FGU2WK225F202FL5
450	220	3.3	26.0	19.0	10.0	22.5	330	100	0.8	FGU2WK335F242FL5

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Peak Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P				
		μF	mm	mm	mm	mm	A	V/us	mm	
550	250	0.1	13.0	11.0	5.0	10.0	30	300	0.6	FGU2JK104C132CL5
550	250	0.15	13.0	11.0	5.0	10.0	45	300	0.6	FGU2JK154C132CL5
550	250	0.22	13.0	12.0	6.0	10.0	66	300	0.6	FGU2JK224C162CL5
550	250	0.33	13.0	14.0	8.0	10.0	99	300	0.6	FGU2JK334C262CL5
550	250	0.47	13.0	16.0	8.0	10.0	141	300	0.6	FGU2JK474C272CL5
550	250	0.1	18.0	11.0	5.0	15.0	20	200	0.6	FGU2JK104E142EL5
550	250	0.15	18.0	11.0	5.0	15.0	30	200	0.6	FGU2JK154E142EL5
550	250	0.22	18.0	11.0	5.0	15.0	44	200	0.6	FGU2JK224E142EL5
550	250	0.33	18.0	12.0	6.0	15.0	66	200	0.6	FGU2JK334E172EL5
550	250	0.47	18.0	13.0	7.0	15.0	94	200	0.8	FGU2JK474E212EL5
550	250	0.68	18.0	14.5	8.5	15.0	136	200	0.8	FGU2JK684E342EL5
550	250	0.82	18.0	14.5	8.5	15.0	164	200	0.8	FGU2JK824E342EL5
550	250	1	18.0	16.0	10.0	15.0	200	200	0.8	FGU2JK105E432EL5
550	250	1.5	18.0	19.0	11.0	15.0	300	200	0.8	FGU2JK105E472EL5
550	250	1.5	26.0	19.0	10.0	22.5	180	120	0.8	FGU2JK155F242FL5
550	250	2.2	26.0	20.0	11.0	22.5	264	120	0.8	FGU2JK225F262FL5

FGU series

Rating and Part Number

Vdc	Vac	Cap Value	Dimensions				Peak Current	dv/dt	Lead Wrie	Part Number
			W	H	T	P				
		μF	mm	mm	mm	mm	A	V/us	mm	
630	275	0.01	13.0	11.0	5.0	10.0	4	400	0.6	FGU2LK103C132CL5
630	275	0.015	13.0	11.0	5.0	10.0	6	400	0.6	FGU2LK153C132CL5
630	275	0.022	13.0	11.0	5.0	10.0	8.8	400	0.6	FGU2LK223C132CL5
630	275	0.033	13.0	11.0	5.0	10.0	13.2	400	0.6	FGU2LK333C132CL5
630	275	0.047	13.0	11.0	5.0	10.0	18.8	400	0.6	FGU2LK473C132CL5
630	275	0.068	13.0	11.0	5.0	10.0	27.2	400	0.6	FGU2LK683C132CL5
630	275	0.082	13.0	11.0	5.0	10.0	32.8	400	0.6	FGU2LK823C132CL5
630	275	0.1	13.0	11.0	5.0	10.0	40	400	0.6	FGU2LK104C132CL5
630	275	0.047	18.0	11.0	5.0	15.0	11.75	250	0.6	FGU2LK473E142EL5
630	275	0.056	18.0	11.0	5.0	15.0	14	250	0.6	FGU2LK563E142EL5
630	275	0.068	18.0	11.0	5.0	15.0	17	250	0.6	FGU2LK683E142EL5
630	275	0.082	18.0	11.0	5.0	15.0	20.5	250	0.6	FGU2LK823E142EL5
630	275	0.1	18.0	11.0	5.0	15.0	25	250	0.6	FGU2LK104E142EL5
630	275	0.15	18.0	11.0	5.0	15.0	37.5	250	0.6	FGU2LK154E142EL5
630	275	0.22	18.0	12.0	6.0	15.0	55	250	0.6	FGU2LK224E172EL5
630	275	0.33	18.0	13.0	7.0	15.0	82.5	250	0.8	FGU2LK334E212EL5
630	275	0.47	18.0	14.0	8.5	15.0	117.5	250	0.8	FGU2LK474E342EL5
630	275	0.68	18.0	16.0	10.0	15.0	170	250	0.8	FGU2LK684E432EL5
630	275	0.82	18.0	18.0	10.0	15.0	205	250	0.8	FGU2LK684E452EL5
630	275	1	18.0	19.0	11.0	15.0	250	250	0.8	FGU2LK684E472EL5
630	275	1	26.0	17.0	8.5	22.5	160	160	0.8	FGU2LK824F202FL5
630	275	1.5	26.0	20.0	11.0	22.5	240	160	0.8	FGU2LK105F262FL5