

### Overview

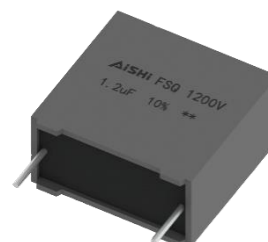
The FSQ series is constructed of metallized polypropylene film with double-sided metallized film encapsulated with epoxy resin in a plastic box, with 2 tinned copper wires. The FSQ series is suitable for harsh environmental condition and qualify in accordance to AEC-Q200D requirement.

### Applications

Widely used in high voltage, high frequency circuit, snubber and SCR commutating circuits. Specially design for OBC and automotive applications.

### 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<sub>NDC</sub>
- Automotive Grade (AEC-Q200D)

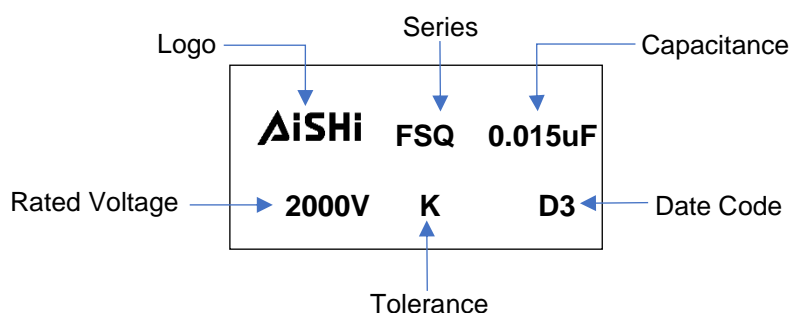


### Qualification

Reference Standard	IEC 61071, EN 61071, AEC-Q200D
Climate Category	40/105/56 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

### Part Number System

F	SQ	3D	K	153	E34	2EL	5
Capacitor Type	Series	Voltage (VDC)	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

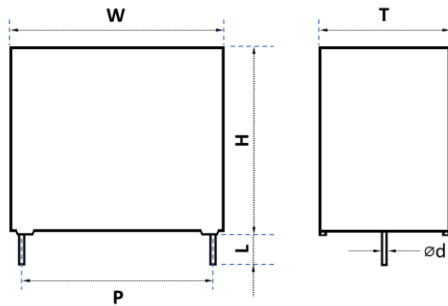
### Terminal Code

Digit One (Lead/Terminal Type)		Digit Two (Lead Space)		Digit Three (Lead Ipsilateral)	
2 leads for long	L	15.0mm	E	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)**



**2 pins**

**Size Code Table (mm)**

Size	Dimension						Pitch		Lead Wire	
Code	W	Tolerance	H	Tolerance	T	Tolerance	P	Tolerance	Ød	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
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	0.8	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
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
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
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
K11	42	1.0	24	1.0	13	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
K32	42	1.0	44	1.0	24	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
K42	42	1.0	45	1.0	30	1.0	37.5	0.5	1.0	0.05
K47	42	1.0	50	1.0	35	1.0	37.5	0.5	1.0	0.05
K85	42	1.0	22	1.0	11	1.0	37.5	0.5	1.0	0.05
K86	42	1.0	28.5	1.0	16	1.0	37.5	0.5	1.0	0.05

**Rating and Part Number**

Vdc	Vac	Cap Value μF	Dimensions				Irms 70°C 100KHz A	Peak Current A	ESR <sub>Tvoical</sub> 100KHz mΩ	ESL nH	dv/dt V/us	Lead Wire mm	Part Number
			W mm	H mm	T mm	P 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	45	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	5.0	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	4.0	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	5.0	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	6.0	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	9.0	495	6	15	1500	0.8	FSQ2LK334F262FL5
630	400	0.39	26	22	12	22.5	10.0	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	5.0	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	6.0	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	7.0	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	10.0	900	7	20	900	0.8	FSQ2LK105G342GL5
630	400	1.2	32	33	18	27.5	13.0	1080	6	20	900	0.8	FSQ2LK125G342GL5
630	400	1.5	32	37	22	27.5	15.0	1350	5	20	900	0.8	FSQ2LK155G402GL5
630	400	1.8	32	37	22	27.5	16.0	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	7.0	235	12.5	25	500	1.0	FSQ2LK474K852KL5
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	8.0	340	10.5	25	500	1.0	FSQ2LK684K852KL5
630	400	0.82	42	28.5	16	37.5	8.0	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	13.0	1350	7	25	500	1.0	FSQ2LK275K242KL5
630	400	3.3	42	44	24	37.5	14.0	1650	6	25	500	1.0	FSQ2LK335K322KL5

**Rating and Part Number**

Vdc	Vac	Cap Value μF	Dimensions				Irms 70°C 100KHz A	Peak Current A	ESR <sub>Tvoical</sub> 100KHz mΩ	ESL nH	dv/dt V/us	Lead Wire mm	Part Number
			W mm	H mm	T mm	P mm							
630	400	3.9	42	45	30	37.5	15	1950	5	25.0	500	1.0	FSQ2LK395K422KL5
630	400	4.7	42	50	35	37.5	16	2350	4	25.0	500	1.0	FSQ2LK475K472KL5
1000	600	0.0082	18	11	5	15	1.5	28.7	80	10.0	3500	0.8	FSQ3KK822E142EL5
1000	600	0.01	18	11	5	15	1.8	35	62	12.0	3500	0.8	FSQ3KK103E142EL5
1000	600	0.012	18	11	5	15	2.2	42	52	12.0	3500	0.8	FSQ3KK123E142EL5
1000	600	0.015	18	11	5	15	2.5	52.5	42	12.0	3500	0.8	FSQ3KK153E142EL5
1000	600	0.018	18	11	5	15	2.7	63	35	12.0	3500	0.8	FSQ3KK183E142EL5
1000	600	0.02	18	12	6	15	2.8	70	32	10.0	3500	0.8	FSQ3KK203E172EL5
1000	600	0.022	18	12	6	15	3	77	29	10.0	3500	0.8	FSQ3KK223E172EL5
1000	600	0.027	18	13.5	7.5	15	3.5	94.5	24	12.0	3500	0.8	FSQ3KK273E292EL5
1000	600	0.033	18	13.5	7.5	15	4	115.5	19	12.0	3500	0.8	FSQ3KK333E292EL5
1000	600	0.039	18	14.5	8.5	15	4.5	136.5	16	12.0	3500	0.8	FSQ3KK393E342EL5
1000	600	0.047	18	14.5	8.5	15	4.9	164.5	14	12.0	3500	0.8	FSQ3KK473E342EL5
1000	600	0.027	26	15.5	6	22.5	3.8	56.7	24	15.0	2100	0.8	FSQ3KK273F142FL5
1000	600	0.033	26	15.5	6	22.5	4.3	69.3	19	15.0	2100	0.8	FSQ3KK333F142FL5
1000	600	0.039	26	15.5	6	22.5	4.8	81.9	16	15.0	2100	0.8	FSQ3KK393F142FL5
1000	600	0.047	26	16.5	7	22.5	5	98.7	15	15.0	2100	0.8	FSQ3KK473F172FL5
1000	600	0.056	26	16.5	7	22.5	5.4	117.6	14.5	15.0	2100	0.8	FSQ3KK563F172FL5
1000	600	0.068	26	17	8.5	22.5	5.6	142.8	14	15.0	2100	0.8	FSQ3KK683F202FL5
1000	600	0.082	26	19	10	22.5	5.8	172.2	13.5	15.0	2100	0.8	FSQ3KK823F242FL5
1000	600	0.1	26	19	10	22.5	6	210	13	15.0	2100	0.8	FSQ3KK104F242FL5
1000	600	0.12	26	20	11	22.5	6.5	180	12.5	15.0	1500	0.8	FSQ3KK124F262FL5
1000	600	0.15	26	22	12	22.5	7	225	11	15.0	1500	0.8	FSQ3KK154F272FL5
1000	600	0.1	32	17	8	27.5	4.5	90	25	20.0	900	0.8	FSQ3KK104G142GL5
1000	600	0.12	32	18	9	27.5	4.8	108	22	20.0	900	0.8	FSQ3KK124G152GL5
1000	600	0.15	32	20	11	27.5	5	135	21	20.0	900	0.8	FSQ3KK154G182GL5
1000	600	0.18	32	22	13	27.5	5.5	162	18	20.0	900	0.8	FSQ3KK184G212GL5
1000	600	0.22	32	22	13	27.5	6	198	14	20.0	900	0.8	FSQ3KK224G212GL5
1000	600	0.27	32	24.5	13	27.5	6.5	243	13.5	20.0	900	0.8	FSQ3KK274G222GL5
1000	600	0.33	32	28	14	27.5	7	297	12	20.0	900	0.8	FSQ3KK334G262GL5
1000	600	0.39	32	33	18	27.5	7.5	351	11	20.0	900	0.8	FSQ3KK394G342GL5
1000	600	0.47	32	33	18	27.5	8	423	10	20.0	900	0.8	FSQ3KK474G342GL5
1000	600	0.56	32	37	22	27.5	8.5	504	9	20.0	900	0.8	FSQ3KK564G402GL5
1000	600	0.68	32	37	22	27.5	9.5	612	8	20.0	900	0.8	FSQ3KK684G402GL5
1000	600	0.18	42	22	11	37.5	6	90	18	25.0	500	1.0	FSQ3KK184K852KL5
1000	600	0.22	42	22	11	37.5	6.5	110	14	25.0	500	1.0	FSQ3KK224K852KL5
1000	600	0.27	42	24	13	37.5	6.8	135	13	25.0	500	1.0	FSQ3KK274K112KL5
1000	600	0.33	42	24	13	37.5	7.2	165	12	25.0	500	1.0	FSQ3KK334K112KL5
1000	600	0.39	42	28	17	37.5	7.4	195	11.5	25.0	500	1.0	FSQ3KK394K172KL5
1000	600	0.47	42	28	17	37.5	7.6	235	11	25.0	500	1.0	FSQ3KK474K172KL5
1000	600	0.56	42	28	17	37.5	8	280	10.5	25.0	500	1.0	FSQ3KK564K172KL5
1000	600	0.68	42	32	19	37.5	8.5	340	10	25.0	500	1.0	FSQ3KK684K212KL5
1000	600	0.82	42	40	20	37.5	10	410	9	25.0	500	1.0	FSQ3KK824K242KL5
1000	600	1.0	42	40	20	37.5	11	500	7	25.0	500	1.0	FSQ3KK105K242KL5
1000	600	1.2	42	44	24	37.5	12	600	6.5	25.0	500	1.0	FSQ3KK125K322KL5
1000	600	1.5	42	44	24	37.5	13	750	6	25.0	500	1.0	FSQ3KK155K322KL5
1000	600	1.8	42	45	30	37.5	15	900	5	25.0	500	1.0	FSQ3KK185K422KL5
1000	600	2.2	42	45	30	37.5	16	1100	4	25.0	500	1.0	FSQ3KK225K422KL5
1300	620	0.0082	18	11	5	15	1.7	28.7	95	10.0	3500	0.8	FSQ3SK822E142EL5
1300	620	0.01	18	11	5	15	2	35	65	12.0	3500	0.8	FSQ3SK103E142EL5
1300	620	0.012	18	11	5	15	2.2	42	52	12.0	3500	0.8	FSQ3SK123E142EL5
1300	620	0.015	18	11	5	15	2.5	52.5	42	12.0	3500	0.8	FSQ3SK153E142EL5

**Rating and Part Number**

Vdc	Vac	Cap Value μF	Dimensions				Irms 70°C 100KHz A	Peak Current A	ESR <sub>Tvoical</sub> 100KHz mΩ	ESL nH	dv/dt V/us	Lead Wire mm	Part Number
			W mm	H mm	T mm	P mm							
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	13.5	7.5	15	3.1	77	32	10	3500	0.8	FSQ3SK223E292EL5
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	10	15	4.5	136.5	16	12	3500	0.8	FSQ3SK393E432EL5
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
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

**Rating and Part Number**

Vdc	Vac	Cap Value μF	Dimensions				Irms 70°C 100KHz A	Peak Current A	ESR <sub>Tvoical</sub> 100KHz mΩ	ESL nH	dv/dt V/us	Lead Wire mm	Part Number
			W mm	H mm	T mm	P mm							
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	19	37.5	8	564	12	25	1200	1.0	FSQ3WK474K212KL5
1600	650	0.56	42	40	20	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
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	25.65	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

**Rating and Part Number**

Vdc	Vac	Cap Value μF	Dimensions				Irms 70°C 100KHz A	Peak Current A	ESR <sub>Tvoical</sub> 100KHz mΩ	ESL nH	dv/dt V/us	Lead Wire mm	Part Number
			W mm	H mm	T mm	P mm							
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
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	FSQ3DK333K852KL5
2000	700	0.039	42	22	11	37.5	4.5	58.5	28	25	1500	1.0	FSQ3DK393K852KL5
2000	700	0.047	42	22	11	37.5	4.8	70.5	26	25	1500	1.0	FSQ3DK473K852KL5
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




### Rating and Part Number

Vdc	Vac	Cap Value μF	Dimensions				I <sub>rms</sub> 70°C 100KHz A	Peak Current A	ESR <sub>Tvoical</sub> 100KHz mΩ	ESL nH	dv/dt V/us	Lead Wire mm	Part Number
			W mm	H mm	T mm	P mm							
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

### General Technical Data

Applications	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)
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
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 (Single Side Metallized and Double Sided Metallized)
Metal Sprayed	Sn/Zn Alloy
Connection Electrode	Tin-plated Copper Wire
Case	Plastic Case (UL94V-0)
Filling	Epoxy Resin (UL94V-0)
Film Construction	<p style="text-align: center;">Internal Series Connection</p> 

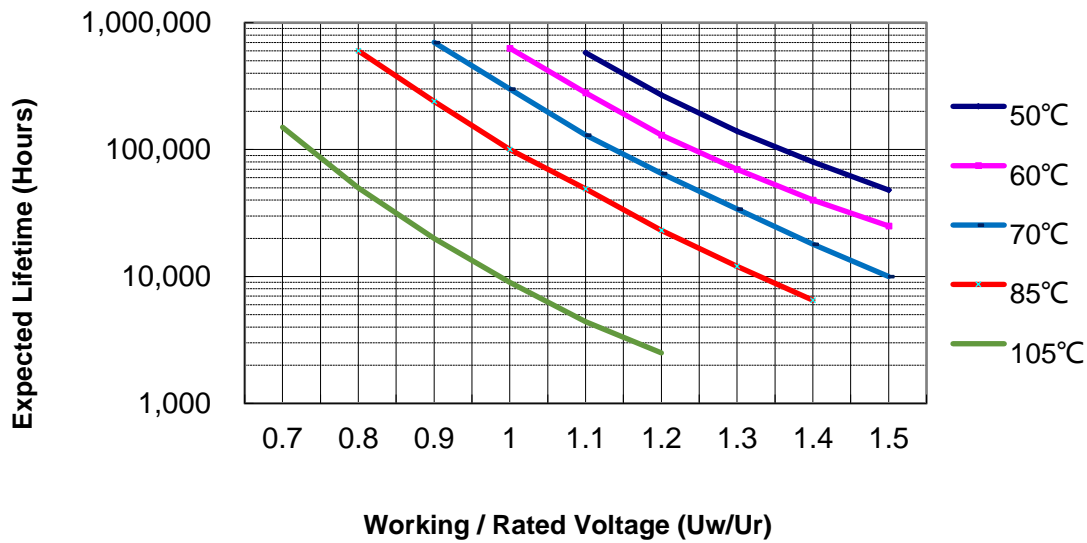
### Electrical Characteristics

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

**Biased Humidity Test**

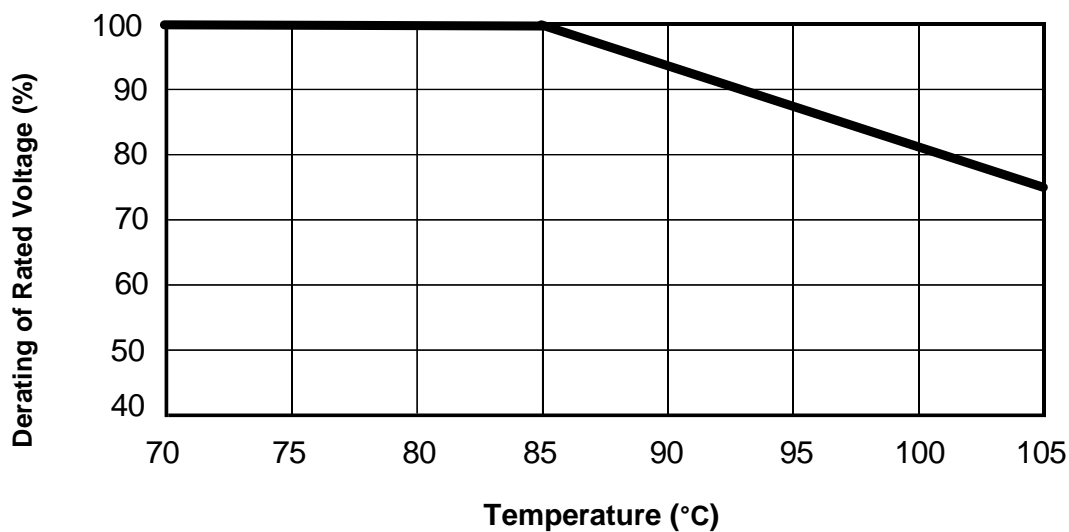
High Temperature High Humidity Loading	<p><b>Test Condition 1:</b>                  Reference: MIL-STD-202 Method 103                  Test Temperature: +60 +/-2°C                  Test Humidity: 95% R.H.                  Loading Voltage: rated voltage                  Test Duration: 1000 +24/-0 hours                  measurement at 24±4hours after test conclusion</p> <p><b>Performance:</b>                  Capacitance Change Rate (<math>\Delta C/C</math>): <math>\leq \pm 5\%</math>                  DF change (<math>\Delta \tan \delta</math>): <math>\leq 50 \times 10^{-4}</math> at 1 KHz.                  Insulation Resistance: <math>\geq 50\%</math> of initial limit</p> <p><b>Test Condition 2:</b>                  Test Temperature: +85 +/-2°C                  Test Humidity: 85% R.H.                  Loading Voltage: rated voltage                  Test Duration: 2000 +24/-0 hours</p> <p><b>Performance:</b>                  Capacitance Change Rate (<math>\Delta C/C</math>): <math>\leq \pm 10\%</math>                  Maximum permissible increase of <math>\tan \delta</math> between initial and final measurement:                  0.024 for <math>C_N \leq 1 \mu F</math>                  0.015 for <math>C_N &gt; 1 \mu F</math>                  Insulation Resistance: <math>\geq 50\%</math> of initial limit</p>
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**Expected Life Curve**

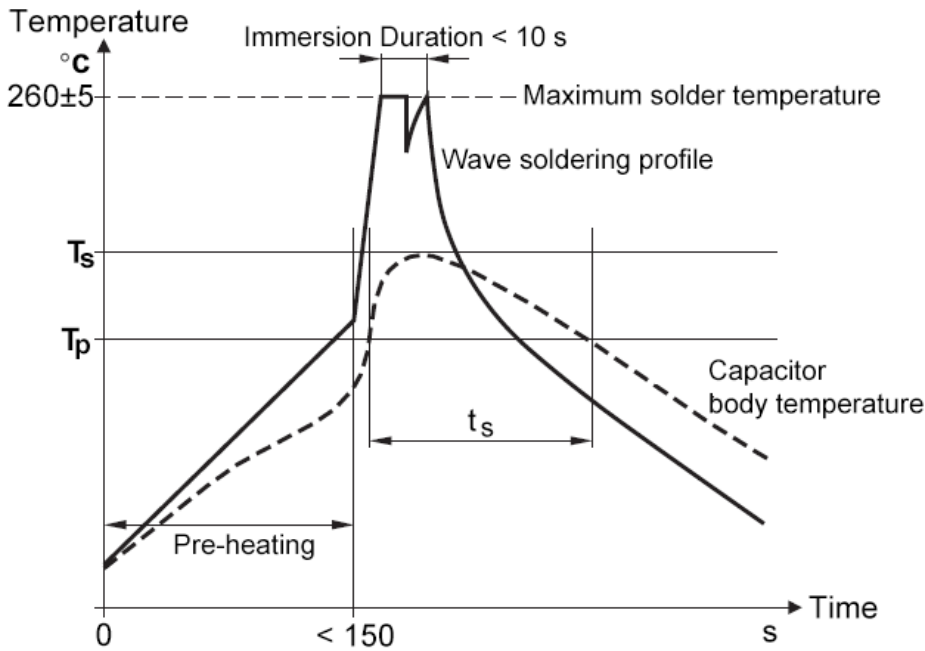


**Derating of Rated Voltage Vs Temperature**

(85°C ~105°C, decreasing factor 1.25% per °C for U<sub>NDC</sub>)



### Wave Soldering Recommendations

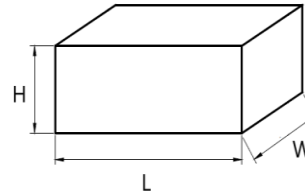


Ts: Capacitor body maximum temperature at wave soldering  
 Tp: Capacitor body maximum temperature at pre-heating

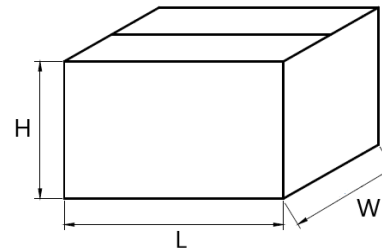
Polypropylene Capacitors	Polyester Capacitors
During pre-heating: $T_p \leq 110^\circ\text{C}$ During soldering: $T_s \leq 120^\circ\text{C}$ , $t_s \leq 60$	During pre-heating: $T_p \leq 130^\circ\text{C}$ During soldering: $T_s \leq 160^\circ\text{C}$ , $t_s \leq 60\text{s}$

**Packaging Information**

Inner Box Specifications (Dimensions)			
Box #	L ±3mm	W±3mm	H ±3mm
# 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	35



**Packaging Quantity**

Pitch	Size Code	Dimension			Packaging Quantity		
		W	H	T	Long Leads	Short Leads	Ammo Pack
15	E14	18	11	5	800	1,054	680
	E17	18	12	6	800	867	560
	E29	18	13.5	7.5	800	697	450
	E34	18	14.5	8.5	600	612	390
	E43	18	16	10	600	527	340
22.5	E47	18	19	11	600	476	300
	F14	26	15.5	6	612	612	350
	F17	26	16.5	7	528	528	300
	F20	26	17	8.5	432	432	250
	F24	26	19	10	372	372	210
	F26	26	20	11	336	336	190
	F27	26	22	12	300	300	170
27.5	F30	26	24.5	13	276	276	160
	F34	26	29.5	14.5	252	252	140
	G14	32	17	8	380	380	
	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	
37.5	G32	32	30	16	190	190	
	G34	32	33	18	170	170	
	G40	32	37	22	140	140	
	K11	42	24	13	161	161	
	K17	42	28	17	126	126	
	K21	42	32	19	112	112	
	K24	42	40	20	105	105	
	K32	42	44	24	91	91	
	K39	42	43	28	77	77	
K42	42	45	30	70	70		
K47	42	50	35	63	63		
K85	42	22	11	196	196		
K86	42	28.5	16	133	133		

## Cautious 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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