

Metallized Polypropylene Film AC Filtering Capacitors

FAH Series - 160 ~ 450VAC (Axial Type, THB)



Overview

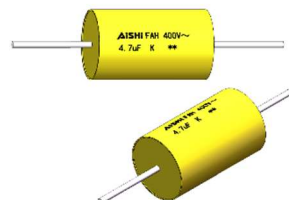
The FAH capacitor is constructed of metallized polypropylene film encapsulated with polyester tape wrapping filled with epoxy resin and tinned copper wire.

Applications

Widely used in Clamping, AC and Harmonic Filtering and UPS Systems. Suitable for harsh environmental conditions.

Features

- High ripple current
- Self-healing and low loss
- Optimized AC voltage performance
- Suitable for high frequency applications

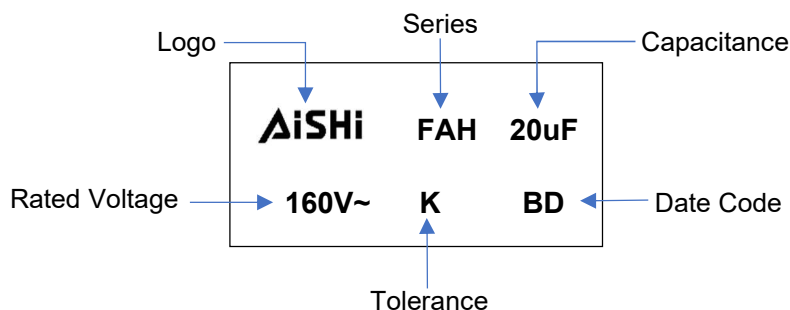


Qualification

Reference Standard	IEC 61071
Climate Category	40/85/56 IEC 60068-1



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	Jul	7
2025	H	Aug	8
2026	J	Sep	9
2027	K	Oct	A
2028	L	Nov	N
2029	M	Dec	D

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Part Number System

F	AH	16	K	106	048	XLL	B
Capacitor Type	Series	Voltage (VDC)	Tolerance	Capacitance (pF)	Size Code (L)	Terminal Code	Lead Length Code
F = Film	AC Filtering, Axial THB Type, Metallized PP Film	160=16 250=25 275=27 350=35 400=40 450=45	J = $\pm 5\%$ K = $\pm 10\%$	First two digits = significant figures. Third digit = Number of zeros.	34mm=034 48mm=048 58mm=058	Refer to Terminal Code Table	Refer to Lead Length Code Table

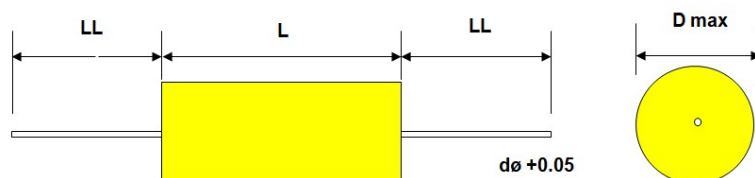
Terminal Code

Digit One (Lead/Terminal Type)	Digit Two (Lead Space)	Digit Three (Lead Ipsilateral)
Axial Lead	X	NA

Lead Length Code

Lead Length
20.0mm min
35.0mm min
NA

Dimension (mm)



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Rating and Part Number

Vac	Cap Value μF	Dimensions		Irms 10KHz 70°C A	Peak Current A	ESR 10K Typical mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		D mm max	L mm max								
160	1.0	10.0	34.0	6.0	60.0	8.7	12.0	47.9	30	0.8	FAH16K105034XNLB
160	2.2	11.5	34.0	6.0	66.0	14.2	20.0	29.3	30	0.8	FAH16K225034XNLB
160	2.5	12.0	34.0	7.0	75.0	12.7	20.0	24.1	30	0.8	FAH16K255034XNLB
160	3.0	13.5	34.0	8.0	90.0	10.7	20.0	21.9	30	1.0	FAH16K305034XNLB
160	3.3	14.0	34.0	9.0	99.0	9.8	20.0	18.9	30	1.0	FAH16K335034XNLB
160	4.0	15.5	34.0	9.0	120.0	8.3	20.0	22.3	30	1.0	FAH16K405034XNLB
160	5.0	17.0	34.0	9.0	150.0	7.0	20.0	26.5	30	1.0	FAH16K505034XNLB
160	6.8	19.5	34.0	9.0	204.0	5.7	20.0	32.5	30	1.0	FAH16K685034XNLB
160	8	18.0	48.0	9.0	160.0	6.9	25.0	26.8	20	1.0	FAH16K805048XNLB
160	10	20.0	48.0	9.0	200.0	12.4	25.0	14.9	20	1.0	FAH16K106048XNLB
160	15	24.0	48.0	12.0	300.0	5.1	25.0	20.4	20	1.2	FAH16K156048XNLB
160	18	26.0	48.0	12.0	360.0	4.4	25.0	23.7	20	1.2	FAH16K186048XNLB
160	20	28.0	48.0	12.0	400.0	10.7	25.0	9.7	20	1.2	FAH16K206048XNLB
160	25	31.0	48.0	12.0	500.0	4.0	25.0	26	20	1.2	FAH16K256048XNLB
160	30	29.0	58.0	12.0	450.0	5.2	30.0	20	15	1.2	FAH16K306058XNLB
160	35	33.5	58.0	12.0	525.0	4.6	30.0	22.6	15	1.2	FAH16K356058XNLB
160	40	36.0	58.0	12.0	600.0	8.8	30.0	11.8	15	1.2	FAH16K406058XNLB
250	0.47	9.5	34.0	6.0	28.2	14.4	15.0	28.9	45	0.8	FAH25K474034XNLB
250	0.68	10.0	34.0	6.0	30.6	15.2	20.0	27.4	45	0.8	FAH25K684034XNLB
250	0.82	11.0	34.0	6.5	36.9	13.8	20.0	26.5	45	0.8	FAH25K824034XNLB
250	1.0	12.0	34.0	7.0	45.0	10.8	20.0	28.3	45	0.8	FAH25K105034XNLB
250	1.5	14.5	34.0	9.0	67.5	75.0	20.0	24.7	45	1.0	FAH25K155034XNLB
250	2.0	16.5	34.0	9.0	90.0	6.1	20.0	30.4	45	1.0	FAH25K205034XNLB
250	2.2	17.5	34.0	9.0	99.0	5.7	20.0	32.5	45	1.0	FAH25K225034XNLB
250	2.5	18.5	34.0	9.0	112.5	5.2	20.0	35.6	45	1.0	FAH25K255034XNLB
250	3.0	20.0	34.0	9.0	135.0	4.7	20.0	39.4	45	1.0	FAH25K305034XNLB
250	3.3	18.0	48.0	9.0	99.0	6.8	25.0	27.2	30	1.0	FAH25K335048XNLB
250	4.0	19.5	48.0	9.0	120.0	6.0	25.0	30.9	30	1.0	FAH25K405048XNLB
250	4.7	21.0	48.0	9.0	141.0	5.3	25.0	34.9	30	1.0	FAH25K475048XNLB
250	5.0	21.5	48.0	9.0	150.0	5.2	25.0	35.6	30	1.0	FAH25K505048XNLB
250	6.8	25.0	48.0	12.0	204.0	4.2	25.0	24.8	30	1.2	FAH25K685048XNLB
250	10	30.0	48.0	12.0	300.0	3.5	25.0	29.8	30	1.2	FAH25K106048XNLB
250	15	31.5	58.0	12.0	300.0	6.2	30.0	16.8	20	1.2	FAH25K156058XNLB
250	20	35.0	58.0	12.0	400.0	5.2	30.0	20	20	1.2	FAH25K206058XNLB
330	0.47	11.0	34.0	6.0	28.2	17.0	20.0	24.5	60	0.8	FAH33K474034XNLB
330	0.68	13.0	34.0	7.0	40.8	12.2	20.0	25.1	60	0.8	FAH33K684034XNLB
330	1.0	15.5	34.0	9.0	60.0	8.6	20.0	21.5	60	1.0	FAH33K105034XNLB
330	2.0	18.5	48.0	9.0	80.0	8.2	25.0	22.6	40	1.0	FAH33K205048XNLB
330	2.2	19.5	48.0	9.0	88.0	6.8	25.0	27.2	40	1.0	FAH33K225048XNLB
330	3.0	22.5	48.0	9.0	120.0	6.2	25.0	29.9	40	1.0	FAH33K305048XNLB
330	3.3	23.5	48.0	12.0	132.0	5.6	25.0	18.6	40	1.2	FAH33K335048XNLB
330	4.0	25.5	48.0	12.0	160.0	4.9	25.0	21.3	40	1.2	FAH33K405048XNLB
330	4.7	27.5	48.0	12.0	188.0	4.6	25.0	22.6	40	1.2	FAH33K475048XNLB
330	5.0	28.5	48.0	12.0	200.0	4.4	25.0	23.7	40	1.2	FAH33K505048XNLB
330	6.8	28.5	58.0	12.0	204.0	8.8	30.0	11.8	30	1.2	FAH33K685058XNLB
330	10	34.5	58.0	12.0	300.0	6.9	30.0	15.1	30	1.2	FAH33K106058XNLB
400	0.47	14.5	34.0	8.0	37.6	12.4	20.0	18.9	80	1.0	FAH40K474034XNLB
400	0.68	17.0	34.0	9.0	54.4	9.1	20.0	20.4	80	1.0	FAH40K684034XNLB

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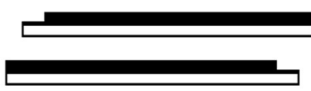
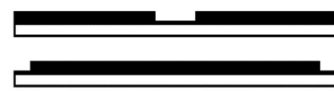
Rating and Part Number

Vac	Cap Value μF	Dimensions		Irms 10KHz 70°C A	Peak Current A	ESR 10K Typical mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		D mm max	L mm max								
400	1.0	20.5	34.0	9.0	80.0	6.8	20.0	27.2	80	1.0	FAH40K105034XNLB
400	1.5	20.5	48.0	9.0	90.0	8.3	25.0	22.3	60	1.0	FAH40K155048XNLB
400	2.0	23.5	48.0	12.0	120.0	6.5	25.0	16	60	1.2	FAH40K205048XNLB
400	2.2	24.5	48.0	12.0	132.0	6.1	25.0	17.1	60	1.2	FAH40K225048XNLB
400	3.0	28.5	48.0	12.0	180.0	5.1	25.0	20.4	60	1.2	FAH40K305048XNLB
400	3.3	30.0	48.0	12.0	198.0	4.8	25.0	21.7	60	1.2	FAH40K335048XNLB
400	4.0	33.0	48.0	12.0	240.0	4.6	25.0	22.6	60	1.2	FAH40K405048XNLB
400	4.7	29.5	58.0	12.0	188.0	10.3	30.0	10.1	40	1.2	FAH40K475058XNLB
400	5.0	30.5	58.0	12.0	200.0	9.8	30.0	10.6	40	1.2	FAH40K505058XNLB
400	6.8	35.0	58.0	12.0	272.0	7.9	30.0	13.2	40	1.2	FAH40K685058XNLB
450	0.15	10.0	34.0	5.0	31.5	18.9	20.0	31.7	210	0.8	FAH45K154034XNLB
450	0.22	12.0	34.0	7.0	46.2	13.4	20.0	22.8	210	0.8	FAH45K224034XNLB
450	0.33	14.5	34.0	9.0	69.3	9.2	20.0	20.1	210	1.0	FAH45K334034XNLB
450	0.47	17.0	34.0	9.0	98.7	7.0	20.0	26.5	210	1.0	FAH45K474034XNLB
450	0.68	20.5	34.0	9.0	142.8	5.5	20.0	33.7	210	1.0	FAH45K684034XNLB
450	1.0	20.5	48.0	9.0	140.0	6.1	25.0	30.4	140	1.0	FAH45K105048XNLB
450	1.5	24.5	48.0	12.0	210.0	4.6	25.0	22.6	140	1.2	FAH45K155048XNLB
450	2.0	28.5	48.0	12.0	280.0	4.0	25.0	26	140	1.2	FAH45K205048XNLB
450	2.2	29.5	48.0	12.0	308.0	3.9	25.0	26.7	140	1.2	FAH45K225048XNLB
450	2.5	31.5	48.0	12.0	350.0	3.8	25.0	27.4	140	1.2	FAH45K255048XNLB
450	3.0	28.0	58.0	12.0	270.0	4.7	30.0	22.2	90	1.2	FAH45K305058XNLB
450	3.3	29.5	58.0	12.0	297.0	4.6	30.0	22.6	90	1.2	FAH45K335058XNLB
450	4.0	32.5	58.0	12.0	360.0	4.2	30.0	24.8	90	1.2	FAH45K405058XNLB

General Technical Data

Applications	AC Filtering
Dielectric	Metallized Polypropylene Film
Reference Standard	IEC 61071/EN 61071
Climatic Category	40/85/56 IEC 60068-1
Operating Temperature Range	-40°C ~ +105°C (85°C ~105°C, decreasing factor 1.25% per °C for Urms)
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.

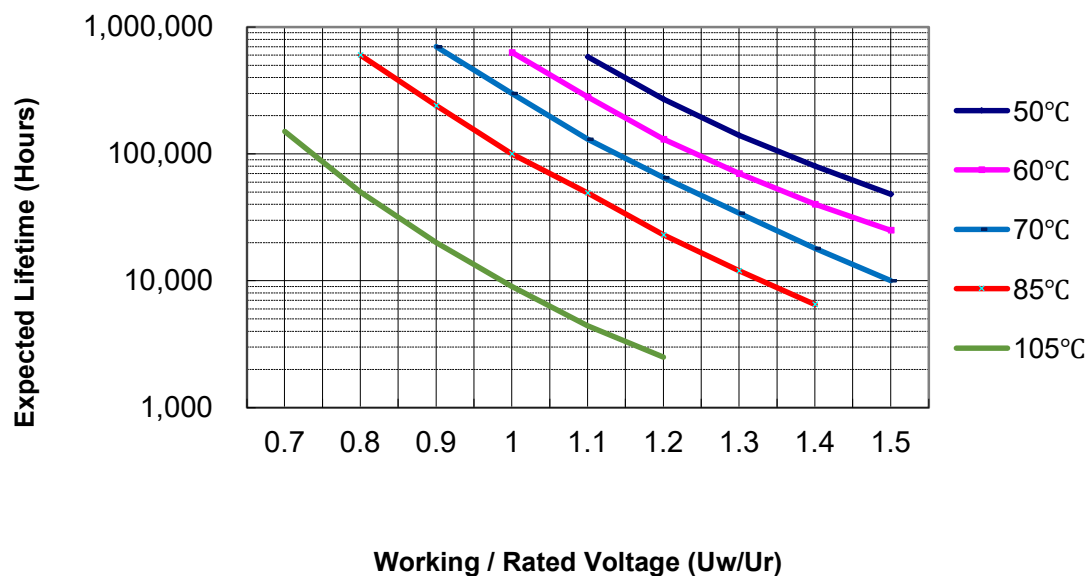
Construction

Metallized Film	OPP & Al/Zn	
Metal Sprayed	Sn/Zn Alloy	
Connection Electrode	Tinned copper wires	
Wrap	Wrap of Polyester Film	
Filling	Epoxy Resin (UL94V-0)	
Film Construction	<p>Mono Structure</p> 	<p>Internal Series Connection</p> 

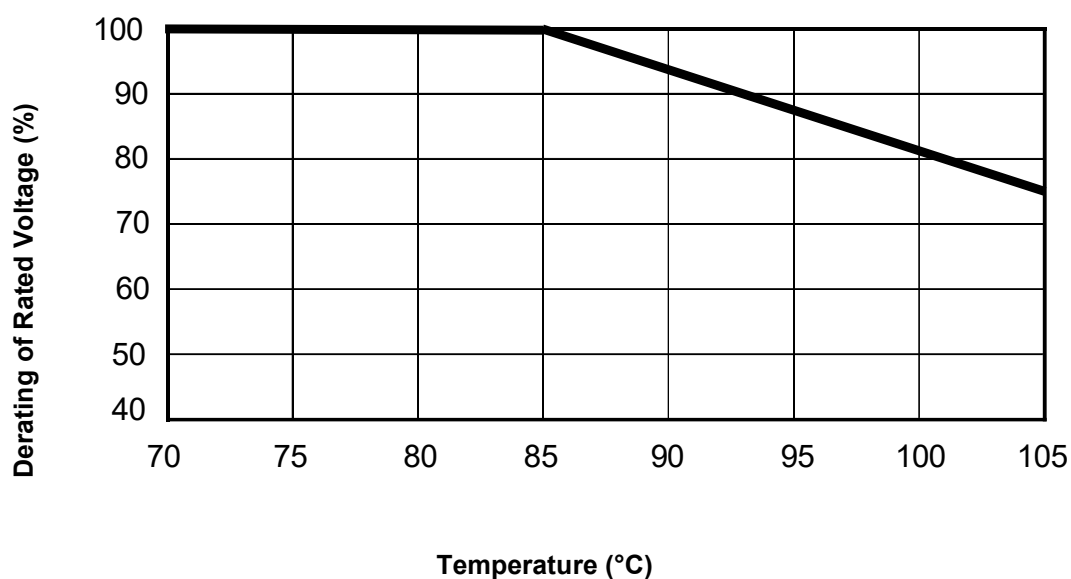
Electrical Characteristics

Voltage Range	160Vac ~ 450Vac
Capacitance Range	0.15uF ~40uF
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 Vac 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 (0.20%) at 1 KHz. C≤20uF at +25°C ≤ 0.003 (0.30%) at 1 KHz. C>20uF 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	2000 m
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

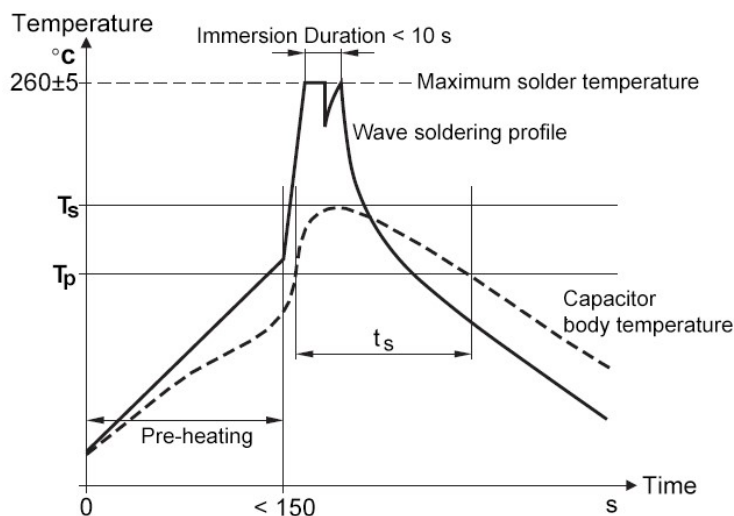
Expected Life Curve



Derating of Rated Voltage Vs Temperature



Wave Soldering Recommendations

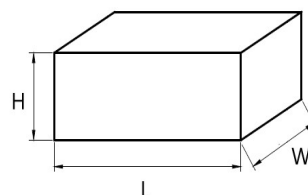


Ts: Capacitor body maximum temperature at wave soldering
Tp: Capacitor body maximum temperature at pre-heating

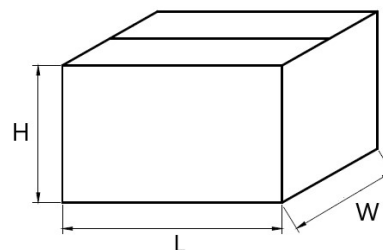
Polypropylene Capacitors	Polyester Capacitors
During pre-heating: $T_p \leq 110^\circ\text{C}$ During soldering: $T_s \leq 120^\circ\text{C}$, $t_s \leq 60$	During pre-heating: $T_p \leq 130^\circ\text{C}$ During soldering: $T_s \leq 160^\circ\text{C}$, $t_s \leq 60\text{s}$

Packaging Information

Inner Box Specifications (Dimensions)			
Box #	L ±3mm	W ±3mm	H ±3mm
# 8	425	185	105



Outer Box Specifications (Dimensions)			
Box #	L ±5mm	W ±5mm	H ±5mm
# 3	445	400	250



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 board by the fixed capacitor.
- Don't place the capacitor on a PC board whose holes pitch 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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