

Overview

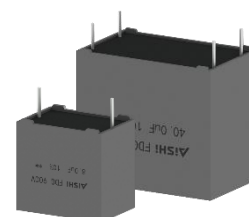
The FDU series is constructed of metallized polypropylene film encapsulated with epoxy resin in a plastic box, with 2 or 4 tinned copper wire. This FDU series is suitable for harsh environment condition and qualify in accordance to AEC-Q200 requirement.

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)

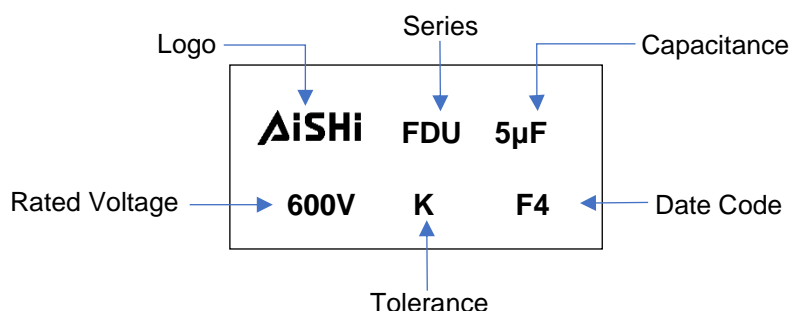


Qualification

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



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	DU	2K	K	505	G21	2GL	5
Capacitor Type	Series	Voltage (VDC)	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

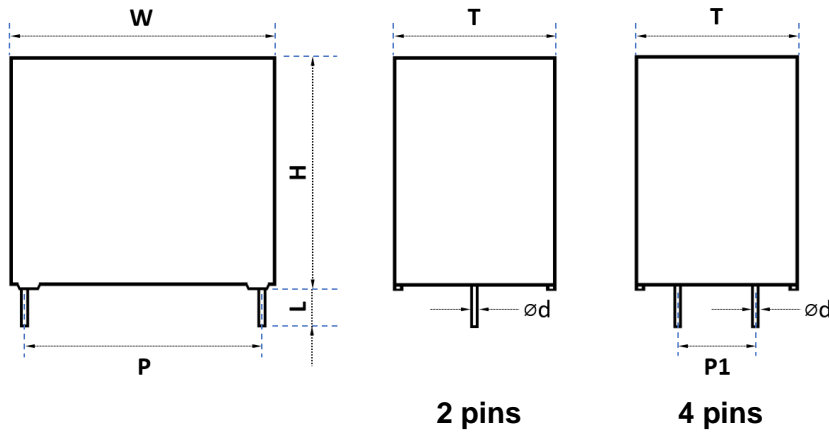
Terminal Code

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				Ød		
	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

Size Code Table (mm)

Size	Dimension						Pitch				Ød		
Code	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	Dimension						Pitch				Ød		
Code	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

Metallized Polypropylene Film DC-Link Capacitors

FDU Series – 450VDC ~ 1100VDC (Automotive Grade, 125°C)



Rating and Part Number

VDC	Cap Value µF	Dimensions					Irms Max 75°C A (10KHz)	Peak Current A	Surge Current A	ESR _{Typical} 10KHz mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		W mm	H mm	T mm	P mm	P1 mm									
V_{NDC} at 85°C = 450Vdc; V_{OP105} at 105°C = 351Vdc; V_{OP115} at 115°C = 301Vdc; V_{OP125} at 125°C = 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	FDU2WK356K274KB5
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

Metallized Polypropylene Film DC-Link Capacitors

FDU Series – 450VDC ~ 1100VDC (Automotive Grade, 125°C)



Rating and Part Number

VDC	Cap Value µF	Dimensions					Irms Max 75°C A (10KHz)	Peak Current A	Surge Current A	ESR _{Typical} 10KHz mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		W mm	H mm	T mm	P mm	P1 mm									
V_{NDC} at 85°C = 600Vdc; V_{OP105} at 105°C = 468Vdc; V_{OP115} at 115°C = 402Vdc; V_{OP125} at 125°C = 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

Metallized Polypropylene Film DC-Link Capacitors

FDU Series – 450VDC ~ 1100VDC (Automotive Grade, 125°C)



Rating and Part Number

VDC	Cap Value µF	Dimensions					Irms Max 75°C A (10Khz)	Peak Current A	Surge Current A	ESR _{Typical} 10KHz mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		W mm	H mm	T mm	P mm	P1 mm									
V_{NDC} at 85°C = 700Vdc; V_{OP105} at 105°C = 546Vdc; V_{OP115} at 115°C = 469Vdc; V_{OP125} at 125°C = 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

Rating and Part Number

VDC	Cap Value µF	Dimensions					Irms Max 75°C A (10KHz)	Peak Current A	Surge Current A	ESR _{Typical} 10KHz mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		W mm	H mm	T mm	P mm	P1 mm									
V_{NDC} at 85°C = 900Vdc; V_{OP105} at 105°C = 702Vdc; V_{OP115} at 115°C = 603Vdc; V_{OP125} at 125°C = 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	FDU2QK705K182KL5
900	8	42	32	19	37.5	\	9.9	280	840	11.4	13	17.9	35	1.0	FDU2QK805K212KL5
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	FDU2QK156K324KB5
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 µF	Dimensions					Irms Max 75°C A (10Khz)	Peak Current A	Surge Current A	ESR _{Typical} 10KHz mΩ	ESL nH	Thermal Res °C/W	dv/dt V/us	Lead Wire mm	Part Number
		W mm	H mm	T mm	P mm	P1 mm									
V_{NDC} at 85°C = 1100Vdc; V_{OP105} at 105°C = 858Vdc; V_{OP115} at 115°C = 737Vdc; V_{OP125} at 125°C = 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	FDU3MK805K244KB5
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	FDU3MK136K394KB5
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

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	<p>Mono Structure</p> 

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	4000 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					
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}	100,000 hours				
Rated Voltage at 105°C (T_{HS})	V_{OP105}	20,000 hours				
Rated Voltage at 115°C (T_{HS})	V_{OP115}	5,000 hours				
Rated Voltage at 125°C (T_{HS})	V_{OP125}	4,000 hours				

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

Environmental Test

<p>Biased Humidity Test</p>	<p>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 ($\Delta C/C$): $\leq \pm 10\%$ Maximum permissible increase of $\tan \delta$ between initial and final measurement: DF change($\Delta \text{tg}\delta$): $\leq 150 \times 10^{-4}$ at 1 KHz Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Operational Life</p>	<p>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 ($\Delta C/C$): $\leq \pm 5\%$ DF change($\Delta \text{tg}\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Temperature Cycle</p>	<p>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 ($\Delta C/C$): $\leq \pm 5\%$ DF change($\Delta \text{tg}\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>High Temperature Exposure (storage)</p>	<p>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 ($\Delta C/C$): $\leq \pm 3\%$ DF change($\Delta \text{tg}\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz Insulation Resistance: $\geq 50\%$ of initial limit</p>

Environmental Test

<p>Moisture Resistance</p>	<p>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 ($\Delta C/C$): $\leq \pm 5\%$ DF change ($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Solderability</p>	<p>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.</p>
<p>Soldering Heat Resistance</p>	<p>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 ($\Delta C/C$): $\leq \pm 0.5\%$ DF change ($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Temperature Humidity Cycle</p>	<p>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 ($\Delta C/C$): $\leq \pm 5\%$ DF change ($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>

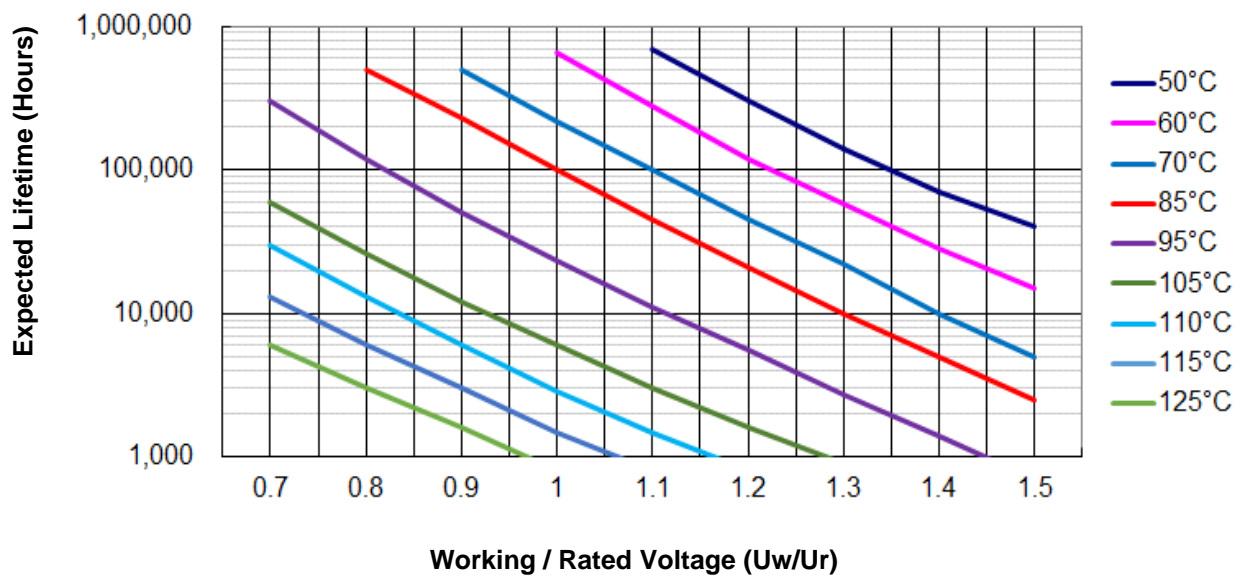
Mechanical Test

Resistance to Solvent	<p>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)</p> <p>Performance: Capacitance Change Rate ($\Delta C/C$): $\leq \pm 1\%$ DF change ($\Delta \text{tg}\delta$): $\leq 50 \cdot 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
Terminal Strength	<p>Test Conditions: Reference: MIL-STD-202 Method 211 Tension: 0.50 < D \leq 0.80, 10N 0.80 < D \leq 1.25, 20N Bending test: Bending force: 0.50 < D \leq 0.80, 5N 0.80 < D \leq 1.25, 10N Make two successive bends in each direction</p> <p>Performance: No visible damage to appearance</p>
Vibration Resistance	<p>Test Conditions: Reference: MIL-STD-202 Method 204 5g force 20 minutes, three directions, 12 cycles in each direction. Test Frequency 10~2000 Hz</p> <p>Performance: Connection Strength: Shall be no open nor short-circuiting. The connection shall be stable Capacitance Change Rate ($\Delta C/C$): $\leq \pm 1\%$ DF change ($\Delta \text{tg}\delta$): $\leq 50 \cdot 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
Mechanical Shock	<p>Test Conditions: Reference: MIL-STD-202 Method 213 Pulse-shape: half-sine wave Acceleration: 500 m/s² Duration of pulse: 11 ms</p> <p>Performance: Capacitance Change Rate ($\Delta C/C$): $\leq \pm 1\%$ DF change ($\Delta \text{tg}\delta$): $\leq 50 \cdot 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
Bump	<p>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</p> <p>Performance: Capacitance Change Rate ($\Delta C/C$): $\leq \pm 1\%$ DF change ($\Delta \text{tg}\delta$): $\leq 50 \cdot 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>

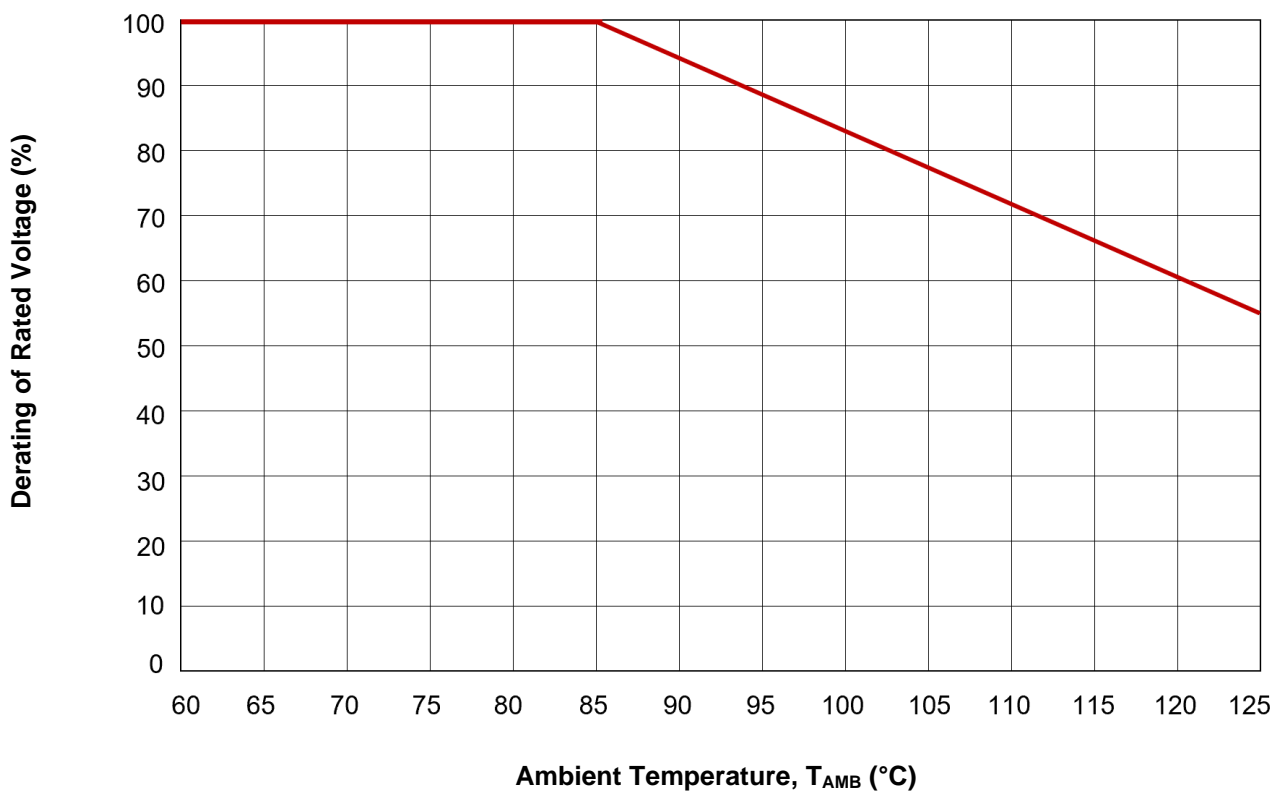
Electrical Test

<p>Self-Healing Test</p>	<p>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 $2.5 \times U_{NDC}$ for a duration of 10 seconds Performance: Capacitance Change Rate ($\Delta C/C$): $\leq \pm 2\%$ DF change($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Surge Discharge Test</p>	<p>Test Conditions: Five charges and discharges in ten minutes. Test voltage: $1.1 U_n$ 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 ($\Delta C/C$): $\leq \pm 1.0\%$ DF change($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Thermal Stability Test</p>	<p>Test Conditions: Temperature: Ambient temperature Test current: $1.1 I_{rms}$ 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 $1^\circ C$ Capacitance Change Rate ($\Delta C/C$): $\leq \pm 2.0\%$ DF change($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>High Temperature Features</p>	<p>Test Conditions: Test Temperature: $105 \pm 2^\circ C$ Test Duration: $16 \pm 1/0$ hours Performance: Capacitance Change Rate ($\Delta C/C$): $-0\% \sim -5\%$ DF change ($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>
<p>Low Temperature Features</p>	<p>Test Conditions: Test Temperature: $-40 \pm 2^\circ C$ Test Duration: $2 \pm 1/0$ hours Performance: Capacitance Change Rate ($\Delta C/C$): $+0\% \sim +5\%$ DF change ($\Delta tg\delta$): $\leq 50 \times 10^{-4}$ at 1 KHz. Insulation Resistance: $\geq 50\%$ of initial limit</p>

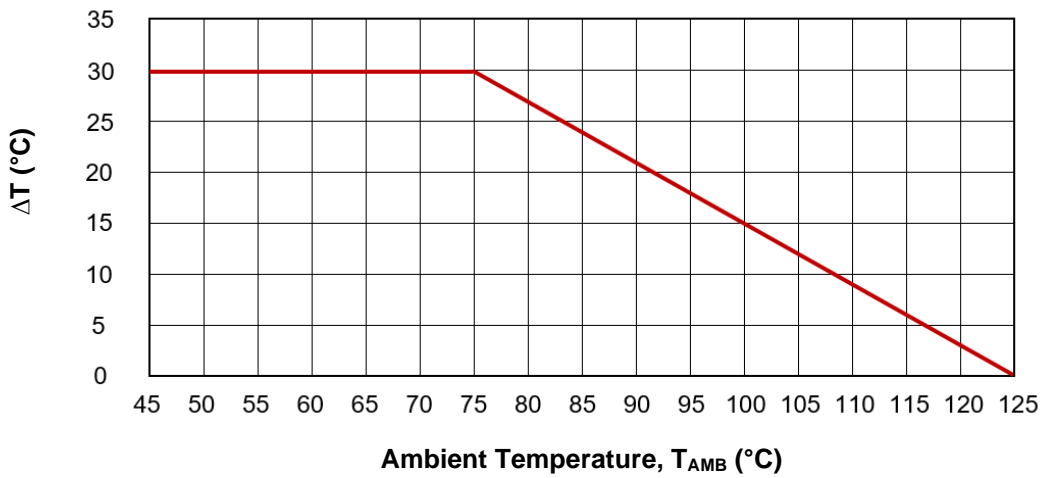
Expected Life Curve at Hot Spot Temperature (T_{HS})



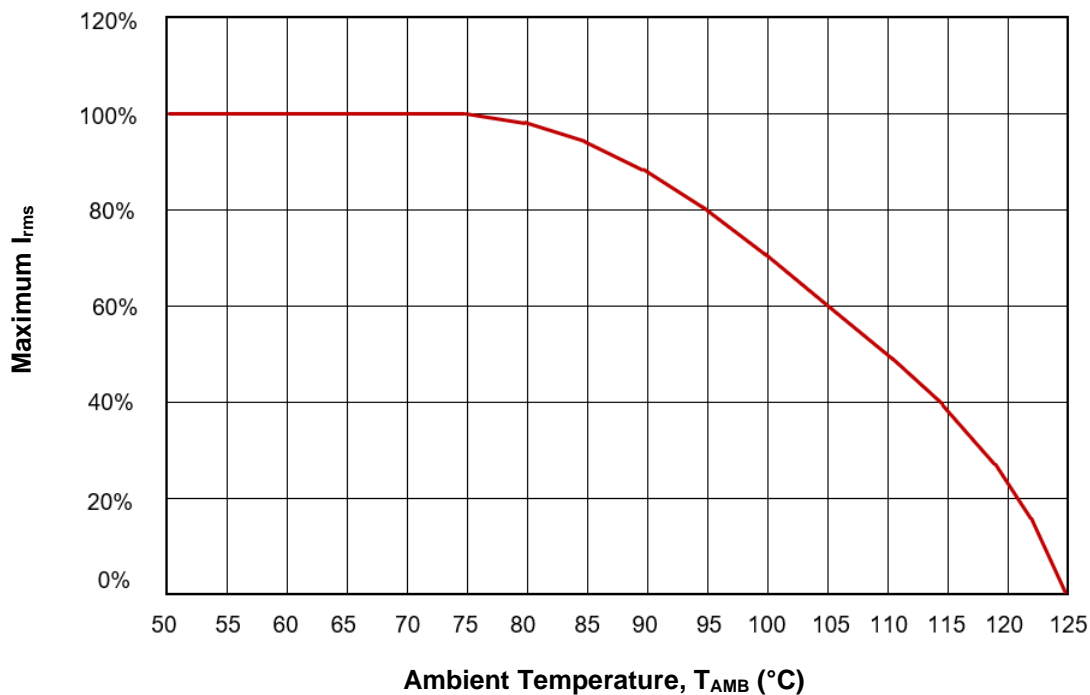
Derating of Rated Voltage Vs Ambient Temperature (T_{AMB})



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



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

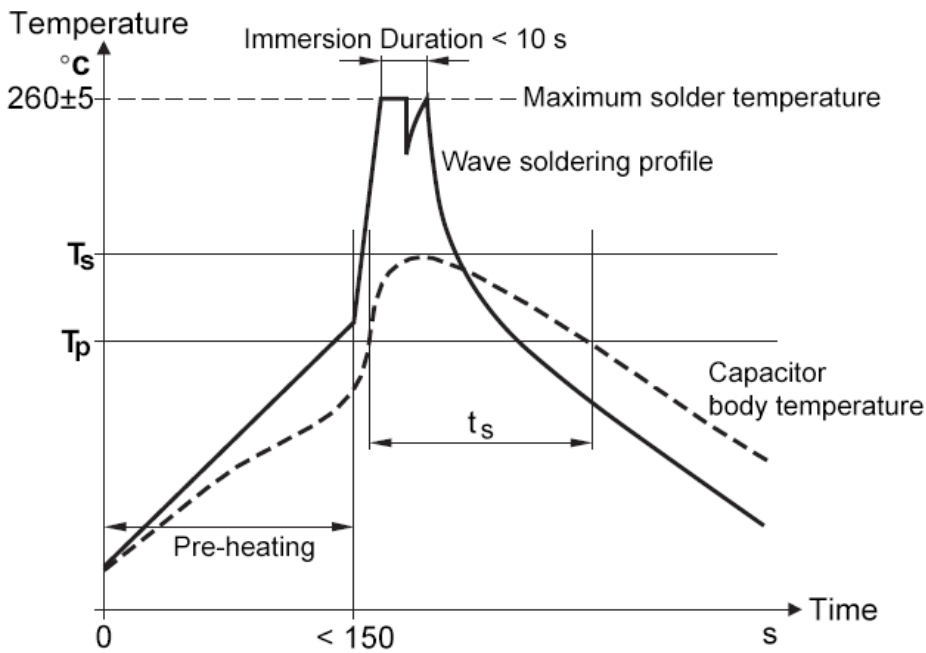


V_{OP} = Maximum operating Voltage

T_{HS} = Highest hot spot temperature in the capacitor

T_{AMB} = Highest ambient temperature surrounding the capacitor

Wave Soldering Recommendations

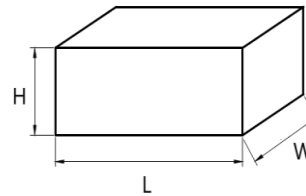


Ts: Capacitor body maximum temperature at wave soldering
 Tp: Capacitor body maximum temperature at pre-heating

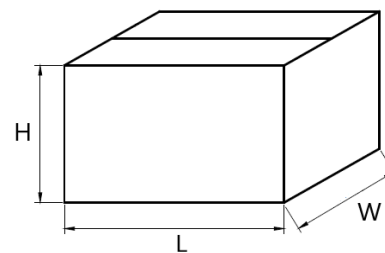
Polypropylene Capacitors	Polyester Capacitors
During pre-heating: $T_p \leq 110^\circ\text{C}$ During soldering: $T_s \leq 120^\circ\text{C}$, $t_s \leq 60$	During pre-heating: $T_p \leq 130^\circ\text{C}$ During soldering: $T_s \leq 160^\circ\text{C}$, $t_s \leq 60\text{s}$

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	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

Metallized Polypropylene Film DC-Link Capacitors

FDU Series – 450VDC ~ 1100VDC (Automotive Grade, 125°C)



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 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.

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