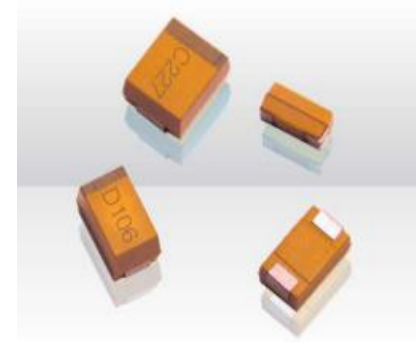


CA45L Series

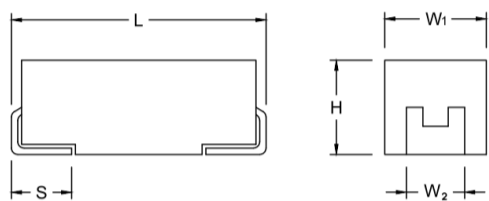
Low ESR

Features

- Epoxy molded encapsulation, Chip, Easy for integration, Polarized;
- low ESR , Volumetrically efficient , Stable in electrical & storage performances , Long life-span, High reliability;
- Typical applications include decoupling and filtering in industrial and automotive end applications , such as DC/DC converters , portable electronics , telecommunications and control units
- Operative Standard: QJ/PWV305-2008;



Dimensions(mm)



Case Code	EIA Code	EIA Metric	L	W ₁	H	W ₂	S
A	1206	3216-16	3.20±0.20	1.60±0.20	1.60±0.20	0.80±0.20	1.20±0.20
B	1210	3528-19	3.50±0.20	2.80±0.20	1.90±0.20	0.80±0.20	2.20±0.20
C	2312	6032-25	6.00±0.20	3.20±0.20	2.50±0.20	1.30±0.20	2.20±0.20
D	2917	7343-28	7.30±0.20	4.30±0.20	2.80±0.20	1.30±0.20	2.40±0.20
E	2917	7343-43	7.30±0.40	4.30±0.40	4.10±0.40	1.30±0.20	2.40±0.20
V	2924	7361-36	7.30±0.40	6.10±0.40	3.60±0.40	1.35±0.20	3.00±0.20

How to order

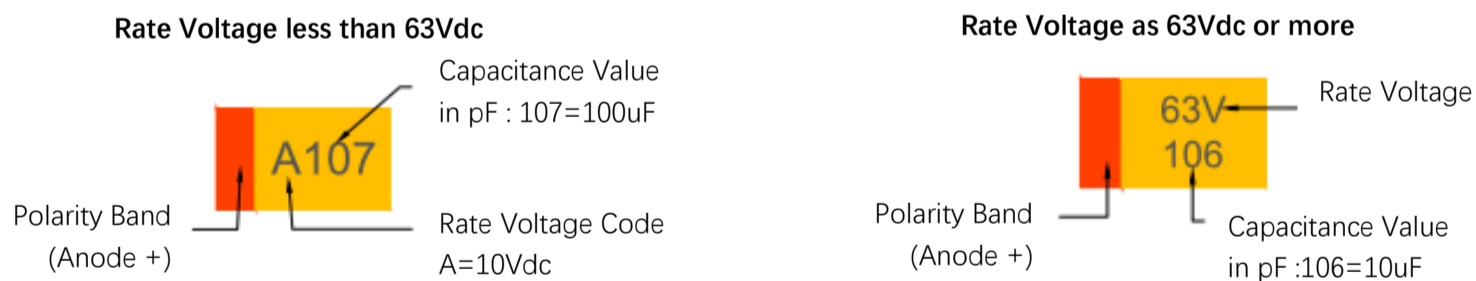
CA45L	-	B	6R3	M	107	T	E700
Type	Separator	Case Size <small>See table above</small>	Rated DC voltage <small>004=4Vdc; 6R3=6.3Vdc; 010=10Vdc 016=16Vdc; 020=20Vdc 025=25Vdc; 035=35Vdc 050=50Vdc; 063=63Vdc</small>	Tolerance <small>K=±10% M=±20%</small>	Capacitance Code <small>pF code: 1st two digits represent significant figures, 3rd digit represents multiplier (number of zeros to follow)</small>	Package <small>T=Reel W=Waffle B=Bulk</small>	ESR <small>Last three digits specify ESR in mΩ (700=700 mΩ)</small>

Environmental Compliance

RoHS Compliant (6/6) according to Directive 2002/95/EC when ordered with 100%Sn solder, Gold plated or Non-magnetic 100% Sn solder.



Marking



Technical Specifications

Technical Data		All technical data relate to an ambient temperature of +25°C									
Capacitance Range		0.47 μF ~1000 μF									
Capacitance Tolerance		±10%; ±20%;									
Rated Voltage (V _R)	≤+85°C:	4	6.3	10	16	20	25	35	50	63	
Category Voltage (V _C)	≤+125°C:	2.7	4	6.3	10	15	17	23	33	40	
Surge Voltage (V _S)	≤+85°C:	5.2	8	13	20	26	32	46	65	82	
Surge Voltage (V _S)	≤+125°C:	3.4	5	8	13	16	20	28	40	50	
Temperature Range		-55°C to +125°C									
Termination Finished		Sn Plating (standard), Gold and SnPb Plating upon request									

**CAPACITANCE AND RATED VOLTAGE RANGE
(LETTER DENOTES CASE SIZE)**

Rated Voltage (V)	4	6.3	10	16
Capacitance (μF)	Case Size & ESR			
6.8				A (2000, 2500), B (1200, 2000)
10				A (1700), B (1200, 2000)
15			A (1000, 1800), B (600, 900)	B (800, 1000), C (600)
22			A (1200, 1500), B (400, 500)	B (700, 1000), C (500, 700), D (500)
33		A (1500, 2000), B (600)	B (450, 700), C (400, 600), D (300, 500)	C (500, 700), D (300, 500)
47	A (1500, 2000), B (900, 1500)	B (600, 800), C (300, 500)	B (500, 700), C (400, 600), D (300, 500)	C (300, 500), D (300, 500), E (200, 600)
68	B (1000, 1500), C (600, C (1000)	B (500, 700), C (500, 700), D (250, 500)	C (200, 500), D (150, 400)	C (1000), D (200, 450), E (200, 600)
100	B (450, 800), C (500, 1000)	B (400, 700), C (300, 500), D (300, 500)	C (250, 500), D (200, 400), E (150)	C (800), D (200, 500), E (200, 600)
150	C (500, 900), D (350, 700), E (200, 600)	C (300, 500), D (300, 500), E (150, 300)	D (200, 400), E (150, 300)	D (500, 600), E (200, 250)
220	C (500, 900), D (300, 600), E (100, 500)	C (200, 500), D (150, 300), E (150, 300)	D (200, 400), E (200, 400), V (200, 400)	E (200, 400), V (200, 400)
330	D (400, 600), E (200, 600), V (200, 600)	D (150, 300), E (150, 300)	D (150, 250), E (150, 200), V (150, 200)	E (180, 500), V (180, 500)
470	D (200, 350), E (150, 350), V (150, 350)	E (150, 300)	E (150, 200)	E (450, 600)
680	E (150, 200)	E (150, 300)	E (150, 200)	
1000	E (150, 200)			

Rated Voltage (V)	20	25	35	50	63
Capacitance (μF)	Case Size & ESR				
0.47			A (4000, A (8000)	A (3000, 6000)	
0.68			A (6000, A (7000)	B (3000, 6000)	
1			A (6000, 7000), B (2500, 3000)	B (2500, 4000), C (1800, 4000)	C (2000)
1.5		A (4500, 7500), B (3000, 5000)	B (3000, 4000), C (2500, 3000)	C (1800, 3000), D (1000, 2500)	D (2500)
2.2		A (3000, 8000), B (2500, 5000)	B (2500, 3000), C (2000, 2500)	C (1500, 2000), D (700, 1000)	D (1500)
3.3	A (4000, 5000), B (3000, 4000)	B (2000, 3000), C (1200, 2000)	B (2500, 3000), C (1200, 2000)	C (700, 1500), D (700, 1500)	D (1200)
4.7	A (2500, 5000), B (1500, 3000), C (1000, 2500)	B (1000, 1200), C (1000, 2000)	B (2000, 2500), C (800, 1000), D (700, 1000)	C (700, 1000), D (600, 1000)	E (800)
6.8	B (1000, 1800), C (800, 1200)	B (2000, 2500), C (1000, 1500), D (700, 1000)	C (700, 1200), D (600, 1000)	D (600, 800), E (500, 1000)	E (600)
10	B (1200, 1800), C (600, 1000), D (500, 1000)	B (1500, 2000), C (900, 1200), D (450, 800)	C (700, 1000), D (400, 800)	D (400, 600), E (400, 800)	E (450)
15	B (1500, 1800), C (800, 1000), D (600, 800)	C (500, 1000), D (400, 600)	D (350, 600), E (300, 600)	E (400, 500)	E (300) V (300)
22	C (600, 900), D (400, 600)	C (800, 1000), D (400, 600)	D (400, 500), E (300, 400)	E (400, 500)	V (300)
33	C (600, 900), D (400, 600)	D (300, 500), E (250, 500)	D (500, 700), E (300, 600)		
47	C (300, 400), D (250, 500), E (250, 500)	D (350, 500), E (300, 600)	D (400, 900), E (400, 600)		
68	D (250, 300), E (250, 500)	E (250, 500), V (250, 600)	E (800)		
100	D (300, 400), E (250, 300)	E (200, 250), V (200, 250)			
150	D (450, 600), E (180, 250)	E (600), V (300)			
220	E (450, 600), V (250, 400)				
330	E (450, 600), V (450, 600)				

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-A004#476TE1k5	4	47	A	85	125	2.7	1.9	11	1500	0.208	0.125	0.083
CA45L-A004#476TE2k0	4	47	A	85	125	2.7	1.9	11	2000	0.180	0.108	0.072
CA45L-B004#476TE900	4	47	B	85	125	2.7	1.9	8	900	0.289	0.173	0.115
CA45L-B004#476TE1k5	4	47	B	85	125	2.7	1.9	8	1500	0.224	0.134	0.089
CA45L-B004#686TE1k0	4	68	B	85	125	2.7	2.7	8	1000	0.274	0.164	0.110
CA45L-B004#686TE1k5	4	68	B	85	125	2.7	2.7	8	1500	0.224	0.134	0.089
CA45L-C004#686TE600	4	68	C	85	125	2.7	2.7	6	600	0.387	0.232	0.155
CA45L-C004#686TE1k0	4	68	C	85	125	2.7	2.7	6	1000	0.300	0.180	0.120
CA45L-B004#107TE450	4	100	B	85	125	2.7	4.0	10	450	0.408	0.245	0.163
CA45L-B004#107TE800	4	100	B	85	125	2.7	4.0	10	800	0.306	0.184	0.122
CA45L-C004#107TE500	4	100	C	85	125	2.7	4.0	10	500	0.424	0.255	0.170
CA45L-C004#107TE1k0	4	100	C	85	125	2.7	4.0	10	1000	0.300	0.180	0.120
CA45L-C004#157TE500	4	150	C	85	125	2.7	6.0	10	500	0.424	0.255	0.170
CA45L-C004#157TE900	4	150	C	85	125	2.7	6.0	10	900	0.316	0.190	0.126
CA45L-D004#157TE350	4	150	D	85	125	2.7	6.0	8	350	0.548	0.329	0.219
CA45L-D004#157TE700	4	150	D	85	125	2.7	6.0	8	700	0.387	0.232	0.155
CA45L-E004#157TE200	4	150	E	85	125	2.7	6.0	8	200	0.791	0.474	0.316
CA45L-E004#157TE600	4	150	E	85	125	2.7	6.0	8	600	0.456	0.274	0.183
CA45L-C004#227TE500	4	220	C	85	125	2.7	8.8	12	500	0.424	0.255	0.170
CA45L-C004#227TE900	4	220	C	85	125	2.7	8.8	12	900	0.316	0.190	0.126
CA45L-D004#227TE300	4	220	D	85	125	2.7	8.8	10	300	0.592	0.355	0.237
CA45L-D004#227TE600	4	220	D	85	125	2.7	8.8	10	600	0.418	0.251	0.167
CA45L-E004#227TE100	4	220	E	85	125	2.7	8.8	10	100	1.118	0.671	0.447
CA45L-E004#227TE500	4	220	E	85	125	2.7	8.8	10	500	0.500	0.300	0.200
CA45L-D004#337TE400	4	330	D	85	125	2.7	13.2	14	400	0.512	0.307	0.205
CA45L-D004#337TE600	4	330	D	85	125	2.7	13.2	14	600	0.418	0.251	0.167
CA45L-E004#337TE200	4	330	E	85	125	2.7	13.2	12	200	0.791	0.474	0.316
CA45L-E004#337TE600	4	330	E	85	125	2.7	13.2	12	600	0.456	0.274	0.183
CA45L-V004#337TE200	4	330	V	85	125	2.7	13.2	12	200	0.866	0.520	0.346
CA45L-V004#337TE600	4	330	V	85	125	2.7	13.2	12	600	0.500	0.300	0.200
CA45L-D004#477TE200	4	470	D	85	125	2.7	18.8	14	200	0.725	0.435	0.290
CA45L-D004#477TE350	4	470	D	85	125	2.7	18.8	14	350	0.548	0.329	0.219
CA45L-E004#477TE150	4	470	E	85	125	2.7	18.8	12	150	0.913	0.548	0.365
CA45L-E004#477TE350	4	470	E	85	125	2.7	18.8	12	350	0.598	0.359	0.239
CA45L-V004#477TE150	4	470	V	85	125	2.7	18.8	12	150	1.000	0.600	0.400
CA45L-V004#477TE350	4	470	V	85	125	2.7	18.8	12	350	0.655	0.393	0.262
CA45L-E004#687TE150	4	680	E	85	125	2.7	27.2	14	150	0.913	0.548	0.365
CA45L-E004#687TE200	4	680	E	85	125	2.7	27.2	14	200	0.791	0.474	0.316
CA45L-E004#108TE150	4	1000	E	85	125	2.7	40.0	15	150	0.913	0.548	0.365
CA45L-E004#108TE200	4	1000	E	85	125	2.7	40.0	15	200	0.791	0.474	0.316
CA45L-A6R3#336TE1k5	6.3	33	A	85	125	4	2.1	8	1500	0.208	0.125	0.083
CA45L-A6R3#336TE2k0	6.3	33	A	85	125	4	2.1	8	2000	0.180	0.108	0.072
CA45L-B6R3#336TE600	6.3	33	B	85	125	4	2.1	8	600	0.354	0.212	0.141
CA45L-B6R3#476TE600	6.3	47	B	85	125	4	3.0	8	600	0.354	0.212	0.141
CA45L-B6R3#476TE800	6.3	47	B	85	125	4	3.0	8	800	0.306	0.184	0.122
CA45L-C6R3#476TE300	6.3	47	C	85	125	4	3.0	6	300	0.548	0.329	0.219
CA45L-C6R3#476TE500	6.3	47	C	85	125	4	3.0	6	500	0.424	0.255	0.170
CA45L-B6R3#686TE500	6.3	68	B	85	125	4	4.3	10	500	0.387	0.232	0.155
CA45L-B6R3#686TE700	6.3	68	B	85	125	4	4.3	10	700	0.327	0.196	0.131
CA45L-C6R3#686TE500	6.3	68	C	85	125	4	4.3	8	500	0.424	0.255	0.170
CA45L-C6R3#686TE700	6.3	68	C	85	125	4	4.3	8	700	0.359	0.215	0.143
CA45L-D6R3#686TE250	6.3	68	D	85	125	4	4.3	6	250	0.648	0.389	0.259
CA45L-D6R3#686TE500	6.3	68	D	85	125	4	4.3	6	500	0.458	0.275	0.183
CA45L-B6R3#107TE400	6.3	100	B	85	125	4	6.3	14	400	0.433	0.260	0.173

- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U_~=2.2°-1.0V, U_~=1.0°-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-B6R3#107TE700	6.3	100	B	85	125	4	6.3	14	700	0.327	0.196	0.131
CA45L-C6R3#107TE300	6.3	100	C	85	125	4	6.3	8	300	0.548	0.329	0.219
CA45L-C6R3#107TE500	6.3	100	C	85	125	4	6.3	8	500	0.424	0.255	0.170
CA45L-D6R3#107TE300	6.3	100	D	85	125	4	6.3	8	300	0.592	0.355	0.237
CA45L-D6R3#107TE500	6.3	100	D	85	125	4	6.3	8	500	0.458	0.275	0.183
CA45L-C6R3#157TE300	6.3	150	C	85	125	4	9.5	12	300	0.548	0.329	0.219
CA45L-C6R3#157TE500	6.3	150	C	85	125	4	9.5	12	500	0.424	0.255	0.170
CA45L-D6R3#157TE300	6.3	150	D	85	125	4	9.5	10	300	0.592	0.355	0.237
CA45L-D6R3#157TE500	6.3	150	D	85	125	4	9.5	10	500	0.458	0.275	0.183
CA45L-E6R3#157TE150	6.3	150	E	85	125	4	9.5	10	150	0.913	0.548	0.365
CA45L-E6R3#157TE300	6.3	150	E	85	125	4	9.5	10	300	0.645	0.387	0.258
CA45L-C6R3#227TE200	6.3	220	C	85	125	4	13.9	14	200	0.671	0.402	0.268
CA45L-C6R3#227TE500	6.3	220	C	85	125	4	13.9	14	500	0.424	0.255	0.170
CA45L-D6R3#227TE150	6.3	220	D	85	125	4	13.9	12	150	0.837	0.502	0.335
CA45L-D6R3#227TE300	6.3	220	D	85	125	4	13.9	12	300	0.592	0.355	0.237
CA45L-E6R3#227TE150	6.3	220	E	85	125	4	13.9	12	150	0.913	0.548	0.365
CA45L-E6R3#227TE300	6.3	220	E	85	125	4	13.9	12	300	0.645	0.387	0.258
CA45L-D6R3#337TE150	6.3	330	D	85	125	4	20.8	14	150	0.837	0.502	0.335
CA45L-D6R3#337TE300	6.3	330	D	85	125	4	20.8	14	300	0.592	0.355	0.237
CA45L-E6R3#337TE150	6.3	330	E	85	125	4	20.8	14	150	0.913	0.548	0.365
CA45L-E6R3#337TE300	6.3	330	E	85	125	4	20.8	14	300	0.645	0.387	0.258
CA45L-E6R3#477TE150	6.3	470	E	85	125	4	29.6	14	150	0.913	0.548	0.365
CA45L-E6R3#477TE300	6.3	470	E	85	125	4	29.6	14	300	0.645	0.387	0.258
CA45L-E6R3#687TE150	6.3	680	E	85	125	4	42.8	14	150	0.913	0.548	0.365
CA45L-E6R3#687TE300	6.3	680	E	85	125	4	42.8	14	300	0.645	0.387	0.258
CA45L-A010#156TE1k0	10	15	A	85	125	6.3	1.5	8	1000	0.255	0.153	0.102
CA45L-A010#156TE1k8	10	15	A	85	125	6.3	1.5	8	1800	0.190	0.114	0.076
CA45L-B010#156TE600	10	15	B	85	125	6.3	1.5	6	600	0.354	0.212	0.141
CA45L-B010#156TE900	10	15	B	85	125	6.3	1.5	6	900	0.289	0.173	0.115
CA45L-A010#226TE1k2	10	22	A	85	125	6.3	2.2	12	1200	0.233	0.140	0.093
CA45L-A010#226TE1k5	10	22	A	85	125	6.3	2.2	12	1500	0.208	0.125	0.083
CA45L-B010#226TE400	10	22	B	85	125	6.3	2.2	6	400	0.433	0.260	0.173
CA45L-B010#226TE500	10	22	B	85	125	6.3	2.2	6	500	0.387	0.232	0.155
CA45L-B010#336TE450	10	33	B	85	125	6.3	3.3	8	450	0.408	0.245	0.163
CA45L-B010#336TE700	10	33	B	85	125	6.3	3.3	8	700	0.327	0.196	0.131
CA45L-C010#336TE400	10	33	C	85	125	6.3	3.3	6	400	0.474	0.285	0.190
CA45L-C010#336TE600	10	33	C	85	125	6.3	3.3	6	600	0.387	0.232	0.155
CA45L-D010#336TE300	10	33	D	85	125	6.3	3.3	6	300	0.592	0.355	0.237
CA45L-D010#336TE500	10	33	D	85	125	6.3	3.3	6	500	0.458	0.275	0.183
CA45L-B010#476TE500	10	47	B	85	125	6.3	4.7	10	500	0.387	0.232	0.155
CA45L-B010#476TE700	10	47	B	85	125	6.3	4.7	10	700	0.327	0.196	0.131
CA45L-C010#476TE400	10	47	C	85	125	6.3	4.7	8	400	0.474	0.285	0.190
CA45L-C010#476TE600	10	47	C	85	125	6.3	4.7	8	600	0.387	0.232	0.155
CA45L-D010#476TE300	10	47	D	85	125	6.3	4.7	6	300	0.592	0.355	0.237
CA45L-D010#476TE500	10	47	D	85	125	6.3	4.7	6	500	0.458	0.275	0.183
CA45L-C010#686TE200	10	68	C	85	125	6.3	6.8	8	200	0.671	0.402	0.268
CA45L-C010#686TE500	10	68	C	85	125	6.3	6.8	8	500	0.424	0.255	0.170
CA45L-D010#686TE150	10	68	D	85	125	6.3	6.8	6	150	0.837	0.502	0.335
CA45L-D010#686TE400	10	68	D	85	125	6.3	6.8	6	400	0.512	0.307	0.205
CA45L-C010#107TE250	10	100	C	85	125	6.3	10.0	10	250	0.600	0.360	0.240
CA45L-C010#107TE500	10	100	C	85	125	6.3	10.0	10	500	0.424	0.255	0.170
CA45L-D010#107TE200	10	100	D	85	125	6.3	10.0	8	200	0.725	0.435	0.290
CA45L-D010#107TE400	10	100	D	85	125	6.3	10.0	8	400	0.512	0.307	0.205
CA45L-E010#107TE150	10	100	E	85	125	6.3	10.0	8	150	0.913	0.548	0.365

- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U_~=2.2°-1.0V, U_~=1.0°-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-D010#157TE200	10	150	D	85	125	6.3	15.0	10	200	0.725	0.435	0.290
CA45L-D010#157TE400	10	150	D	85	125	6.3	15.0	10	400	0.512	0.307	0.205
CA45L-E010#157TE150	10	150	E	85	125	6.3	15.0	10	150	0.913	0.548	0.365
CA45L-E010#157TE300	10	150	E	85	125	6.3	15.0	10	300	0.645	0.387	0.258
CA45L-D010#227TE200	10	220	D	85	125	6.3	22.0	12	200	0.725	0.435	0.290
CA45L-D010#227TE400	10	220	D	85	125	6.3	22.0	12	400	0.512	0.307	0.205
CA45L-E010#227TE200	10	220	E	85	125	6.3	22.0	12	200	0.791	0.474	0.316
CA45L-E010#227TE400	10	220	E	85	125	6.3	22.0	12	400	0.559	0.335	0.224
CA45L-V010#227TE200	10	220	V	85	125	6.3	22.0	12	200	0.866	0.520	0.346
CA45L-V010#227TE400	10	220	V	85	125	6.3	22.0	12	400	0.612	0.367	0.245
CA45L-D010#337TE150	10	330	D	85	125	6.3	33.0	14	150	0.837	0.502	0.335
CA45L-D010#337TE250	10	330	D	85	125	6.3	33.0	14	250	0.648	0.389	0.259
CA45L-E010#337TE150	10	330	E	85	125	6.3	33.0	14	150	0.913	0.548	0.365
CA45L-E010#337TE200	10	330	E	85	125	6.3	33.0	14	200	0.791	0.474	0.316
CA45L-V010#337TE150	10	330	V	85	125	6.3	33.0	14	150	1.000	0.600	0.400
CA45L-V010#337TE200	10	330	V	85	125	6.3	33.0	14	200	0.866	0.520	0.346
CA45L-E010#477TE150	10	470	E	85	125	6.3	47.0	14	150	0.913	0.548	0.365
CA45L-E010#477TE200	10	470	E	85	125	6.3	47.0	14	200	0.791	0.474	0.316
CA45L-E010#687TE150	10	680	E	85	125	6.3	68.0	14	150	0.913	0.548	0.365
CA45L-E010#687TE200	10	680	E	85	125	6.3	68.0	14	200	0.791	0.474	0.316
CA45L-A016#685TE2k0	16	6.8	A	85	125	10	1.1	6	2000	0.180	0.108	0.072
CA45L-A016#685TE2k5	16	6.8	A	85	125	10	1.1	6	2500	0.161	0.097	0.064
CA45L-B016#685TE1k2	16	6.8	B	85	125	10	1.1	6	1200	0.250	0.150	0.100
CA45L-B016#685TE2k0	16	6.8	B	85	125	10	1.1	6	2000	0.194	0.116	0.077
CA45L-A016#106TE1k7	16	10	A	85	125	10	1.6	8	1700	0.196	0.117	0.078
CA45L-B016#106TE1k2	16	10	B	85	125	10	1.6	6	1200	0.250	0.150	0.100
CA45L-B016#106TE2k0	16	10	B	85	125	10	1.6	6	2000	0.194	0.116	0.077
CA45L-B016#156TE800	16	15	B	85	125	10	2.4	6	800	0.306	0.184	0.122
CA45L-B016#156TE1k0	16	15	B	85	125	10	2.4	6	1000	0.274	0.164	0.110
CA45L-C016#156TE600	16	15	C	85	125	10	2.4	6	600	0.387	0.232	0.155
CA45L-B016#226TE700	16	22	B	85	125	10	3.5	8	700	0.327	0.196	0.131
CA45L-B016#226TE1k0	16	22	B	85	125	10	3.5	8	1000	0.274	0.164	0.110
CA45L-C016#226TE500	16	22	C	85	125	10	3.5	6	500	0.424	0.255	0.170
CA45L-C016#226TE700	16	22	C	85	125	10	3.5	6	700	0.359	0.215	0.143
CA45L-D016#226TE500	16	22	D	85	125	10	3.5	6	500	0.458	0.275	0.183
CA45L-C016#336TE500	16	33	C	85	125	10	5.3	6	500	0.424	0.255	0.170
CA45L-C016#336TE700	16	33	C	85	125	10	5.3	6	700	0.359	0.215	0.143
CA45L-D016#336TE300	16	33	D	85	125	10	5.3	6	300	0.592	0.355	0.237
CA45L-D016#336TE500	16	33	D	85	125	10	5.3	6	500	0.458	0.275	0.183
CA45L-C016#476TE300	16	47	C	85	125	10	7.5	8	300	0.548	0.329	0.219
CA45L-C016#476TE500	16	47	C	85	125	10	7.5	8	500	0.424	0.255	0.170
CA45L-D016#476TE300	16	47	D	85	125	10	7.5	6	300	0.592	0.355	0.237
CA45L-D016#476TE500	16	47	D	85	125	10	7.5	6	500	0.458	0.275	0.183
CA45L-E016#476TE200	16	47	E	85	125	10	7.5	6	200	0.791	0.474	0.316
CA45L-E016#476TE600	16	47	E	85	125	10	7.5	6	600	0.456	0.274	0.183
CA45L-C016#686TE1k0	16	68	C	85	125	10	10.9	8	1000	0.300	0.180	0.120
CA45L-D016#686TE200	16	68	D	85	125	10	10.9	8	200	0.725	0.435	0.290
CA45L-D016#686TE450	16	68	D	85	125	10	10.9	8	450	0.483	0.290	0.193
CA45L-E016#686TE200	16	68	E	85	125	10	10.9	6	200	0.791	0.474	0.316
CA45L-E016#686TE600	16	68	E	85	125	10	10.9	6	600	0.456	0.274	0.183
CA45L-C016#107TE800	16	100	C	85	125	10	16.0	12	800	0.335	0.201	0.134
CA45L-D016#107TE200	16	100	D	85	125	10	16.0	8	200	0.725	0.435	0.290
CA45L-D016#107TE500	16	100	D	85	125	10	16.0	8	500	0.458	0.275	0.183
CA45L-E016#107TE200	16	100	E	85	125	10	16.0	8	200	0.791	0.474	0.316

- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U₊=2.2^o-1.0V, U₋=1.0^o-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-E016#107TE600	16	100	E	85	125	10	16.0	8	600	0.456	0.274	0.183
CA45L-D016#157TE500	16	150	D	85	125	10	24.0	12	500	0.458	0.275	0.183
CA45L-D016#157TE600	16	150	D	85	125	10	24.0	12	600	0.418	0.251	0.167
CA45L-E016#157TE200	16	150	E	85	125	10	24.0	10	200	0.791	0.474	0.316
CA45L-E016#157TE250	16	150	E	85	125	10	24.0	10	250	0.707	0.424	0.283
CA45L-E016#227TE200	16	220	E	85	125	10	35.2	12	200	0.791	0.474	0.316
CA45L-E016#227TE400	16	220	E	85	125	10	35.2	12	400	0.559	0.335	0.224
CA45L-V016#227TE200	16	220	V	85	125	10	35.2	12	200	0.866	0.520	0.346
CA45L-V016#227TE400	16	220	V	85	125	10	35.2	12	400	0.612	0.367	0.245
CA45L-E016#337TE180	16	330	E	85	125	10	52.8	12	180	0.833	0.500	0.333
CA45L-E016#337TE500	16	330	E	85	125	10	52.8	12	500	0.500	0.300	0.200
CA45L-V016#337TE180	16	330	V	85	125	10	52.8	12	180	0.913	0.548	0.365
CA45L-V016#337TE500	16	330	V	85	125	10	52.8	12	500	0.548	0.329	0.219
CA45L-E016#477TE450	16	470	E	85	125	10	75.2	16	450	0.527	0.316	0.211
CA45L-E016#477TE600	16	470	E	85	125	10	75.2	16	600	0.456	0.274	0.183
CA45L-A020#335TE4k0	20	3.3	A	85	125	15	0.7	6	4000	0.127	0.076	0.051
CA45L-A020#335TE5k0	20	3.3	A	85	125	15	0.7	6	5000	0.114	0.068	0.046
CA45L-B020#335TE3k0	20	3.3	B	85	125	15	0.7	6	3000	0.158	0.095	0.063
CA45L-B020#335TE4k0	20	3.3	B	85	125	15	0.7	6	4000	0.137	0.082	0.055
CA45L-A020#475TE2k5	20	4.7	A	85	125	15	0.9	6	2500	0.161	0.097	0.064
CA45L-A020#475TE5k0	20	4.7	A	85	125	15	0.9	6	5000	0.114	0.068	0.046
CA45L-B020#475TE1k5	20	4.7	B	85	125	15	0.9	6	1500	0.224	0.134	0.089
CA45L-B020#475TE3k0	20	4.7	B	85	125	15	0.9	6	3000	0.158	0.095	0.063
CA45L-C020#475TE1k0	20	4.7	C	85	125	15	0.9	6	1000	0.300	0.180	0.120
CA45L-C020#475TE2k5	20	4.7	C	85	125	15	0.9	6	2500	0.190	0.114	0.076
CA45L-B020#685TE1k0	20	6.8	B	85	125	15	1.4	6	1000	0.274	0.164	0.110
CA45L-B020#685TE1k8	20	6.8	B	85	125	15	1.4	6	1800	0.204	0.122	0.082
CA45L-C020#685TE800	20	6.8	C	85	125	15	1.4	6	800	0.335	0.201	0.134
CA45L-C020#685TE1k2	20	6.8	C	85	125	15	1.4	6	1200	0.274	0.164	0.110
CA45L-B020#106TE1k2	20	10	B	85	125	15	2.0	6	1200	0.250	0.150	0.100
CA45L-B020#106TE1k8	20	10	B	85	125	15	2.0	6	1800	0.204	0.122	0.082
CA45L-C020#106TE600	20	10	C	85	125	15	2.0	6	600	0.387	0.232	0.155
CA45L-C020#106TE1k0	20	10	C	85	125	15	2.0	6	1000	0.300	0.180	0.120
CA45L-D020#106TE500	20	10	D	85	125	15	2.0	6	500	0.458	0.275	0.183
CA45L-D020#106TE1k0	20	10	D	85	125	15	2.0	6	1000	0.324	0.194	0.130
CA45L-B020#156TE1k5	20	15	B	85	125	15	3.0	6	1500	0.224	0.134	0.089
CA45L-B020#156TE1k8	20	15	B	85	125	15	3.0	6	1800	0.204	0.122	0.082
CA45L-C020#156TE800	20	15	C	85	125	15	3.0	6	800	0.335	0.201	0.134
CA45L-C020#156TE1k0	20	15	C	85	125	15	3.0	6	1000	0.300	0.180	0.120
CA45L-D020#156TE600	20	15	D	85	125	15	3.0	6	600	0.418	0.251	0.167
CA45L-D020#156TE800	20	15	D	85	125	15	3.0	6	800	0.362	0.217	0.145
CA45L-C020#226TE600	20	22	C	85	125	15	4.4	6	600	0.387	0.232	0.155
CA45L-C020#226TE900	20	22	C	85	125	15	4.4	6	900	0.316	0.190	0.126
CA45L-D020#226TE400	20	22	D	85	125	15	4.4	6	400	0.512	0.307	0.205
CA45L-D020#226TE600	20	22	D	85	125	15	4.4	6	600	0.418	0.251	0.167
CA45L-C020#336TE600	20	33	C	85	125	15	6.6	6	600	0.387	0.232	0.155
CA45L-C020#336TE900	20	33	C	85	125	15	6.6	6	900	0.316	0.190	0.126
CA45L-D020#336TE400	20	33	D	85	125	15	6.6	6	400	0.512	0.307	0.205
CA45L-D020#336TE600	20	33	D	85	125	15	6.6	6	600	0.418	0.251	0.167
CA45L-C020#476TE300	20	47	C	85	125	15	9.4	8	300	0.548	0.329	0.219
CA45L-C020#476TE400	20	47	C	85	125	15	9.4	8	400	0.474	0.285	0.190
CA45L-D020#476TE250	20	47	D	85	125	15	9.4	8	250	0.648	0.389	0.259
CA45L-D020#476TE500	20	47	D	85	125	15	9.4	8	500	0.458	0.275	0.183
CA45L-E020#476TE250	20	47	E	85	125	15	9.4	6	250	0.707	0.424	0.283

- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U_{DC}=2.2⁻-1.0V, U_{AC}~1.0^o-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-E020#476TE500	20	47	E	85	125	15	9.4	6	500	0.500	0.300	0.200
CA45L-D020#686TE250	20	68	D	85	125	15	13.6	8	250	0.648	0.389	0.259
CA45L-D020#686TE300	20	68	D	85	125	15	13.6	8	300	0.592	0.355	0.237
CA45L-E020#686TE250	20	68	E	85	125	15	13.6	6	250	0.707	0.424	0.283
CA45L-E020#686TE500	20	68	E	85	125	15	13.6	6	500	0.500	0.300	0.200
CA45L-D020#107TE300	20	100	D	85	125	15	20.0	10	300	0.592	0.355	0.237
CA45L-D020#107TE400	20	100	D	85	125	15	20.0	10	400	0.512	0.307	0.205
CA45L-E020#107TE250	20	100	E	85	125	15	20.0	10	250	0.707	0.424	0.283
CA45L-E020#107TE300	20	100	E	85	125	15	20.0	10	300	0.645	0.387	0.258
CA45L-D020#157TE450	20	150	D	85	125	15	30.0	10	450	0.483	0.290	0.193
CA45L-D020#157TE600	20	150	D	85	125	15	30.0	10	600	0.418	0.251	0.167
CA45L-E020#157TE180	20	150	E	85	125	15	30.0	10	180	0.833	0.500	0.333
CA45L-E020#157TE250	20	150	E	85	125	15	30.0	10	250	0.707	0.424	0.283
CA45L-E020#227TE450	20	220	E	85	125	15	44.0	12	450	0.527	0.316	0.211
CA45L-E020#227TE600	20	220	E	85	125	15	44.0	12	600	0.456	0.274	0.183
CA45L-V020#227TE250	20	220	V	85	125	15	44.0	12	250	0.775	0.465	0.310
CA45L-V020#227TE400	20	220	V	85	125	15	44.0	12	400	0.612	0.367	0.245
CA45L-E020#337TE450	20	330	E	85	125	15	66.0	12	450	0.527	0.316	0.211
CA45L-E020#337TE600	20	330	E	85	125	15	66.0	12	600	0.456	0.274	0.183
CA45L-V020#337TE450	20	330	V	85	125	15	66.0	12	450	0.577	0.346	0.231
CA45L-V020#337TE600	20	330	V	85	125	15	66.0	12	600	0.500	0.300	0.200
CA45L-A025#155TE4k5	25	1.5	A	85	125	17	0.5	6	4500	0.120	0.072	0.048
CA45L-A025#155TE7k5	25	1.5	A	85	125	17	0.5	6	7500	0.093	0.056	0.037
CA45L-B025#155TE3k0	25	1.5	B	85	125	17	0.5	6	3000	0.158	0.095	0.063
CA45L-B025#155TE5k0	25	1.5	B	85	125	17	0.5	6	5000	0.122	0.073	0.049
CA45L-A025#225TE3k0	25	2.2	A	85	125	17	0.6	6	3000	0.147	0.088	0.059
CA45L-A025#225TE8k0	25	2.2	A	85	125	17	0.6	6	8000	0.090	0.054	0.036
CA45L-B025#225TE2k5	25	2.2	B	85	125	17	0.6	6	2500	0.173	0.104	0.069
CA45L-B025#225TE5k0	25	2.2	B	85	125	17	0.6	6	5000	0.122	0.073	0.049
CA45L-B025#335TE2k0	25	3.3	B	85	125	17	0.8	6	2000	0.194	0.116	0.077
CA45L-B025#335TE3k0	25	3.3	B	85	125	17	0.8	6	3000	0.158	0.095	0.063
CA45L-C025#335TE1k2	25	3.3	C	85	125	17	0.8	6	1200	0.274	0.164	0.110
CA45L-C025#335TE2k0	25	3.3	C	85	125	17	0.8	6	2000	0.212	0.127	0.085
CA45L-B025#475TE1k0	25	4.7	B	85	125	17	1.2	6	1000	0.274	0.164	0.110
CA45L-B025#475TE1k2	25	4.7	B	85	125	17	1.2	6	1200	0.250	0.150	0.100
CA45L-C025#475TE1k0	25	4.7	C	85	125	17	1.2	6	1000	0.300	0.180	0.120
CA45L-C025#475TE2k0	25	4.7	C	85	125	17	1.2	6	2000	0.212	0.127	0.085
CA45L-B025#685TE2k0	25	6.8	B	85	125	17	1.7	6	2000	0.194	0.116	0.077
CA45L-B025#685TE2k5	25	6.8	B	85	125	17	1.7	6	2500	0.173	0.104	0.069
CA45L-C025#685TE1k0	25	6.8	C	85	125	17	1.7	6	1000	0.300	0.180	0.120
CA45L-C025#685TE1k5	25	6.8	C	85	125	17	1.7	6	1500	0.245	0.147	0.098
CA45L-D025#685TE700	25	6.8	D	85	125	17	1.7	6	700	0.387	0.232	0.155
CA45L-D025#685TE1k0	25	6.8	D	85	125	17	1.7	6	1000	0.324	0.194	0.130
CA45L-B025#106TE1k5	25	10	B	85	125	17	2.5	8	1500	0.224	0.134	0.089
CA45L-B025#106TE2k0	25	10	B	85	125	17	2.5	8	2000	0.194	0.116	0.077
CA45L-C025#106TE900	25	10	C	85	125	17	2.5	6	900	0.316	0.190	0.126
CA45L-C025#106TE1k2	25	10	C	85	125	17	2.5	6	1200	0.274	0.164	0.110
CA45L-D025#106TE450	25	10	D	85	125	17	2.5	6	450	0.483	0.290	0.193
CA45L-D025#106TE800	25	10	D	85	125	17	2.5	6	800	0.362	0.217	0.145
CA45L-C025#156TE500	25	15	C	85	125	17	3.8	6	500	0.424	0.255	0.170
CA45L-C025#156TE1k0	25	15	C	85	125	17	3.8	6	1000	0.300	0.180	0.120
CA45L-D025#156TE400	25	15	D	85	125	17	3.8	6	400	0.512	0.307	0.205
CA45L-D025#156TE600	25	15	D	85	125	17	3.8	6	600	0.418	0.251	0.167
CA45L-C025#226TE800	25	22	C	85	125	17	5.5	6	800	0.335	0.201	0.134

- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U_~=2.2°-1.0V, U₋=1.0°-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-C025#226TE1k0	25	22	C	85	125	17	5.5	6	1000	0.300	0.180	0.120
CA45L-D025#226TE400	25	22	D	85	125	17	5.5	6	400	0.512	0.307	0.205
CA45L-D025#226TE600	25	22	D	85	125	17	5.5	6	600	0.418	0.251	0.167
CA45L-D025#336TE300	25	33	D	85	125	17	8.3	8	300	0.592	0.355	0.237
CA45L-D025#336TE500	25	33	D	85	125	17	8.3	8	500	0.458	0.275	0.183
CA45L-E025#336TE250	25	33	E	85	125	17	8.3	6	250	0.707	0.424	0.283
CA45L-E025#336TE500	25	33	E	85	125	17	8.3	6	500	0.500	0.300	0.200
CA45L-D025#476TE350	25	47	D	85	125	17	11.8	8	350	0.548	0.329	0.219
CA45L-D025#476TE500	25	47	D	85	125	17	11.8	8	500	0.458	0.275	0.183
CA45L-E025#476TE300	25	47	E	85	125	17	11.8	6	300	0.645	0.387	0.258
CA45L-E025#476TE600	25	47	E	85	125	17	11.8	6	600	0.456	0.274	0.183
CA45L-E025#686TE250	25	68	E	85	125	17	17.0	8	250	0.707	0.424	0.283
CA45L-E025#686TE500	25	68	E	85	125	17	17.0	8	500	0.500	0.300	0.200
CA45L-V025#686TE250	25	68	V	85	125	17	17.0	8	250	0.775	0.465	0.310
CA45L-V025#686TE600	25	68	V	85	125	17	17.0	8	600	0.500	0.300	0.200
CA45L-E025#107TE200	25	100	E	85	125	17	25.0	10	200	0.791	0.474	0.316
CA45L-E025#107TE250	25	100	E	85	125	17	25.0	10	250	0.707	0.424	0.283
CA45L-V025#107TE200	25	100	V	85	125	17	25.0	10	200	0.866	0.520	0.346
CA45L-V025#107TE250	25	100	V	85	125	17	25.0	10	250	0.775	0.465	0.310
CA45L-E025#157TE600	25	150	E	85	125	17	37.5	10	600	0.456	0.274	0.183
CA45L-V025#157TE300	25	150	V	85	125	17	37.5	10	300	0.707	0.424	0.283
CA45L-A035#474TE4k0	35	0.47	A	85	125	23	0.5	6	4000	0.127	0.076	0.051
CA45L-A035#474TE8k0	35	0.47	A	85	125	23	0.5	6	8000	0.090	0.054	0.036
CA45L-A035#684TE6k0	35	0.68	A	85	125	23	0.5	6	6000	0.104	0.062	0.042
CA45L-A035#684TE7k0	35	0.68	A	85	125	23	0.5	6	7000	0.096	0.058	0.039
CA45L-A035#105TE6k0	35	1	A	85	125	23	0.5	6	6000	0.104	0.062	0.042
CA45L-A035#105TE7k0	35	1	A	85	125	23	0.5	6	7000	0.096	0.058	0.039
CA45L-B035#105TE2k5	35	1	B	85	125	23	0.5	4	2500	0.173	0.104	0.069
CA45L-B035#105TE3k0	35	1	B	85	125	23	0.5	4	3000	0.158	0.095	0.063
CA45L-B035#155TE3k0	35	1.5	B	85	125	23	0.5	6	3000	0.158	0.095	0.063
CA45L-B035#155TE4k0	35	1.5	B	85	125	23	0.5	6	4000	0.137	0.082	0.055
CA45L-C035#155TE2k5	35	1.5	C	85	125	23	0.5	6	2500	0.190	0.114	0.076
CA45L-C035#155TE3k0	35	1.5	C	85	125	23	0.5	6	3000	0.173	0.104	0.069
CA45L-B035#225TE2k5	35	2.2	B	85	125	23	0.8	6	2500	0.173	0.104	0.069
CA45L-B035#225TE3k0	35	2.2	B	85	125	23	0.8	6	3000	0.158	0.095	0.063
CA45L-C035#225TE2k0	35	2.2	C	85	125	23	0.8	6	2000	0.212	0.127	0.085
CA45L-C035#225TE2k5	35	2.2	C	85	125	23	0.8	6	2500	0.190	0.114	0.076
CA45L-B035#335TE2k5	35	3.3	B	85	125	23	1.2	6	2500	0.173	0.104	0.069
CA45L-B035#335TE3k0	35	3.3	B	85	125	23	1.2	6	3000	0.158	0.095	0.063
CA45L-C035#335TE1k2	35	3.3	C	85	125	23	1.2	6	1200	0.274	0.164	0.110
CA45L-C035#335TE2k0	35	3.3	C	85	125	23	1.2	6	2000	0.212	0.127	0.085
CA45L-B035#475TE2k0	35	4.7	B	85	125	23	1.6	8	2000	0.194	0.116	0.077
CA45L-B035#475TE2k5	35	4.7	B	85	125	23	1.6	8	2500	0.173	0.104	0.069
CA45L-C035#475TE800	35	4.7	C	85	125	23	1.6	6	800	0.335	0.201	0.134
CA45L-C035#475TE1k0	35	4.7	C	85	125	23	1.6	6	1000	0.300	0.180	0.120
CA45L-D035#475TE700	35	4.7	D	85	125	23	1.6	6	700	0.387	0.232	0.155
CA45L-D035#475TE1k0	35	4.7	D	85	125	23	1.6	6	1000	0.324	0.194	0.130
CA45L-C035#685TE700	35	6.8	C	85	125	23	2.4	6	700	0.359	0.215	0.143
CA45L-C035#685TE1k2	35	6.8	C	85	125	23	2.4	6	1200	0.274	0.164	0.110
CA45L-D035#685TE600	35	6.8	D	85	125	23	2.4	6	600	0.418	0.251	0.167
CA45L-D035#685TE1k0	35	6.8	D	85	125	23	2.4	6	1000	0.324	0.194	0.130
CA45L-C035#106TE700	35	10	C	85	125	23	3.5	6	700	0.359	0.215	0.143
CA45L-C035#106TE1k0	35	10	C	85	125	23	3.5	6	1000	0.300	0.180	0.120
CA45L-D035#106TE400	35	10	D	85	125	23	3.5	6	400	0.512	0.307	0.205

- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U₊=2.2^o-1.0V, U₋=1.0^o-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-D035#106TE800	35	10	D	85	125	23	3.5	6	800	0.362	0.217	0.145
CA45L-D035#156TE350	35	15	D	85	125	23	5.3	6	350	0.548	0.329	0.219
CA45L-D035#156TE600	35	15	D	85	125	23	5.3	6	600	0.418	0.251	0.167
CA45L-E035#156TE300	35	15	E	85	125	23	5.3	6	300	0.645	0.387	0.258
CA45L-E035#156TE600	35	15	E	85	125	23	5.3	6	600	0.456	0.274	0.183
CA45L-D035#226TE400	35	22	D	85	125	23	7.7	6	400	0.512	0.307	0.205
CA45L-D035#226TE500	35	22	D	85	125	23	7.7	6	500	0.458	0.275	0.183
CA45L-E035#226TE300	35	22	E	85	125	23	7.7	6	300	0.645	0.387	0.258
CA45L-E035#226TE400	35	22	E	85	125	23	7.7	6	400	0.559	0.335	0.224
CA45L-D035#336TE500	35	33	D	85	125	23	11.6	8	500	0.458	0.275	0.183
CA45L-D035#336TE700	35	33	D	85	125	23	11.6	8	700	0.387	0.232	0.155
CA45L-E035#336TE300	35	33	E	85	125	23	11.6	6	300	0.645	0.387	0.258
CA45L-E035#336TE600	35	33	E	85	125	23	11.6	6	600	0.456	0.274	0.183
CA45L-D035#476TE400	35	47	D	85	125	23	16.5	8	400	0.512	0.307	0.205
CA45L-D035#476TE900	35	47	D	85	125	23	16.5	8	900	0.342	0.205	0.137
CA45L-E035#476TE400	35	47	E	85	125	23	16.5	6	400	0.559	0.335	0.224
CA45L-E035#476TE600	35	47	E	85	125	23	16.5	6	600	0.456	0.274	0.183
CA45L-E035#686TE800	35	68	E	85	125	23	23.8	8	800	0.395	0.237	0.158
CA45L-A050#474TE3k0	50	0.47	A	85	125	33	0.5	6	3000	0.147	0.088	0.059
CA45L-A050#474TE6k0	50	0.47	A	85	125	33	0.5	6	6000	0.104	0.062	0.042
CA45L-B050#684TE3k0	50	0.68	B	85	125	33	0.5	6	3000	0.158	0.095	0.063
CA45L-B050#684TE6k0	50	0.68	B	85	125	33	0.5	6	6000	0.112	0.067	0.045
CA45L-B050#105TE2k5	50	1	B	85	125	33	0.5	6	2500	0.173	0.104	0.069
CA45L-B050#105TE4k0	50	1	B	85	125	33	0.5	6	4000	0.137	0.082	0.055
CA45L-C050#105TE1k8	50	1	C	85	125	33	0.5	4	1800	0.224	0.134	0.089
CA45L-C050#105TE4k0	50	1	C	85	125	33	0.5	4	4000	0.150	0.090	0.060
CA45L-C050#155TE1k8	50	1.5	C	85	125	33	0.8	6	1800	0.224	0.134	0.089
CA45L-C050#155TE3k0	50	1.5	C	85	125	33	0.8	6	3000	0.173	0.104	0.069
CA45L-D050#155TE1k0	50	1.5	D	85	125	33	0.8	6	1000	0.324	0.194	0.130
CA45L-D050#155TE2k5	50	1.5	D	85	125	33	0.8	6	2500	0.205	0.123	0.082
CA45L-C050#225TE1k5	50	2.2	C	85	125	33	1.1	6	1500	0.245	0.147	0.098
CA45L-C050#225TE2k0	50	2.2	C	85	125	33	1.1	6	2000	0.212	0.127	0.085
CA45L-D050#225TE700	50	2.2	D	85	125	33	1.1	6	700	0.387	0.232	0.155
CA45L-D050#225TE1k0	50	2.2	D	85	125	33	1.1	6	1000	0.324	0.194	0.130
CA45L-C050#335TE700	50	3.3	C	85	125	33	1.7	6	700	0.359	0.215	0.143
CA45L-C050#335TE1k5	50	3.3	C	85	125	33	1.7	6	1500	0.245	0.147	0.098
CA45L-D050#335TE700	50	3.3	D	85	125	33	1.7	6	700	0.387	0.232	0.155
CA45L-D050#335TE1k5	50	3.3	D	85	125	33	1.7	6	1500	0.265	0.159	0.106
CA45L-C050#475TE700	50	4.7	C	85	125	33	2.4	6	700	0.359	0.215	0.143
CA45L-C050#475TE1k0	50	4.7	C	85	125	33	2.4	6	1000	0.300	0.180	0.120
CA45L-D050#475TE600	50	4.7	D	85	125	33	2.4	6	600	0.418	0.251	0.167
CA45L-D050#475TE1k0	50	4.7	D	85	125	33	2.4	6	1000	0.324	0.194	0.130
CA45L-D050#685TE600	50	6.8	D	85	125	33	3.4	6	600	0.418	0.251	0.167
CA45L-D050#685TE800	50	6.8	D	85	125	33	3.4	6	800	0.362	0.217	0.145
CA45L-E050#685TE500	50	6.8	E	85	125	33	3.4	6	500	0.500	0.300	0.200
CA45L-E050#685TE1k0	50	6.8	E	85	125	33	3.4	6	1000	0.354	0.212	0.141
CA45L-D050#106TE400	50	10	D	85	125	33	5.0	6	400	0.512	0.307	0.205
CA45L-D050#106TE600	50	10	D	85	125	33	5.0	6	600	0.418	0.251	0.167
CA45L-E050#106TE400	50	10	E	85	125	33	5.0	6	400	0.559	0.335	0.224
CA45L-E050#106TE800	50	10	E	85	125	33	5.0	6	800	0.395	0.237	0.158
CA45L-E050#156TE400	50	15	E	85	125	33	7.5	6	400	0.559	0.335	0.224
CA45L-E050#156TE500	50	15	E	85	125	33	7.5	6	500	0.500	0.300	0.200
CA45L-E050#226TE400	50	22	E	85	125	33	11.0	8	400	0.559	0.335	0.224
CA45L-E050#226TE500	50	22	E	85	125	33	11.0	8	500	0.500	0.300	0.200

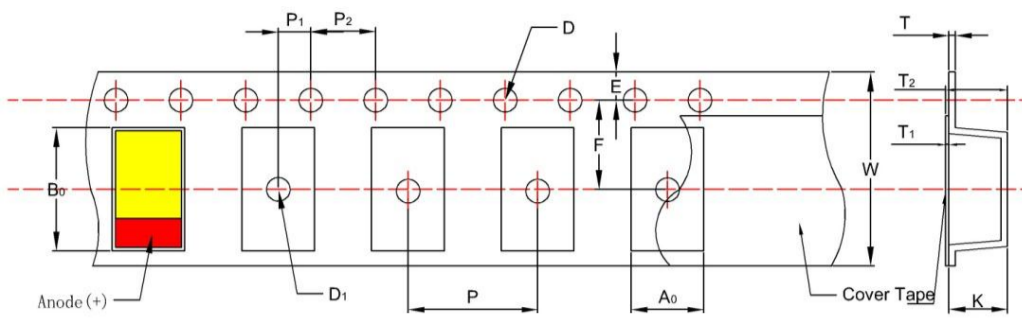
- # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- Please do not use multimeter through the measuring procedures.
- Capacitance and DF measured at :100Hz, U₊=2.2°-1.0V, U₋=1.0°-0.5V, Frequency=100Hz.Test only applied in series equivalent circuit.
- Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- Special size and demand could consult with us.

RATING & PART NUMBER REFERENCE

Part Number	Rated Voltage (V)	Rated CAP (μF)	Case Code	Rated Temp (°C)	Category Temp (°C)	Category Voltage (V)	Max DCL(μA) @25°C	Max DF(%) @25°C 100Hz	Max ESR(mΩ) @25°C 100KHz	Max. Ripple @ 100kHz IRMS (A)		
										25°C	85°C	125°C
CA45L-C063#105TE2k0	63	1	C	85	125	40	0.6	6	2000	0.212	0.127	0.085
CA45L-D063#155TE2k5	63	1.5	D	85	125	40	0.9	6	2500	0.205	0.123	0.082
CA45L-D063#225TE1k5	63	2.2	D	85	125	40	1.4	6	1500	0.265	0.159	0.106
CA45L-D063#335TE1k2	63	3.3	D	85	125	40	2.1	6	1200	0.296	0.177	0.118
CA45L-E063#475TE800	63	4.7	E	85	125	40	3.0	6	800	0.395	0.237	0.158
CA45L-E063#685TE600	63	6.8	E	85	125	40	4.3	6	600	0.456	0.274	0.183
CA45L-E063#106TE450	63	10	E	85	125	40	6.3	8	450	0.527	0.316	0.211
CA45L-E063#156TE300	63	15	E	85	125	40	9.5	8	300	0.645	0.387	0.258
CA45L-V063#156TE300	63	15	V	85	125	40	9.5	8	300	0.707	0.424	0.283
CA45L-V063#226TE300	63	22	V	85	125	40	13.9	8	300	0.707	0.424	0.283

- 1 # To complete part number , insert K for ±10% or M for ±20% .Designates capacitance tolerance.
- 2 Please do not use multimeter through the measuring procedures.
- 3 Capacitance and DF measured at :100Hz, $U_{DC} = 2.2V - 1.0V$, $U_{AC} = 1.0V - 0.5V$, Frequency=100Hz.Test only applied in series equivalent circuit.
- 4 Voltage derating is applied at +125°C. (The DCL parameter should be read after 5 minutes when it connected to the circuit) .
- 5 Special size and demand could consult with us.

Packaging



Embossed (Plastic) Carrier Tape Dimensions

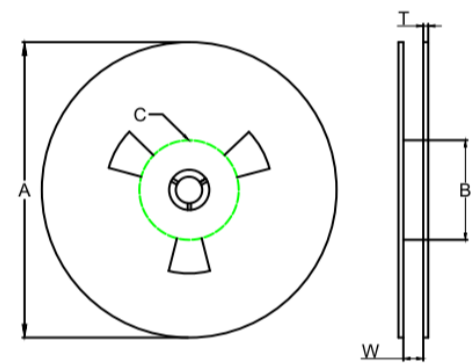
Diagram of Taping Dimensions

Case	A ₀ ±0.10	B ₀ ±0.10	K±0.10	W±0.30	E±0.10	F±0.05	P±0.10	P ₁ ±0.05	P ₂ ±0.10	D+0.20	D ₁ +0.25
A	1.83	3.57	1.65	8	1.75	3.5	4	2	4	1.5	1
B	3.15	3.77	2.22	8	1.75	3.5	4	2	4	1.5	1
C	3.45	6.4	2.92	12	1.75	5.5	8	2	4	1.5	1.5
D	4.48	7.62	3.22	12	1.75	5.5	8	2	4	1.5	1.5
E	4.5	7.5	4.5	12	1.75	5.5	8	2	4	1.5	1.5
V	6.4	7.6	4.4	16	1.75	5.5	8	2	4	1.5	1.5

±0.2mm over 10 sprocket hole spaces

Reel Dimensions

Reel Size	Tape Wide	A	B	C	W	T
180mm (7")	8mm	178±2.00	50 min	13.0±0.50	8.4+1.5/-0	1.50±0.50
180mm (7")	12mm	178±2.00	50 min	13.0±0.50	12.4+1.5/-0	1.50±0.50
180mm (7")	16mm	178±2.00	50 min	13.0±0.50	16.4+1.5/-1	1.50±0.50



Reel Dimensions

Packaging Quantity

Case size	A	B	C	D	E	V	W
Quantity (pcs / plate)	2000	2000	500	500	400	400	400

Land Dimension /Courtyard

Case code	Metric Size Code	Density Level A: Maximum (Most) Land Protrusion (mm)					Density Level B : Median (Nominal) Land Protrusion (mm)					Density Level C: Minimum (Least) Land Protrusion (mm)				
		W	L	S	V1	V2	W	L	S	V1	V2	W	L	S	V1	V2
A	3216-18	1.35	2.20	0.62	6.02	2.8	1.23	1.8	0.82	4.92	2.3	1.13	1.42	0.98	4.06	2.04
B	3528-21	2.35	2.21	0.92	6.32	4.0	2.23	1.8	1.12	5.22	3.5	2.13	1.42	1.28	4.36	3.24
C	6032-25	2.35	2.77	2.37	8.92	4.5	2.23	2.37	2.57	7.82	4	2.13	1.99	2.73	6.96	3.74
D	7343-31	2.55	2.77	3.67	10.22	5.6	2.43	2.37	3.87	9.12	5.1	2.33	1.99	4.03	8.26	4.84
E	7343-43	2.55	2.77	3.67	10.22	5.6	2.43	2.37	3.87	9.12	5.1	2.33	1.99	4.03	8.26	4.84

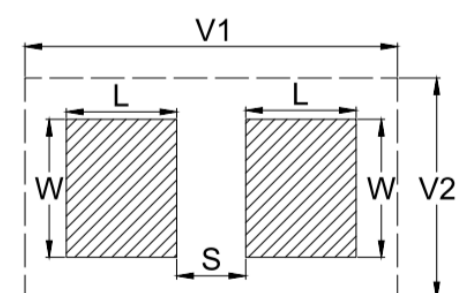
Density Level A: For low-density product applications. Recommended for wave solder applications and provides a wider process window for reflow solder processes.

Density Level B: For products with a moderate level of component density. Provides a robust solder attachment condition for reflow solder processes.

Density Level C: For high component density product applications. Before adapting the minimum land pattern variations the user should perform qualification testing based on the conditions outlined in IPC standard 7351 (IPC-7351).

1 Height of these chips may create problems in wave soldering.

2 Land pattern geometry is too small for silkscreen outline.



Surface Mount Footprints

Soldering Process

XIANGYEE tantalum capacitors are compatible with wave (single or dual), convection, IR, or vapor phase reflow techniques. Preheating of these components is recommended to avoid extreme thermal stress.

XIANGYEE's recommended profile conditions for convection and IR reflow reflect the profile conditions of the IPC/J-STD-020D standard for moisture sensitivity testing. The devices can safely withstand a maximum of three reflow passes at these conditions.

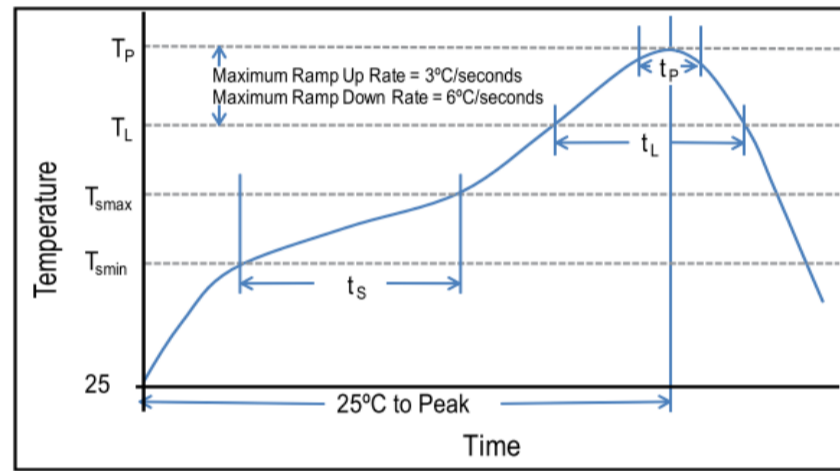
Hand soldering should be performed with care due to the difficulty in process control. If performed, care should be taken to avoid contact of the soldering iron to the molded case. The iron should be used to heat the solder pad, applying solder between the pad and the termination, until reflow occurs. Once reflow occurs, the iron should be removed immediately. "Wiping" the edges of a chip and heating the top surface is not recommended.

During typical reflow operations, a slight darkening of the gold-colored epoxy may be observed. This slight darkening is normal and not harmful to the product. Marking permanency is not affected by this change.

Profile Feature	SnPb Assembly	Pb-Free Assembly
Preheat/Soak		
Temperature Minimum (T_{smin})	100°C	150°C
Temperature Maximum (T_{smax})	150°C	200°C
Time (t_s) from T_{smin} to T_{smax}	60 – 120 seconds	60 – 120 seconds
Ramp-up Rate (T_L to T_P)	3°C/seconds maximum	3°C/seconds maximum
Liquidous Temperature (T_L)	183°C	217°C
Time Above Liquidous (t_L)	60 – 150 seconds	60 – 150 seconds
Peak Temperature (T_P)	220°C* , 235°C**	250°C* , 260°C**
Time within 5°C of Maximum Peak Temperature (t_P)	20 seconds maximum	30 seconds maximum
Ramp-down Rate (T_P to T_L)	6°C/seconds maximum	6°C/seconds maximum
Time 25°C to Peak Temperature	6 minutes maximum	8 minutes maximum

Note: All temperatures refer to the center of the package, measured on the package body surface that is facing up during assembly reflow.

*Case Size D, E **Case Size A, B, C



Recommended Reflow Profile

Storage

Tantalum dielectric chip capacitors are unaffected by the following storage condition for 2 years:

Temperature: -10°C – +50°C Humidity: 75% RH maximum

Atmospheric pressure: 860 mbar ~ 1060mbar

Tantalum capacitors exhibit a very low random failure rate after long periods of storage and apart from this there are no known modes of failure under normal storage conditions. All capacitors will withstand any environmental conditions within their ratings for the periods given in the detail specifications. Storage for longer periods under high humidity conditions may affect the leakage current of resin protected capacitors. Solderability of solder coated surfaces may be affected by storage of excess of 2 years.