

# EFDKA-T

## Automotive metalized polypropylene DC-link capacitors (+125 °C)



Photo is representative

### Product features

- High capacitance density
- Self-healing property
- High ripple current and low loss
- High reliability
- Suitable for high frequency applications
- AEC-Q200
- THB Grade IIIB
- Operating temperature range:  
-55 °C to +125 °C

### Applications

- xEV Traction inverter
- On board charger (OBC)
- xEV DC/DC converter
- Solar inverter
- UPS
- AC Motor drive
- Air conditioner
- Switch mode power supplies (SMPS)
- Industrial power supply

### Environmental compliance and general specifications



Part number system

EF	DK	A	70	J	666	E21	4D	H	T
Capacitor type	Family	Grade	Voltage (Vdc)	Tolerance	Capacitance (pF)	Size code	Terminal code	Lead length code	Special code
EF = film capacitors	Radial leads DC link	A = automotive grade	45 = 450 60 = 600 70 = 700 90 = 900 1B = 1100 1C = 1200	J = ±5% K = ±10%	First two digits = capacitance value, third digit = number of zeros example: 666 = 66000000 pF	Refer to size code table	Refer to terminal code table	Refer to lead length code table	Extended life at +125 °C

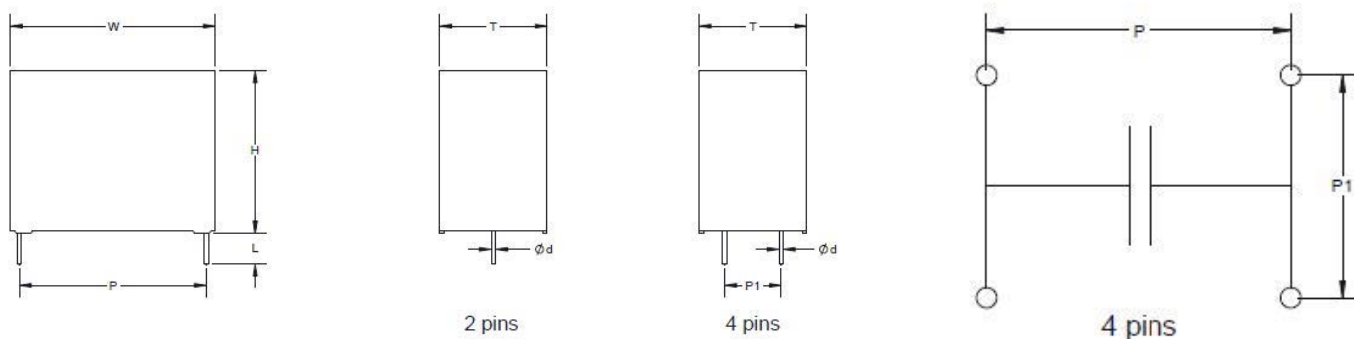
Terminal code table

Digit one (Lead/terminal type)	Digit two (Lead Ipsilateral)	Lead length	Code
2 leads for straight cut	2	10.2 mm	B
4 leads for straight cut	4	12.7 mm	G
		20.3 mm	D
	N/A		L

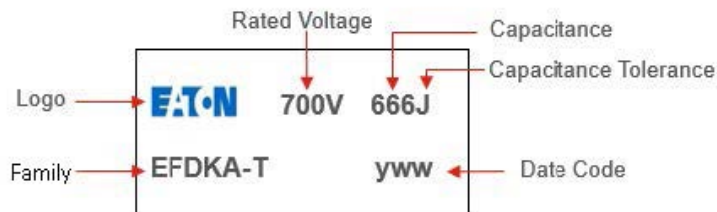
Lead length code table

Lead length	Code
3.0 ± 0.5 mm (bulk)	D
3.5 ± 0.5 mm (bulk)	E
4.0 ± 0.5 mm (bulk)	F
4.5 ± 0.5 mm (bulk)	G
5.0 ± 0.5 mm (bulk)	H
5.5 ± 0.5 mm (bulk)	J
6.0 ± 0.5 mm (bulk)	K
6.5 ± 0.5 mm (bulk)	M
7.0 ± 0.5 mm (bulk)	N

Dimensions-mm



Part marking



Size code table

Size	Dimension-mm						Pitch-mm				OD-mm			Lead length
Code	W	Tolerance (±)	H	Tolerance (±)	T	Tolerance (±)	P	Tolerance (±)	P1	Tolerance (±)	4 leads	2 leads	Tolerance (±)	L
D02	32	0.8	18	0.8	9	0.8	27.5	0.5	\	\	\	0.8	0.05	Refer to lead length code table
D03	32	0.8	20	0.8	11	0.8	27.5	0.5	\	\	\	0.8	0.05	
D04	32	0.8	22	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05	
D05	32	0.8	24	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05	
D06	32	0.8	24.5	0.8	13	0.8	27.5	0.5	\	\	\	0.8	0.05	
D07	32	0.8	24.5	0.8	15	0.8	27.5	0.5	\	\	\	0.8	0.05	
D08	32	0.8	28	0.8	14	0.8	27.5	0.5	\	\	\	0.8	0.05	
D09	32	0.8	28	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05	
D10	32	0.8	30	0.8	16	0.8	27.5	0.5	\	\	\	0.8	0.05	
D12	32	0.8	33	0.8	18	0.8	27.5	0.5	\	\	\	0.8	0.05	
D13	32	0.8	37	0.8	22	0.8	27.5	0.5	\	\	\	0.8	0.05	
E04	42	1.0	28	1.0	17	1.0	37.5	0.5	\	\	\	1.0	0.05	
E07	42	1.0	30	1.0	17	1.0	37.5	0.5	\	\	\	1.0	0.05	
E10	42	1.0	32	1.0	19	1.0	37.5	0.5	\	\	\	1.0	0.05	
E11	42	1.0	37	1.0	22	1.0	37.5	0.5	10.2	0.5	1.2	\	0.05	
E12	42	1.0	37	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	\	0.05	
E13	42	1.0	40	1.0	20	1.0	37.5	0.5	10.2	0.5	1.2	\	0.05	
E14	42	1.0	43	1.0	28	1.0	37.5	0.5	10.2	0.5	1.2	\	0.05	
E15	42	1.0	44	1.0	24	1.0	37.5	0.5	10.2	0.5	1.2	\	0.05	
E16	42	1.0	45	1.0	30	1.0	37.5	0.5	20.3	0.5	1.2	\	0.05	
E17	42	1.0	50	1.0	35	1.0	37.5	0.5	20.3	0.5	1.2	\	0.05	
E18	42	1.0	55	1.0	40	1.0	37.5	0.5	20.3	0.5	1.2	\	0.05	
E19	42	1.0	60	1.0	45	1.0	37.5	0.5	20.3	0.5	1.2	\	0.05	
E21	42	1.0	57	1.0	38	1.0	37.5	0.5	20.3	0.5	1.2	\	0.05	
E25	42	1.0	45	1.0	35	1.0	37.5	0.5	20.3	0.5	1.2	\	0.05	
F01	57.5	1.0	45	1.0	25	1.0	52.5	0.5	10.2	0.5	1.2	\	0.05	
F02	57.5	1.0	45	1.0	30	1.0	52.5	0.5	20.3	0.5	1.2	\	0.05	
F03	57.5	1.0	50	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	\	0.05	
F04	57.5	1.0	55	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	\	0.05	
F06	57.5	1.0	65	1.0	45	1.0	52.5	0.5	20.3	0.5	1.2	\	0.05	
F07	57.5	1.0	65	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	\	0.05	
F08	57.5	1.0	60	1.0	35	1.0	52.5	0.5	20.3	0.5	1.2	\	0.05	

Remark: case color is black.

Rating and part number

Rated voltage 450 Vdc

Capacitance value (µF)	Dimensions					I <sub>rms</sub> +75 °C, 10 kHz (A)	Peak current (A)	Surge current (A)	ESR 10 kHz typical (mΩ)	ESL (nH)	Thermal resistance (°C/W)	dv/dt (V/µs)	Part number <sup>1</sup>
	W (mm)	H (mm)	T (mm)	P (mm)	P1 (mm)								
3.3	32	18	9	27.5	\	4.7	215	644	22.1	12	41.7	65	EFDKA45K335D022LHT
4	32	18	9	27.5	\	5.1	260	780	18.2	12	41.7	65	EFDKA45K405D022LHT
5	32	20	11	27.5	\	6.2	325	975	14.6	14	35.7	65	EFDKA45K505D032LHT
6	32	20	11	27.5	\	6.8	390	1170	12.1	14	35.7	65	EFDKA45K605D032LHT
7	32	22	13	27.5	\	7.6	455	1365	10.4	15	33.3	65	EFDKA45K705D042LHT
8	32	22	13	27.5	\	8.1	520	1560	9.1	15	33.3	65	EFDKA45K805D042LHT
10	32	24.5	13	27.5	\	9.4	650	1950	7.3	16	31.3	65	EFDKA45K106D062LHT
12	32	28	14	27.5	\	10.9	780	2340	6.1	18	27.8	65	EFDKA45K126D082LHT
13	32	28	14	27.5	\	11.3	845	2535	5.6	18	27.8	65	EFDKA45K136D082LHT
14	32	30	16	27.5	\	12.1	910	2730	5.2	18	26.3	65	EFDKA45K146D102LHT
15	32	30	16	27.5	\	12.5	975	2925	4.9	18	26.3	65	EFDKA45K156D102LHT
15	32	28	18	27.5	\	12.7	975	2925	5.2	19	23.8	65	EFDKA45K156D092LHT
16	32	28	18	27.5	\	13.6	1040	3120	4.6	19	23.8	65	EFDKA45K166D092LHT
18	32	33	18	27.5	\	14.6	1170	3510	4.3	21	21.7	65	EFDKA45K186D122LHT
20	32	33	18	27.5	\	15.4	1300	3900	3.9	21	21.7	65	EFDKA45K206D122LHT
22	32	37	22	27.5	\	16.5	1430	4290	4.3	23	17.2	65	EFDKA45K226D132LHT
25	32	37	22	27.5	\	17.6	1625	4875	3.7	23	17.2	65	EFDKA45K256D132LHT
28	32	37	22	27.5	\	18.6	1820	5460	3.3	23	17.2	65	EFDKA45K286D132LHT
20	42	28	17	37.5	\	10.9	700	2100	8.4	12	20	35	EFDKA45K206E042LHT
25	42	32	19	37.5	\	12.9	875	2625	6.8	13	17.9	35	EFDKA45K256E102LHT
30	42	37	22	37.5	10.2	15.8	1050	3150	5.6	14	14.3	35	EFDKA45K306E114BHT
35	42	37	22	37.5	10.2	17	1225	3675	4.8	14	14.3	35	EFDKA45K356E114BHT
40	42	40	20	37.5	10.2	18.5	1400	4200	4.2	14	13.9	35	EFDKA45K406E134BHT
40	42	37	22	37.5	10.2	18.2	1400	4200	4.2	14	14.3	35	EFDKA45K406E114BHT
50	42	37	28	37.5	10.2	22	1750	5250	3.4	15	12.2	35	EFDKA45K506E124BHT
55	42	44	24	37.5	10.2	23.1	1925	5775	3.1	15	12.2	35	EFDKA45K556E154BHT
60	42	43	28	37.5	10.2	24.6	2100	6300	2.8	16	11.8	35	EFDKA45K606E144BHT
65	42	45	30	37.5	20.3	27.7	2275	6825	2.6	16	10	35	EFDKA45K656E164DHT
70	42	45	30	37.5	20.3	28.8	2450	7350	2.4	16	10	35	EFDKA45K706E164DHT
80	42	45	35	37.5	20.3	32.3	2800	8400	2.1	17	9.1	35	EFDKA45K806E254DHT
90	42	50	35	37.5	20.3	33.5	3150	9450	2.1	17	8.3	35	EFDKA45K906E174DHT
110	42	55	40	37.5	20.3	35.2	3850	11550	2.1	18	7.7	35	EFDKA45K117E184DHT
110	42	57	38	37.5	20.3	35.2	3850	11550	2.1	18	7.7	35	EFDKA45K117E214DHT
120	42	55	40	37.5	20.3	36.8	4200	12600	1.9	18	7.7	35	EFDKA45K127E184DHT
140	42	60	45	37.5	20.3	41.2	4900	14700	1.6	20	7.1	35	EFDKA45K147E194DHT
80	57.5	45	25	52.5	10.2	21.2	1600	4800	4.9	14	9.1	20	EFDKA45K806F014BHT
100	57.5	45	30	52.5	20.3	25.3	2000	6000	3.9	15	8	20	EFDKA45K107F024DHT
130	57.5	50	35	52.5	20.3	31.1	2600	7800	3	17	6.9	20	EFDKA45K137F034DHT
160	57.5	60	35	52.5	20.3	36.8	3200	9600	2.4	18	6.1	20	EFDKA45K167F084DHT
170	57.5	55	45	52.5	20.3	36.5	3400	10200	2.5	18	6.1	20	EFDKA45K177F044DHT
180	57.5	65	35	52.5	20.3	38.6	3600	10800	2.4	18	5.7	20	EFDKA45K187F074DHT
180	57.5	55	45	52.5	20.3	39.6	3600	10800	2.4	19	5.4	20	EFDKA45K187F044DHT
210	57.5	65	45	52.5	20.3	44	4200	12600	2	20	5.1	20	EFDKA45K217F064DHT
220	57.5	65	45	52.5	20.3	45	4400	13200	1.9	20	5.1	20	EFDKA45K227F064DHT

1. Standard part numbers listed - -additional configurations available for tolerance, terminal and lead length. See part number system for available tolerances and terminal and lead length tables for available options.

Rating and part number

Rated voltage 600 Vdc

Capacitance value (μF)	Dimensions					I <sub>rms</sub> +75 °C, 10 kHz (A)	Peak current (A)	Surge current (A)	ESR 10 kHz typical (mΩ)	ESL (nH)	Thermal resistance (°C/W)	dv/dt (V/μs)	Part number <sup>1</sup>
	W (mm)	H (mm)	T (mm)	P (mm)	P1 (mm)								
2	32	18	9	27.5	\	4.1	130	390	28.1	12	41.7	65	EFDKA60K205D022LHT
3	32	20	11	27.5	\	5.5	195	585	18.7	14	35.7	65	EFDKA60K305D032LHT
3.3	32	20	11	27.5	\	5.7	195	585	17	14	35.7	65	EFDKA60K335D032LHT
4	32	20	11	27.5	\	6.3	260	780	14	14	35.7	65	EFDKA60K405D032LHT
5	32	22	13	27.5	\	7.3	325	975	11.2	15	33.3	65	EFDKA60K505D042LHT
6	32	24.5	13	27.5	\	8.3	390	1170	9.4	16	31.3	65	EFDKA60K605D062LHT
7	32	24.5	15	27.5	\	9.3	455	1365	8	17	28.6	65	EFDKA60K705D072LHT
7	32	28	14	27.5	\	9.5	520	1560	8	17	27.8	65	EFDKA60K705D082LHT
8	32	28	14	27.5	\	10.1	520	1560	7	17	27.8	65	EFDKA60K805D082LHT
9	32	30	16	27.5	\	11	585	1755	6.2	18	26.3	65	EFDKA60K905D102LHT
10	32	28	18	27.5	\	12.2	650	1950	5.6	19	23.8	65	EFDKA60K106D092LHT
11	32	33	18	27.5	\	13.4	715	2145	5.1	21	21.7	65	EFDKA60K116D122LHT
12	32	33	18	27.5	\	14	780	2340	4.7	21	21.7	65	EFDKA60K126D122LHT
15	32	37	22	27.5	\	15.5	975	2925	4.8	23	17.2	65	EFDKA60K156D132LHT
18	32	37	22	27.5	\	17	1170	3510	4	23	17.2	65	EFDKA60K186D132LHT
15	42	32	19	37.5	\	11.4	525	1575	8.7	13	17.9	35	EFDKA60K156E102LHT
22	42	40	20	37.5	10.2	15.6	770	2310	5.9	14	13.9	35	EFDKA60K226E134BHT
25	42	40	20	37.5	10.2	16.6	875	2625	5.2	14	13.9	35	EFDKA60K256E134BHT
30	42	37	28	37.5	10.2	19.4	1050	3150	4.3	15	12.2	35	EFDKA60K306E124BHT
33	42	44	24	37.5	10.2	20.4	1155	3465	4	15	12.2	35	EFDKA60K336E154BHT
40	42	45	30	37.5	20.3	24.8	1400	4200	3.3	16	10	35	EFDKA60K406E164DHT
45	42	45	35	37.5	20.3	27.6	1575	4725	2.9	17	9.1	35	EFDKA60K456E254DHT
50	42	50	35	37.5	20.3	28.5	1750	5250	3	17	8.3	35	EFDKA60K506E174DHT
60	42	55	40	37.5	20.3	29.6	2100	6300	3	18	7.7	35	EFDKA60K606E184DHT
60	42	57	38	37.5	20.3	31.1	2100	6300	2.7	18	7.7	35	EFDKA60K606E214DHT
70	42	55	40	37.5	20.3	32	2450	7350	2.5	18	7.7	35	EFDKA60K706E184DHT
75	42	60	45	37.5	20.3	34.4	2625	7875	2.4	20	7.1	35	EFDKA60K756E194DHT
80	42	60	45	37.5	20.3	35.5	2800	8400	2.2	20	7.1	35	EFDKA60K806E194DHT
85	42	60	45	37.5	20.3	36.6	2975	8925	2.1	20	7.1	35	EFDKA60K856E194DHT
45	57.5	45	25	52.5	10.2	18.1	900	2700	6.7	14	9.1	20	EFDKA60K456F014BHT
50	57.5	45	25	52.5	10.2	19.1	1000	3000	6	14	9.1	20	EFDKA60K506F014BHT
55	57.5	45	30	52.5	20.3	21.4	1100	3300	5.5	15	8	20	EFDKA60K556F024DHT
60	57.5	45	30	52.5	20.3	22.3	1200	3600	5	15	8	20	EFDKA60K606F024DHT
65	57.5	50	35	52.5	20.3	25	1300	3900	4.6	17	6.9	20	EFDKA60K656F034DHT
70	57.5	50	35	52.5	20.3	26	1400	4200	4.3	17	6.9	20	EFDKA60K706F034DHT
75	57.5	50	35	52.5	20.3	26.9	1500	4500	4	17	6.9	20	EFDKA60K756F034DHT
80	57.5	50	35	52.5	20.3	27.8	1600	4800	3.8	17	6.9	20	EFDKA60K806F034DHT
90	57.5	60	35	52.5	20.3	31.4	1800	5400	3.3	18	6.1	20	EFDKA60K906F084DHT
100	57.5	60	35	52.5	20.3	33.1	2000	6000	3	18	6.1	20	EFDKA60K107F084DHT
110	57.5	65	35	52.5	20.3	34.3	2200	6600	3	18	5.7	20	EFDKA60K117F074DHT
110	57.5	55	45	52.5	20.3	35.3	2200	6600	3	19	5.4	20	EFDKA60K117F044DHT
130	57.5	65	45	52.5	20.3	39.4	2600	7800	2.5	20	5.1	20	EFDKA60K137F064DHT

1. Standard part numbers listed - -additional configurations available for tolerance, terminal and lead length. See part number system for available tolerances and terminal and lead length tables for available options.

Rating and part number

Rated voltage 700 Vdc

Capacitance value (µF)	Dimensions					I <sub>rms</sub> +75 °C, 10 kHz (A)	Peak current (A)	Surge current (A)	ESR 10 kHz typical (mΩ)	ESL (nH)	Thermal resistance (°C/W)	dv/dt (V/µs)	Part number <sup>1</sup>
	W (mm)	H (mm)	T (mm)	P (mm)	P1 (mm)								
2	32	18	9	27.5	\	4.4	130	390	24.6	12	41.7	65	EFDKA70K205D022LHT
2.7	32	20	11	27.5	\	5.5	195	585	18.2	14	35.7	65	EFDKA70K275D032LHT
3	32	20	11	27.5	\	5.8	195	585	16.4	14	35.7	65	EFDKA70K305D032LHT
4	32	24.5	13	27.5	\	7.2	260	780	12.3	16	31.3	65	EFDKA70K405D062LHT
5	32	24	14	27.5	\	8.3	325	975	9.8	17	29.4	65	EFDKA70K505D052LHT
5	32	28	14	27.5	\	8.6	325	975	9.8	17	27.8	65	EFDKA70K505D082LHT
5	32	24.5	15	27.5	\	8.4	325	975	9.8	17	28.6	65	EFDKA70K505D072LHT
6	32	30	16	27.5	\	9.6	390	1170	8.2	18	26.3	65	EFDKA70K605D102LHT
6.5	32	30	16	27.5	\	10	390	1170	7.6	18	26.3	65	EFDKA70K655D102LHT
7	32	30	16	27.5	\	10.4	455	1365	7	18	26.3	65	EFDKA70K705D102LHT
8	32	28	18	27.5	\	11.7	520	1560	6.1	19	23.8	65	EFDKA70K805D092LHT
8.5	32	33	18	27.5	\	12.6	585	1755	5.8	21	21.7	65	EFDKA70K855D122LHT
9	32	33	18	27.5	\	13	585	1755	5.5	21	21.7	65	EFDKA70K905D122LHT
10	32	33	18	27.5	\	13.7	650	1950	4.9	21	21.7	65	EFDKA70K106D122LHT
12	32	37	22	27.5	\	14.8	780	2340	5.3	23	17.2	65	EFDKA70K126D132LHT
14	32	37	22	27.5	\	16	910	2730	4.5	23	17.2	65	EFDKA70K146D132LHT
14	42	32	19	37.5	\	11.7	490	1470	8.1	13	17.9	35	EFDKA70K146E102LHT
15	42	40	20	37.5	10.2	13.8	525	1575	7.6	14	13.9	35	EFDKA70K156E134BHT
20	42	37	28	37.5	10.2	17	700	2100	5.7	15	12.2	35	EFDKA70K206E124BHT
22	42	37	28	37.5	10.2	17.8	770	2310	5.2	15	12.2	35	EFDKA70K226E124BHT
24	42	44	24	37.5	10.2	18.6	875	2625	4.8	15	12.2	35	EFDKA70K246E154BHT
25	42	44	24	37.5	10.2	19	875	2625	4.6	15	12.2	35	EFDKA70K256E154BHT
25	42	43	28	37.5	10.2	19.3	875	2625	4.6	16	11.8	35	EFDKA70K256E144BHT
30	42	45	30	37.5	20.3	22.9	1050	3150	3.8	16	10	35	EFDKA70K306E164DHT
35	42	45	35	37.5	20.3	26	1225	3675	3.3	17	9.1	35	EFDKA70K356E254DHT
40	42	50	35	37.5	20.3	27.2	1400	4200	3.2	17	8.3	35	EFDKA70K406E174DHT
45	42	55	40	37.5	20.3	27.4	1575	4725	3.5	18	7.7	35	EFDKA70K456E184DHT
50	42	55	40	37.5	20.3	28.9	1750	5250	3.1	18	7.7	35	EFDKA70K506E184DHT
52	42	57	38	37.5	20.3	29.5	1925	5775	3	18	7.7	35	EFDKA70K526E214DHT
55	42	55	40	37.5	20.3	30.3	1925	5775	2.8	18	7.7	35	EFDKA70K556E184DHT
60	42	60	45	37.5	20.3	32.9	2100	6300	2.6	20	7.1	35	EFDKA70K606E194DHT
65	42	60	45	37.5	20.3	34.2	2275	6825	2.4	20	7.1	35	EFDKA70K656E194DHT
66	42	57	38	37.5	20.3	36.2	2310	6930	1.8	17	6.4	35	EFDKA70K666E214DHT
30	57.5	45	25	52.5	10.2	15.8	600	1800	8.8	14	9.1	20	EFDKA70K306F014BHT
35	57.5	45	25	52.5	10.2	17.1	700	2100	7.5	14	9.1	20	EFDKA70K356F014BHT
40	57.5	45	30	52.5	20.3	19.5	800	2400	6.6	15	8	20	EFDKA70K406F024DHT
45	57.5	45	30	52.5	20.3	20.7	900	2700	5.9	15	8	20	EFDKA70K456F024DHT
50	57.5	50	35	52.5	20.3	23.5	1000	3000	5.3	17	6.9	20	EFDKA70K506F034DHT
55	57.5	50	35	52.5	20.3	24.6	1100	3300	4.8	17	6.9	20	EFDKA70K556F034DHT
60	57.5	50	35	52.5	20.3	25.7	1200	3600	4.4	17	6.9	20	EFDKA70K606F034DHT
70	57.5	60	35	52.5	20.3	28.4	1400	4200	4.1	18	6.1	20	EFDKA70K706F084DHT
75	57.5	60	35	52.5	20.3	29.4	1500	4500	3.8	18	6.1	20	EFDKA70K756F084DHT
85	57.5	65	35	52.5	20.3	32.3	1700	5100	3.4	18	5.7	20	EFDKA70K856F074DHT
85	57.5	55	45	52.5	20.3	33.2	1760	5280	3.4	19	5.4	20	EFDKA70K856F044DHT
100	57.5	65	45	52.5	20.3	36.9	2000	6000	2.9	20	5.1	20	EFDKA70K107F064DHT
110	57.5	65	45	52.5	20.3	38.7	2200	6600	2.6	20	5.1	20	EFDKA70K117F064DHT

1. Standard part numbers listed - -additional configurations available for tolerance, terminal and lead length. See part number system for available tolerances and terminal and lead length tables for available options.

Rating and part number

Rated voltage 900 Vdc

Capacitance value (µF)	Dimensions					I <sub>rms</sub> +75 °C, 10 kHz (A)	Peak current (A)	Surge current (A)	ESR 10 kHz typical (mΩ)	ESL (nH)	Thermal resistance (°C/W)	dv/dt (V/µs)	Part number <sup>1</sup>
	W (mm)	H (mm)	T (mm)	P (mm)	P1 (mm)								
1	32	18	9	27.5	\	3.5	65	195	39.3	12	41.7	65	EFDKA90K105D022LHT
1.8	32	20	11	27.5	\	5.1	117	351	21.9	14	35.7	65	EFDKA90K185D032LHT
2	32	22	13	27.5	\	5.5	130	390	19.7	15	33.3	65	EFDKA90K205D042LHT
2.2	32	22	13	27.5	\	5.8	143	429	17.9	15	33.3	65	EFDKA90K225D042LHT
2.7	32	24.5	13	27.5	\	6.6	143	429	14.6	17	29.4	65	EFDKA90K275D062LHT
3	32	24	14	27.5	\	7.2	195	585	13.1	17	29.4	65	EFDKA90K305D052LHT
3.3	32	28	14	27.5	\	7.8	215	644	11.9	17	27.8	65	EFDKA90K335D082LHT
4	32	30	16	27.5	\	8.8	260	780	9.8	18	26.3	65	EFDKA90K405D102LHT
5	32	28	18	27.5	\	10.3	325	975	7.9	19	23.8	65	EFDKA90K505D092LHT
5.5	32	33	18	27.5	\	11.3	390	1170	7.2	21	21.7	65	EFDKA90K555D122LHT
6	32	33	18	27.5	\	11.8	390	1170	6.6	21	21.7	65	EFDKA90K605D122LHT
7	32	37	22	27.5	\	12.7	455	1365	7.2	23	17.2	65	EFDKA90K705D132LHT
8	32	37	22	27.5	\	13.5	520	1560	6.3	23	17.2	65	EFDKA90K805D132LHT
7	42	30	17	37.5	\	8.9	245	735	13	12	19.2	35	EFDKA90K705E072LHT
8	42	32	19	37.5	\	9.9	280	840	11.4	13	17.9	35	EFDKA90K805E102LHT
12	42	40	20	37.5	10.2	13.8	420	1260	7.6	14	13.9	35	EFDKA90K126E134BHT
12	42	37	22	37.5	10.2	13.6	420	1260	7.6	14	14.3	35	EFDKA90K126E114BHT
14	42	37	22	37.5	10.2	14.7	490	1470	6.5	14	14.3	35	EFDKA90K146E114BHT
15	42	44	24	37.5	10.2	16.4	525	1575	6.1	15	12.2	35	EFDKA90K156E154BHT
16	42	43	28	37.5	10.2	17.3	560	1680	5.7	16	11.8	35	EFDKA90K166E144BHT
18	42	45	30	37.5	20.3	19.9	630	1890	5.1	16	10	35	EFDKA90K186E164DHT
20	42	45	30	37.5	20.3	20.9	700	2100	4.6	16	10	35	EFDKA90K206E164DHT
22	42	45	35	37.5	20.3	23	770	2310	4.1	17	9.1	35	EFDKA90K226E254DHT
25	42	50	35	37.5	20.3	24.1	875	2625	4.1	17	8.3	35	EFDKA90K256E174DHT
30	42	55	40	37.5	20.3	25	1050	3150	4.1	18	7.7	35	EFDKA90K306E184DHT
33	42	57	38	37.5	20.3	26.3	1225	3675	3.8	18	7.7	35	EFDKA90K336E214DHT
35	42	55	40	37.5	20.3	27	1225	3675	3.6	18	7.7	35	EFDKA90K356E184DHT
40	42	60	45	37.5	20.3	30	1400	4200	3.1	20	7.1	35	EFDKA90K406E194DHT
25	57.5	45	25	52.5	10.2	16.2	500	1500	8.4	14	9.1	20	EFDKA90K256F014BHT
30	57.5	45	30	52.5	20.3	18.9	600	1800	7	15	8	20	EFDKA90K306F024DHT
35	57.5	45	30	52.5	20.3	20.4	700	2100	6	15	8	20	EFDKA90K356F024DHT
40	57.5	50	35	52.5	20.3	23.5	800	2400	5.3	17	6.9	20	EFDKA90K406F034DHT
45	57.5	60	35	52.5	20.3	26.5	900	2700	4.7	18	6.1	20	EFDKA90K456F084DHT
50	57.5	60	35	52.5	20.3	28	1000	3000	4.2	18	6.1	20	EFDKA90K506F084DHT
55	57.5	65	35	52.5	20.3	29	1100	3300	4.2	18	5.7	20	EFDKA90K556F074DHT
55	57.5	55	45	52.5	20.3	29	1140	3420	4.2	19	5.4	20	EFDKA90K556F044DHT
57	57.5	55	45	52.5	20.3	30.4	1140	3420	4	19	5.4	20	EFDKA90K576F044DHT
65	57.5	65	45	52.5	20.3	33.3	1300	3900	3.5	20	5.1	20	EFDKA90K656F064DHT

1. Standard part numbers listed - -additional configurations available for tolerance, terminal and lead length. See part number system for available tolerances and terminal and lead length tables for available options.

Rating and part number

Rated voltage 1100 Vdc

Capacitance value (µF)	Dimensions					I <sub>rms</sub> +75 °C, 10 kHz (A)	Peak current (A)	Surge current (A)	ESR 10 kHz typical (mΩ)	ESL (nH)	Thermal resistance (°C/W)	dv/dt (V/µs)	Part number <sup>1</sup>
	W (mm)	H (mm)	T (mm)	P (mm)	P1 (mm)								
1	32	20	11	27.5	\	4.5	65	195	27.3	14	35.7	65	EFDKA1BK105D032LHT
1.2	32	20	11	27.5	\	4.5	78	234	27.3	14	35.7	65	EFDKA1BK125D032LHT
1.5	32	22	13	27.5	\	5.2	98	293	21.9	15	33.3	65	EFDKA1BK155D042LHT
2	32	24.5	13	27.5	\	6.2	130	390	16.4	16	31.3	65	EFDKA1BK205D062LHT
2.2	32	28	14	27.5	\	7	143	429	14.9	17	27.8	65	EFDKA1BK225D082LHT
2.7	32	30	16	27.5	\	7.9	195	585	12.1	18	26.3	65	EFDKA1BK275D102LHT
3	32	30	16	27.5	\	8.3	195	585	10.9	18	26.3	65	EFDKA1BK305D102LHT
3.3	32	28	18	27.5	\	9.2	215	644	9.9	19	23.8	65	EFDKA1BK335D092LHT
3.7	32	33	18	27.5	\	10.2	260	780	8.9	21	21.7	65	EFDKA1BK375D122LHT
4	32	33	18	27.5	\	10.6	260	780	8.2	21	21.7	65	EFDKA1BK405D122LHT
5	32	37	22	27.5	\	13.3	325	975	6.6	23	17.2	65	EFDKA1BK505D132LHT
4.5	42	30	17	37.5	\	7.8	158	473	16.9	12	19.2	35	EFDKA1BK455E072LHT
5.5	42	32	19	37.5	\	9	193	578	13.8	13	17.9	35	EFDKA1BK555E102LHT
8	42	40	20	37.5	10.2	12.3	280	840	9.5	14	13.9	35	EFDKA1BK805E134BHT
10	42	37	28	37.5	10.2	14.7	350	1050	7.6	15	12.2	35	EFDKA1BK106E124BHT
11	42	44	24	37.5	10.2	15.4	385	1155	6.9	15	12.2	35	EFDKA1BK116E154BHT
12	42	43	28	37.5	10.2	16.4	420	1260	6.3	16	11.8	35	EFDKA1BK126E144BHT
13	42	43	28	37.5	10.2	17	455	1365	5.8	16	11.8	35	EFDKA1BK136E144BHT
14	42	45	30	37.5	20.3	19.2	490	1470	5.4	16	10	35	EFDKA1BK146E164DHT
15	42	45	35	37.5	20.3	20.8	525	1575	5.1	17	9.1	35	EFDKA1BK156E254DHT
16	42	45	35	37.5	20.3	21.5	560	1680	4.8	17	9.1	35	EFDKA1BK166E254DHT
17	42	50	35	37.5	20.3	21.7	630	1890	5.1	17	8.3	35	EFDKA1BK176E174DHT
18	42	50	35	37.5	20.3	22.4	630	1890	4.8	17	8.3	35	EFDKA1BK186E174DHT
22	42	55	40	37.5	20.3	25.7	770	2310	3.9	18	7.7	35	EFDKA1BK226E184DHT
22	42	57	38	37.5	20.3	25.7	770	2310	3.9	18	7.7	35	EFDKA1BK226E214DHT
23	42	55	40	37.5	20.3	26.3	805	2415	3.8	18	7.7	35	EFDKA1BK236E184DHT
30	42	60	45	37.5	20.3	31.2	1050	3150	2.9	20	7.1	35	EFDKA1BK306E194DHT
15	57.5	45	25	52.5	10.2	13.7	300	900	11.7	14	9.1	20	EFDKA1BK156F014BHT
20	57.5	45	30	52.5	20.3	16.9	400	1200	8.8	15	8	20	EFDKA1BK206F024DHT
25	57.5	50	35	52.5	20.3	20.3	500	1500	7	17	6.9	20	EFDKA1BK256F034DHT
33	57.5	60	35	52.5	20.3	24.9	660	1980	5.3	18	6.1	20	EFDKA1BK336F084DHT
36	57.5	55	45	52.5	20.3	25.7	800	2400	5.2	18	5.4	20	EFDKA1BK366F044DHT
38	57.5	65	35	52.5	20.3	26.4	760	2280	5	18	5.7	20	EFDKA1BK386F074DHT
40	57.5	55	45	52.5	20.3	27.9	800	2400	4.8	19	5.4	20	EFDKA1BK406F044DHT
45	57.5	65	45	52.5	20.3	30.3	900	2700	4.2	20	5.1	20	EFDKA1BK456F064DHT

1. Standard part numbers listed - -additional configurations available for tolerance, terminal and lead length. See part number system for available tolerances and terminal and lead length tables for available options.

Rated voltage 1200 Vdc

Capacitance value (µF)	Dimensions					I <sub>rms</sub> +75 °C, 10 kHz (A)	Peak current (A)	Surge current (A)	ESR 10 kHz typical (mΩ)	ESL (nH)	Thermal resistance (°C/W)	dv/dt (V/µs)	Part number <sup>1</sup>
	W (mm)	H (mm)	T (mm)	P (mm)	P1 (mm)								
22	42	57	38	37.5	20.3	26.8	990	2970	3.5	17	6	45	EFDKA1CJ226E214DHT

**General information**

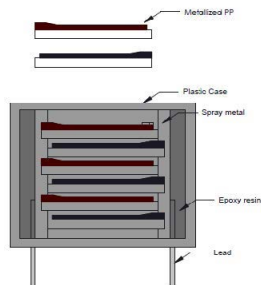
Applications	DC-Link
Dielectric	Metallized polypropylene film
Reference standard	IEC 61071, EN 61071, AEC-Q200
Climatic category	55/105/56 IEC 60068-1
Operating temperature range	-55 °C to +125 °C (+85 °C to +125 °C, decreasing factor 1.1% per °C for UR)
Installation	Any position
Storage conditions	Storage time: ≤24 months 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 to +85 °C
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	Polypropylene & Al/Zn
Metal sprayed	Sn/Zn Alloy
Connection electrode	Tinned copper wires
Case	Plastic case (UL94 V-0)
Filling	Epoxy resin (UL94 V-0)

Mono structure

Film construction

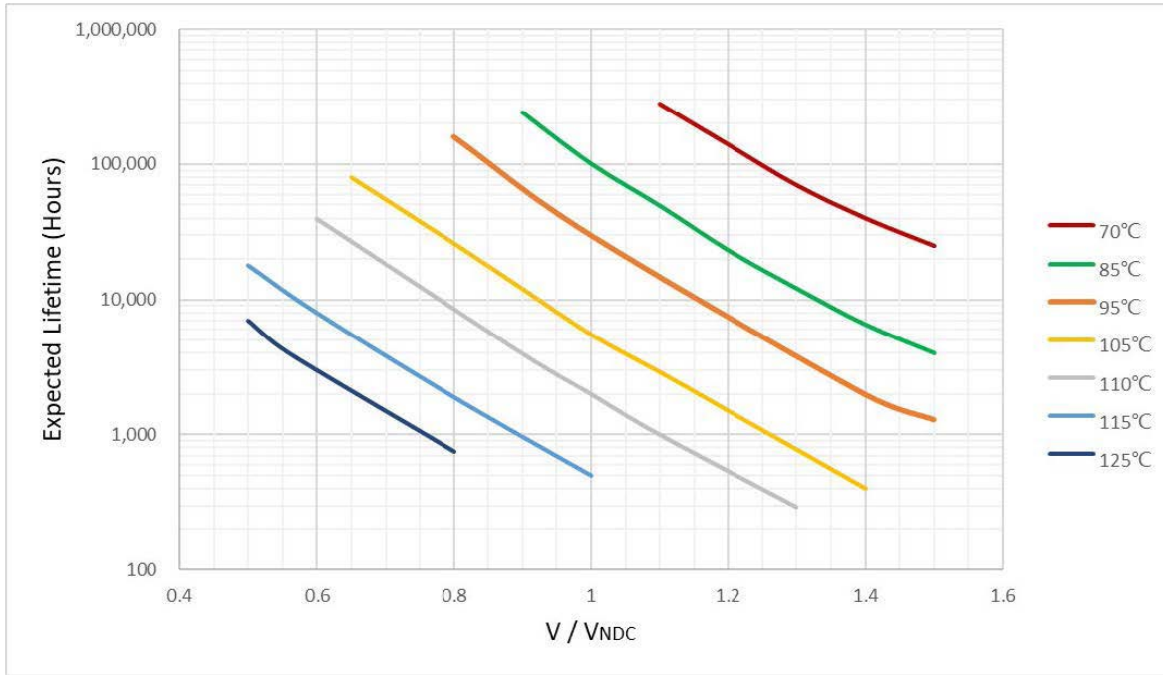


**Electrical characteristics**

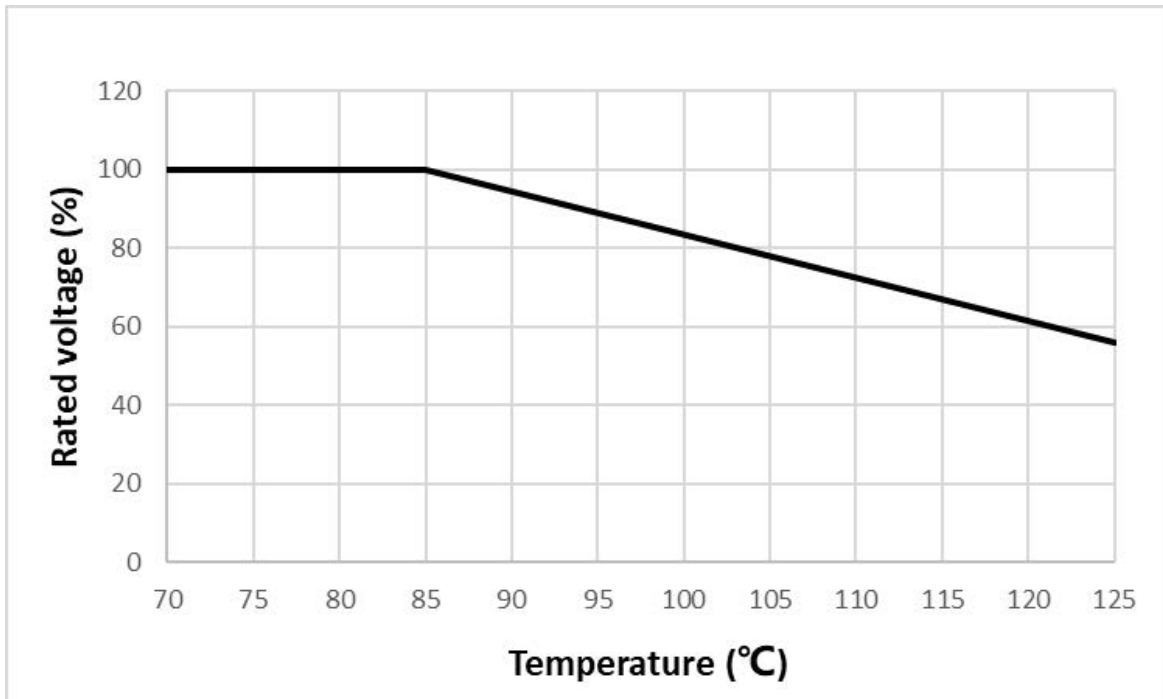
Voltage range ( $U_{NDC}$ )	450 Vdc to 1200 Vdc					
Capacitance range	1.0 $\mu$ F to 220 $\mu$ F					
Capacitance tolerance	$\pm$ 5% or $\pm$ 10% at +20 °C					
Capacitance	Measuring frequency at 1 kHz +20 °C Measuring voltage: 1 $\pm$ 0.2 V					
Standard atmospheric conditions for static test	Ambient temperature: +15 °C to +35 °C (If there is any doubt on the results, the measurements shall be made at +20 $\pm$ 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					
Withstanding voltage between terminals UTT	1.5 x $U_{NDC}$ for 10 s (between terminations) @ +20 °C $\pm$ 5 °C					
Withstanding voltage between terminals and case UTC	3000 Vac, 50/60 Hz 60 s (at +20 $\pm$ 5 °C)					
Dissipation factor	$\leq$ 20 $\times$ 10 <sup>-4</sup> at 1 kHz; C $\leq$ 20 $\mu$ F at +20 °C $\leq$ 30 $\times$ 10 <sup>-4</sup> at 1 kHz; 20 $\mu$ F < C $\leq$ 80 $\mu$ F at +20 °C $\leq$ 40 $\times$ 10 <sup>-4</sup> at 1 kHz; C > 80 $\mu$ F at +20 °C					
Insulation resistance	RC between leads, at 100 V +20 °C; 1 min > 30,000 M $\Omega$ * $\mu$ F					
Self-inductance	<1 nH per mm of lead spacing					
Operative voltage derating	Voltage (Vdc)					
Rated voltage at +85 °C (VNDC)	450	600	700	900	1100	1200
Rated voltage at +105 °C (VOP105)	351	468	546	702	858	936
Rated voltage at +115 °C (VOP115)	301	402	469	603	737	804
Rated voltage at +125 °C (VOP125)	252	336	392	504	616	672
Life expectancy ( $\Delta$ C/C $\leq$ 5%)	100,000 hours ( $U_{NDC}$ , hotspot = +85 °C) 4,000 hours ( $U_{OP125}$ , hotspot = +125 °C)					
Failure rate	100 FITs ( $U_{NDC}$ , hotspot = 85 °C)					
Maximum altitude	4000 m					
<b>Overvoltage</b>	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					

**Characteristics curves**

**Expected life curve**

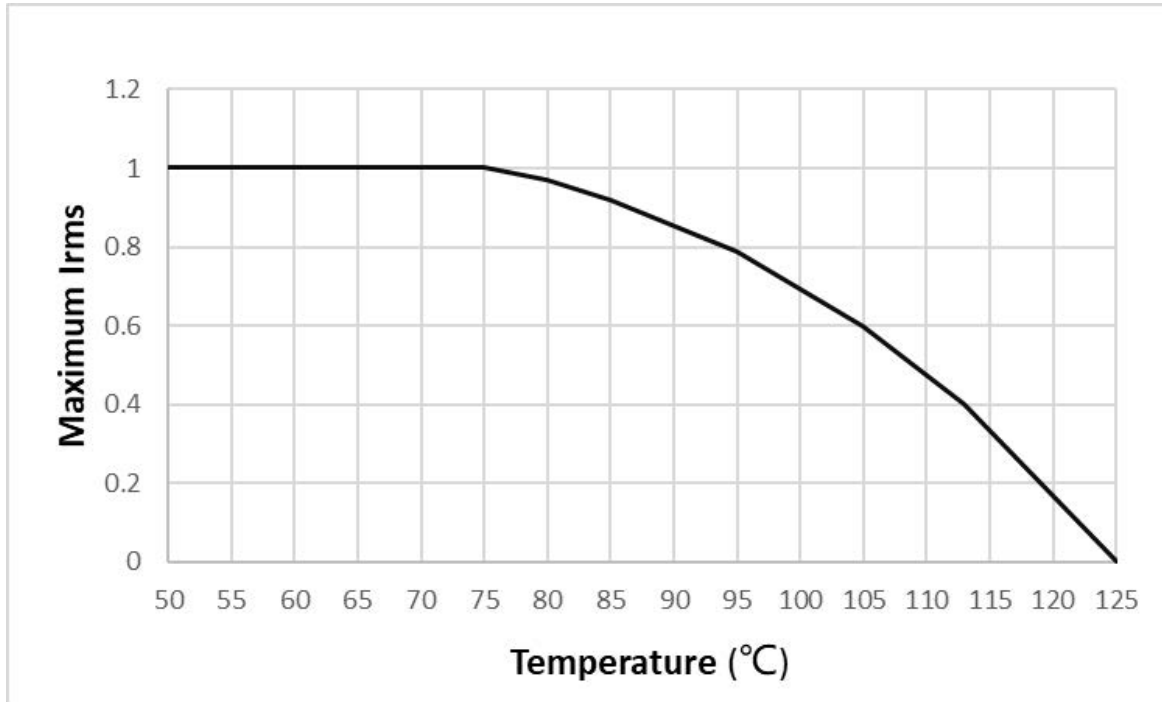


**Derating of  $U_R$  vs. temperature**

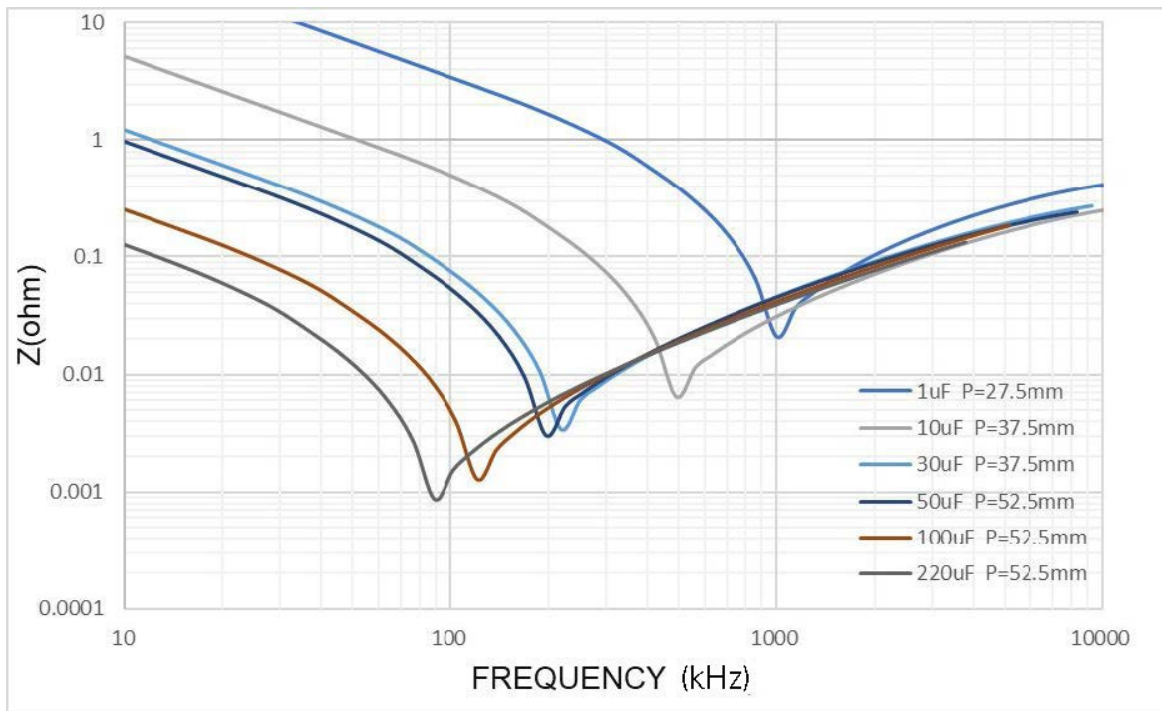


### Characteristics curves

#### Derating of $I_{rms}$ vs. temperature



#### Impedance vs. frequency



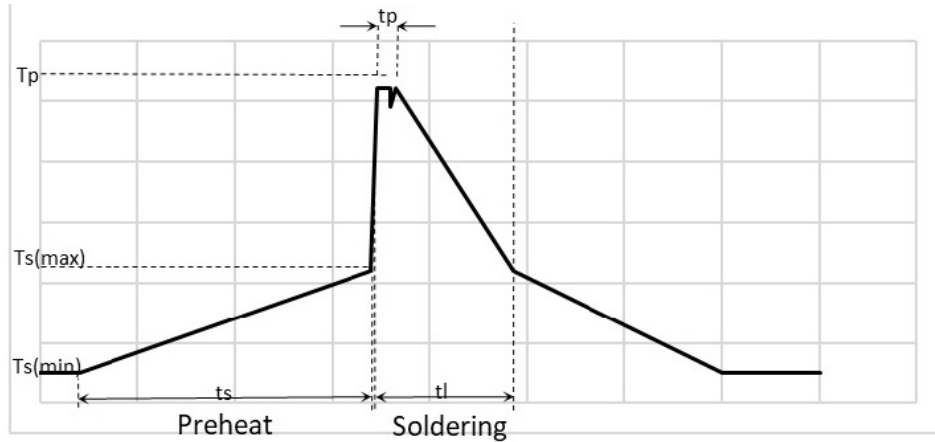
### Environmental test

Test	Test condition	Performance
High temperature exposure	MIL-STD-202 Method 108	+125 +/- 2 °C, 1000 hours
Temperature cycling	JESD22 Method JA-104	High temperature: +125 +/-5 °C Low temperature: -55 +/- 5 °C 1000 cycles, 30 minutes for each temperature
Moisture resistance	MIL-STD-202 Method 106	(+25 °C to +65 °C for 2.5 hours), (+65 °C for 3 hours), (+65 °C to +25 °C for 2.5 hours), (+25 °C to +65 °C for 2.5 hours), (+65 °C for 3 hours), (+65°C to +25 °C for 2.5 hours), (+25 °C for 8 hours) Keep humidity 90% to 100% for 10 cycles
Biased humidity 1	MIL-STD-202 Method 103	+60 °C + 95% R.H Rated voltage, 1000 hours
Biased humidity 2	MIL-STD-202 Method 103	+85 °C + 85% R.H Rated voltage, 1000 hours
Operational life 1	IEC 61071	Test temperature: +85 +/- 2 °C. Apply 130% 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)
Operational life 2	IEC 61071	Test Temperature: +125 +/- 2 °C. Apply Vop125 voltage for 4,000 +24/-0 hours. Duration: 500 hours, 1000 charges and discharges At 1.4 x I peak (maximum respective peak current in continuous operation)
Terminal strength (lead)	IEC 60384-14	Tension: 0.50 < D ≤ 0.80, 10 N, 0.80 < D ≤ 1.25, 20 N Bending force: 0.50 < D ≤ 0.80, 5 N, 0.80 < D ≤ 1.25, 10 N Make two successive bends in each direction
Resistance to solvents	MIL-STD-202 Method 215	Solvent: propanol Immersion time: 3 minutes Drying time: 5 minutes Mechanical treatment: 10 rubbing 3 cycles
Mechanical shock	MIL-STD-202 Method 213	Pulse-shape: half-sine wave Acceleration: 100 g Duration of pulse: 6 ms, 18 times
Vibration	MIL-STD-202 Method 204	Frequency change: 10 to 2000 Hz. 5 g force 20 minutes Direction: X, Y, Z 12 cycles in each direction
Resistance to soldering heat	MIL-STD-202 Method 210	+260 +/- 5 °C 10 s 1.5 mm from roots
Solderability	J-STD-002	+245 +/- 5 °C
Electrical characterization	Datasheet	Parametrically test per lot at room, -55 °C, +125 °C
Passive flammability class B	IEC 60384-14	Test duration for actual volume V V ≤ 250 for 10 s 250 < V ≤ 500 for 20 s 500 < V ≤ 1750 for 30 s V > 1750 for 60 s
Humidity resistance	MIL-STD-202 Method 106	40 +/- 2 °C 90% to 95% R.H 56 days
Self-healing test	IEC 61071	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 VNDC for a duration of 10 seconds
Surge discharge test	IEC 61071	Five charges and discharges in ten minutes. Test voltage: 1.1 VNDC Test current: 1.1 times the maximum impulse current The interelectrode withstand voltage was tested within five minutes after the test.
Thermal stability	IEC 61071	Temperature: ambient temperature +75 °C Test current: 1.1 I <sub>rms</sub> Test frequency: 10 kHz Test time: 48 h during, the last 6 h, the temperature of the case near of the top rise shall be measured per 1.5 h

**Packaging information**

Pitch mm	Size	Dimension			Package quantity	
	Code	W	H	T	Bulk pack/box	
27.5	D02	32	18	9	340	
	D03	32	20	11	280	
	D04	32	22	13	230	
	D05	32	24	14	220	
	D06	32	24.5	13	230	
	D07	32	24.5	15	200	
	D08	32	28	14	220	
	D09	32	28	18	170	
	D10	32	30	16	190	
	D12	32	33	18	170	
	D13	32	37	22	140	
	37.5	E04	42	28	17	126
		E07	42	30	17	126
E10		42	32	19	112	
E11		42	37	22	98	
E12		42	37	28	77	
E13		42	40	20	105	
E14		42	43	28	77	
E15		42	44	24	91	
E16		42	45	30	70	
E17		42	50	35	63	
E18		42	55	40	49	
52.5	F01	57.5	45	25	60	
	F02	57.5	45	30	50	
	F03	57.5	50	35	45	
	F04	57.5	55	45	35	
	F06	57.5	65	45	35	
	F07	57.5	65	35	45	
	F08	57.5	60	35	45	

**Wave solder profile**



**Profile feature**

Preheat	• $T_s$ maximum	110 °C
	• $T_s$ minimum	NA
	• $t_s$	< 150 seconds
Preheat	• $T_p$	260 °C ±5 °C
	• $t_p$	< 10 seconds
	• $t_l$	≤60 seconds

Capacitor body maximum temperature at wave soldering ≤120 °C

**Manual solder**

+400 °C, 3 seconds maximum by soldering iron, generally manual, hand soldering is not recommended

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