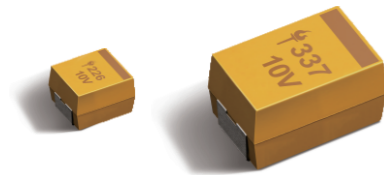


TANTALUM SOLID  
ELECTROLYTIC CHIP CAPACITORS



## FEATURES

Capacitance 0.1  $\mu$ F to 1000  $\mu$ F  
 Voltage rating of 4V - 50V  
 Operating temperature rang of -55°C to +125°C  
 RoHS Compliant and lead-free terminations

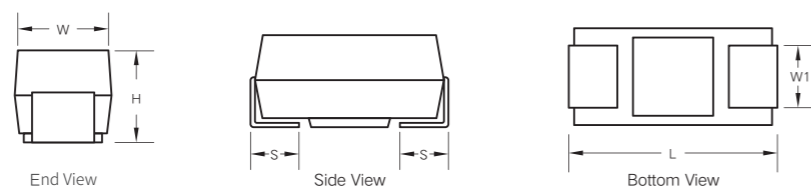
## » APPLICATIONS

Typical applications include decoupling and filtering in industrial and automotive end applications such as DC/DC converters, portable electronics, telecommunications, and control units.

## » ORDERING INFORMATION

CA45 series	— F Case size	— 50V Rated voltage	— 22 $\mu$ F Capacitance	— K Capacitance tolerance
Tantalum Solid Electrolytic Chip Capacitors	A、B、C、D、D1、E、F	4V 6.3V 10V 16V 20V 25V 35V 50V	Refer to Capacitance and Rated Voltage Range Table	K=±10% M=±20%

## » DIMENSIONS



Unit:mm

Size code	L	W	H	S	W1
A	3.20 ± 0.35	1.60 ± 0.25	1.60 ± 0.25	0.80 ± 0.30	1.20 ± 0.10
B	3.50 ± 0.35	2.80 ± 0.25	1.90 ± 0.25	0.80 ± 0.30	2.20 ± 0.10
C	6.00 ± 0.35	3.20 ± 0.30	2.50 ± 0.30	1.30 ± 0.30	2.20 ± 0.10
D	7.30 ± 0.35	4.30 ± 0.30	2.80 ± 0.30	1.30 ± 0.30	2.40 ± 0.10
D1	7.30 ± 0.35	4.30 ± 0.30	2.00 ± 0.30	1.30 ± 0.30	2.40 ± 0.10
E	7.30 ± 0.35	4.30 ± 0.30	4.10 ± 0.30	1.30 ± 0.30	2.80 ± 0.10
F	7.50 ± 0.35	6.10 ± 0.30	3.80 ± 0.30	1.30 ± 0.30	3.80 ± 0.10

## » CAPACITANCE AND RATED VOLTAGE RANGE

Part NO.	Cap ( $\mu$ F)	Size Code	Maximum Value					
			DF (%) @25°C	DCL( $\mu$ A) @25°C	Rms Current(A)			ESR( $\Omega$ ) @100kHz 25°C
					25°C	85°C	125°C	
Rated voltage:4V C ategoryV vltage:2.7V								
CA45-A-4V-3.3 $\mu$ F-□	3.3	A	6	0.5	0.097	0.087	0.039	8
CA45-A-4V-4.7 $\mu$ F-□	4.7	A	6	0.5	0.122	0.110	0.049	5
CA45-A-4V-6.8 $\mu$ F-□	6.8	A	6	0.5	0.137	0.123	0.055	4
CA45-A-4V-10 $\mu$ F-□	10	A	6	0.5	0.137	0.123	0.055	4
CA45-B-4V-10 $\mu$ F-□	10	B	6	0.5	0.168	0.151	0.067	3
CA45-A-4V-15 $\mu$ F-□	15	A	6	0.6	0.146	0.132	0.059	3.5
CA45-B-4V-15 $\mu$ F-□	15	B	6	0.6	0.174	0.157	0.070	2.8
CA45-A-4V-22 $\mu$ F-□	22	A	6	0.9	0.158	0.142	0.063	3
CA45-B-4V-22 $\mu$ F-□	22	B	6	0.9	0.238	0.214	0.095	1.5
CA45-C-4V-22 $\mu$ F-□	22	C	6	0.9	0.332	0.298	0.133	1
CA45-A-4V-33 $\mu$ F-□	33	A	6	1.3	0.158	0.142	0.063	3
CA45-B-4V-33 $\mu$ F-□	33	B	6	1.3	0.217	0.196	0.087	1.8
CA45-C-4V-33 $\mu$ F-□	33	C	6	1.3	0.262	0.236	0.105	1.6
CA45-A-4V-47 $\mu$ F-□	47	A	8	1.9	0.170	0.153	0.068	2.6
CA45-B-4V-47 $\mu$ F-□	47	B	6	1.9	0.206	0.186	0.082	2
CA45-C-4V-47 $\mu$ F-□	47	C	6	1.9	0.262	0.236	0.105	1.6
CA45-B-4V-68 $\mu$ F-□	68	B	8	2.7	0.217	0.196	0.087	1.8
CA45-C-4V-68 $\mu$ F-□	68	C	6	2.7	0.271	0.244	0.108	1.5
CA45-D-4V-68 $\mu$ F-□	68	D	6	2.7	0.408	0.367	0.163	0.9
CA45-B-4V-100 $\mu$ F-□	100	B	10	4.0	0.307	0.277	0.123	0.9
CA45-C-4V-100 $\mu$ F-□	100	C	10	4.0	0.350	0.315	0.140	0.9
CA45-D-4V-100 $\mu$ F-□	100	D	10	4.0	0.548	0.493	0.219	0.5
CA45-B-4V-150 $\mu$ F-□	150	B	10	6.0	0.238	0.214	0.095	1.5
CA45-C-4V-150 $\mu$ F-□	150	C	10	6.0	0.606	0.545	0.242	0.3
CA45-D-4V-150 $\mu$ F-□	150	D	10	6.0	0.408	0.367	0.163	0.9
CA45-E-4V-150 $\mu$ F-□	150	E	10	6.0	0.764	0.687	0.306	0.3
CA45-C-4V-220 $\mu$ F-□	220	C	10	8.8	0.303	0.272	0.121	1.2
CA45-D-4V-220 $\mu$ F-□	220	D	10	8.8	0.408	0.367	0.163	0.9
CA45-E-4V-220 $\mu$ F-□	220	E	10	8.8	0.661	0.595	0.265	0.4
CA45-C-4V-330 $\mu$ F-□	330	C	10	13.2	0.606	0.545	0.242	0.3
CA45-D-4V-330 $\mu$ F-□	330	D	10	13.2	0.408	0.367	0.163	0.9
CA45-E-4V-330 $\mu$ F-□	330	E	10	13.2	0.661	0.595	0.265	0.4
CA45-D-4V-470 $\mu$ F-□	470	D	14	18.8	0.408	0.367	0.163	0.9
CA45-E-4V-470 $\mu$ F-□	470	E	10	18.8	0.592	0.532	0.237	0.5
CA45-D-4V-680 $\mu$ F-□	680	D	14	27.2	0.548	0.493	0.219	0.5
CA45-E-4V-680 $\mu$ F-□	680	E	14	27.2	0.441	0.397	0.176	0.9

□: K=±10%,M=±20%

# TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
<b>Rated voltage:6.3V Category Voltage:4V</b>								
CA45-A-6.3V-1μF-□	1	A	4	0.5	0.097	0.087	0.039	8
CA45-A-6.3V-1.5μF-□	1.5	A	6	0.5	0.107	0.097	0.043	6.5
CA45-A-6.3V-2.2μF-□	2.2	A	6	0.5	0.107	0.097	0.043	6.5
CA45-A-6.3V-3.3μF-□	3.3	A	6	0.5	0.097	0.087	0.039	8
CA45-A-6.3V-4.7μF-□	4.7	A	6	0.5	0.122	0.110	0.049	5
CA45-A-6.3V-6.8μF-□	6.8	A	6	0.5	0.137	0.123	0.055	4
CA45-B-6.3V-6.8μF-□	6.8	B	6	0.5	0.184	0.166	0.074	2.5
CA45-A-6.3V-10μF-□	10	A	6	0.6	0.137	0.123	0.055	4
CA45-B-6.3V-10μF-□	10	B	6	0.6	0.168	0.151	0.067	3
CA45-A-6.3V-15μF-□	15	A	6	0.9	0.146	0.132	0.059	3.5
CA45-B-6.3V-15μF-□	15	B	6	0.9	0.174	0.157	0.070	2.8
CA45-A-6.3V-22μF-□	22	A	6	1.4	0.158	0.142	0.063	3
CA45-B-6.3V-22μF-□	22	B	6	1.4	0.238	0.214	0.095	1.5
CA45-C-6.3V-22μF-□	22	C	6	1.4	0.332	0.298	0.133	1
CA45-A-6.3V-33μF-□	33	A	8	2.1	0.185	0.166	0.074	2.2
CA45-B-6.3V-33μF-□	33	B	6	2.1	0.217	0.196	0.087	1.8
CA45-C-6.3V-33μF-□	33	C	6	2.1	0.262	0.236	0.105	1.6
CA45-A-6.3V-47μF-□	47	A	8	3.0	0.170	0.153	0.068	2.6
CA45-B-6.3V-47μF-□	47	B	6	3.0	0.206	0.186	0.082	2
CA45-C-6.3V-47μF-□	47	C	6	3.0	0.262	0.236	0.105	1.6
CA45-B-6.3V-68μF-□	68	B	8	4.3	0.246	0.222	0.099	1.4
CA45-C-6.3V-68μF-□	68	C	6	4.3	0.271	0.244	0.108	1.5
CA45-D-6.3V-68μF-□	68	D	6	4.3	0.408	0.367	0.163	0.9
CA45-B-6.3V-100μF-□	100	B	10	6.3	0.224	0.201	0.089	1.7
CA45-C-6.3V-100μF-□	100	C	10	6.3	0.350	0.315	0.140	0.9
CA45-D-6.3V-100μF-□	100	D	10	6.3	0.548	0.493	0.219	0.5
CA45-E-6.3V-100μF-□	100	E	10	6.3	0.661	0.595	0.265	0.4
CA45-B-6.3V-150μF-□	150	B	10	9.5	0.238	0.214	0.095	1.5
CA45-C-6.3V-150μF-□	150	C	10	9.5	0.291	0.262	0.116	1.3
CA45-D-6.3V-150μF-□	150	D	10	9.5	0.408	0.367	0.163	0.9
CA45-E-6.3V-150μF-□	150	E	10	9.5	0.764	0.687	0.306	0.3
CA45-C-6.3V-220μF-□	220	C	10	13.9	0.303	0.272	0.121	1.2
CA45-D-6.3V-220μF-□	220	D	10	13.9	0.548	0.493	0.219	0.5
CA45-E-6.3V-220μF-□	220	E	10	13.9	0.661	0.595	0.265	0.4
CA45-D-6.3V-330μF-□	330	D	10	20.8	0.408	0.367	0.163	0.9
CA45-E-6.3V-330μF-□	330	E	10	20.8	0.661	0.595	0.265	0.4
CA45-D-6.3V-470μF-□	470	D	14	29.6	0.612	0.551	0.245	0.4

□:K=±10%,M=±20%

# TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
CA45-E-6.3V-470μF-□	470	E	10	29.6	0.592	0.532	0.237	0.5
CA45-D-6.3V-680μF-□	680	D	18	42.8	0.387	0.349	0.155	1
<b>Rated voltage:10V Category Voltage:7V</b>								
CA45-A-10V-1μF-□	1	A	4	0.5	0.097	0.087	0.039	8
CA45-A-10V-1.5μF-□	1.5	A	6	0.5	0.107	0.097	0.043	6.5
CA45-A-10V-2.2μF-□	2.2	A	6	0.5	0.107	0.097	0.043	6.5
CA45-A-10V-3.3μF-□	3.3	A	6	0.5	0.122	0.110	0.049	5
CA45-A-10V-4.7μF-□	4.7	A	6	0.5	0.122	0.110	0.049	5
CA45-B-10V-4.7μF-□	4.7	B	6	0.5	0.156	0.140	0.062	3.5
CA45-A-10V-6.8μF-□	6.8	A	6	0.7	0.137	0.123	0.055	4
CA45-B-10V-6.8μF-□	6.8	B	6	0.7	0.184	0.166	0.074	2.5
CA45-A-10V-10μF-□	10	A	6	1.0	0.158	0.142	0.063	3
CA45-B-10V-10μF-□	10	B	6	1.0	0.174	0.157	0.070	2.8
CA45-A-10V-15μF-□	15	A	6	1.5	0.153	0.138	0.061	3.2
CA45-B-10V-15μF-□	15	B	6	1.5	0.174	0.157	0.070	2.8
CA45-C-10V-15μF-□	15	C	6	1.5	0.247	0.222	0.099	1.8
CA45-A-10V-22μF-□	22	A	8	2.2	0.158	0.142	0.063	3
CA45-B-10V-22μF-□	22	B	6	2.2	0.188	0.169	0.075	2.4
CA45-C-10V-22μF-□	22	C	6	2.2	0.332	0.298	0.133	1
CA45-B-10V-33μF-□	33	B	6	3.3	0.217	0.196	0.087	1.8
CA45-C-10V-33μF-□	33	C	6	3.3	0.262	0.236	0.105	1.6
CA45-B-10V-47μF-□	47	B	8	4.7	0.292	0.262	0.117	1
CA45-C-10V-47μF-□	47	C	6	4.7	0.303	0.272	0.121	1.2
CA45-D-10V-47μF-□	47	D	6	4.7	0.408	0.367	0.163	0.9
CA45-C-10V-68μF-□	68	C	6	6.8	0.291	0.262	0.116	1.3
CA45-D-10V-68μF-□	68	D	6	6.8	0.408	0.367	0.163	0.9
CA45-E-10V-68μF-□	68	E	6	6.8	0.441	0.397	0.176	0.9
CA45-C-10V-100μF-□	100	C	10	10.0	0.303	0.272	0.121	1.2
CA45-D-10V-100μF-□	100	D	10	10.0	0.408	0.367	0.163	0.9
CA45-E-10V-100μF-□	100	E	10	10.0	0.661	0.595	0.265	0.4
CA45-C-10V-150μF-□	150	C	10	15.0	0.350	0.315	0.140	0.9
CA45-D-10V-150μF-□	150	D	10	15.0	0.408	0.367	0.163	0.9
CA45-E-10V-150μF-□	150	E	10	15.0	0.441	0.397	0.176	0.9
CA45-D-10V-220μF-□	220	D	10	22.0	0.548	0.493	0.219	0.5
CA45-E-10V-220μF-□	220	E	10	22.0	0.592	0.532	0.237	0.5
CA45-D-10V-330μF-□	330	D	14	33.0	0.408	0.367	0.163	0.9
CA45-E-10V-330μF-□	330	E	10	33.0	0.441	0.397	0.176	0.9

□:K=±10%,M=±20%

# TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
<b>Rated voltage:16V Category Voltage:10V</b>								
CA45-A-16V-1μF-□	1	A	4	0.5	0.097	0.087	0.039	8
CA45-A-16V-1.5μF-□	1.5	A	6	0.5	0.107	0.097	0.043	6.5
CA45-A-16V-2.2μF-□	2.2	A	6	0.5	0.107	0.097	0.043	6.5
CA45-B-16V-2.2μF-□	2.2	B	6	0.5	0.156	0.140	0.062	3.5
CA45-A-16V-3.3μF-□	3.3	A	6	0.5	0.122	0.110	0.049	5
CA45-B-16V-3.3μF-□	3.3	B	6	0.5	0.137	0.124	0.055	4.5
CA45-A-16V-4.7μF-□	4.7	A	6	0.8	0.137	0.123	0.055	4
CA45-B-16V-4.7μF-□	4.7	B	6	0.8	0.156	0.140	0.062	3.5
CA45-A-16V-6.8μF-□	6.8	A	6	1.1	0.137	0.123	0.055	4
CA45-B-16V-6.8μF-□	6.8	B	6	1.1	0.184	0.166	0.074	2.5
CA45-C-16V-6.8μF-□	6.8	C	6	1.1	0.235	0.211	0.094	2
CA45-A-16V-10μF-□	10	A	8	1.6	0.158	0.142	0.063	3
CA45-B-16V-10μF-□	10	B	6	1.6	0.174	0.157	0.070	2.8
CA45-C-16V-10μF-□	10	C	6	1.6	0.235	0.211	0.094	2
CA45-B-16V-15μF-□	15	B	6	2.4	0.184	0.166	0.074	2.5
CA45-C-16V-15μF-□	15	C	6	2.4	0.247	0.222	0.099	1.8
CA45-B-16V-22μF-□	22	B	6	3.5	0.192	0.173	0.077	2.3
CA45-C-16V-22μF-□	22	C	6	3.5	0.332	0.298	0.133	1
CA45-D-16V-22μF-□	22	D	6	3.5	0.369	0.332	0.148	1.1
CA45-C-16V-33μF-□	33	C	6	5.3	0.271	0.244	0.108	1.5
CA45-D-16V-33μF-□	33	D	6	5.3	0.408	0.367	0.163	0.9
CA45-C-16V-47μF-□	47	C	6	7.5	0.469	0.422	0.188	0.5
CA45-D-16V-47μF-□	47	D	6	7.5	0.408	0.367	0.163	0.9
CA45-E-16V-47μF-□	47	E	6	7.5	0.441	0.397	0.176	0.9
CA45-D-16V-68μF-□	68	D	6	10.9	0.408	0.367	0.163	0.9
CA45-E-16V-68μF-□	68	E	6	10.9	0.441	0.397	0.176	0.9
CA45-C-16V-100μF-□	100	C	10	16.0	0.332	0.298	0.133	1
CA45-D-16V-100μF-□	100	D	10	16.0	0.500	0.450	0.200	0.6
CA45-E-16V-100μF-□	100	E	10	16.0	0.441	0.397	0.176	0.9
CA45-E-16V-150μF-□	150	E	10	24.0	0.764	0.687	0.306	0.3
CA45-E-16V-220μF-□	220	E	14	35.2	0.592	0.532	0.237	0.5
<b>Rated voltage:20V Category Voltage:13V</b>								
CA45-A-20V-0.68μF-□	0.68	A	4	0.5	0.087	0.078	0.035	10
CA45-A-20V-1μF-□	1	A	4	0.5	0.091	0.082	0.037	9
CA45-A-20V-1.5μF-□	1.5	A	6	0.5	0.107	0.097	0.043	6.5
CA45-B-20V-1.5μF-□	1.5	B	6	0.5	0.130	0.117	0.052	5
CA45-A-20V-2.2μF-□	2.2	A	6	0.5	0.104	0.093	0.041	7
CA45-B-20V-2.2μF-□	2.2	B	6	0.5	0.156	0.140	0.062	3.5

□:K=±10%,M=±20%

# TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
CA45-A-20V-3.3 μF-□	3.3	A	6	0.7	0.129	0.116	0.052	4.5
CA45-B-20V-3.3 μF-□	3.3	B	6	0.7	0.168	0.151	0.067	3
CA45-C-20V-3.3 μF-□	3.3	C	6	0.7	0.210	0.189	0.084	2.5
CA45-A-20V-4.7 μF-□	4.7	A	6	0.9	0.137	0.123	0.055	4
CA45-B-20V-4.7 μF-□	4.7	B	6	0.9	0.168	0.151	0.067	3
CA45-C-20V-4.7 μF-□	4.7	C	6	0.9	0.224	0.201	0.089	2.2
CA45-D-20V-4.7 μF-□	4.7	D	6	0.9	0.316	0.285	0.126	1.5
CA45-A-20V-6.8 μF-□	6.8	A	6	1.4	0.158	0.142	0.063	3
CA45-B-20V-6.8 μF-□	6.8	B	6	1.4	0.184	0.166	0.074	2.5
CA45-C-20V-6.8 μF-□	6.8	C	6	1.4	0.235	0.211	0.094	2
CA45-D-20V-6.8 μF-□	6.8	D	6	1.4	0.387	0.349	0.155	1
CA45-B-20V-10 μF-□	10	B	6	2.0	0.201	0.181	0.080	2.1
CA45-C-20V-10 μF-□	10	C	6	2.0	0.303	0.272	0.121	1.2
CA45-D-20V-10 μF-□	10	D	6	2.0	0.387	0.349	0.155	1
CA45-B-20V-15 μF-□	15	B	6	3.0	0.206	0.186	0.082	2
CA45-C-20V-15 μF-□	15	C	6	3.0	0.254	0.229	0.102	1.7
CA45-D-20V-15 μF-□	15	D	6	3.0	0.387	0.349	0.155	1
CA45-B-20V-22 μF-□	22	B	8	4.4	0.168	0.151	0.067	3
CA45-C-20V-22 μF-□	22	C	6	4.4	0.262	0.236	0.105	1.6
CA45-D-20V-22 μF-□	22	D	6	4.4	0.408	0.367	0.163	0.9
CA45-C-20V-33 μF-□	33	C	6	6.6	0.271	0.244	0.108	1.5
CA45-D-20V-33 μF-□	33	D	6	6.6	0.408	0.367	0.163	0.9
CA45-E-20V-33 μF-□	33	E	6	6.6	0.441	0.397	0.176	0.9
CA45-C-20V-47 μF-□	47	C	6	9.4	0.469	0.422	0.188	0.5
CA45-D-20V-47 μF-□	47	D	6	9.4	0.408	0.367	0.163	0.9
CA45-E-20V-47 μF-□	47	E	6	9.4	0.441	0.397	0.176	0.9
CA45-D-20V-68 μF-□	68	D	6	13.6	0.408	0.367	0.163	0.9
CA45-E-20V-68 μF-□	68	E	6	13.6	0.441	0.397	0.176	0.9
CA45-E-20V-100 μF-□	100	E	10	20.0	0.661	0.595	0.265	0.4
CA45-E-20V-150 μF-□	150	E	10	30.0	0.746	0.687	0.306	0.3
<b>Rated voltage:25V Category Voltage:17V</b>								
CA45-A-25V-0.47 μF-□	0.47	A	4	0.5	0.073	0.066	0.029	14
CA45-A-25V-0.68 μF-□	0.68	A	4	0.5	0.087	0.078	0.035	10
CA45-A-25V-1 μF-□	1	A	4	0.5	0.097	0.087	0.039	8
CA45-B-25V-1 μF-□	1	B	6	0.5	0.110	0.099	0.044	7
CA45-A-25V-1.5 μF-□	1.5	A	6	0.5	0.100	0.090	0.040	7.5
CA45-B-25V-1.5 μF-□	1.5	B	6	0.5	0.130	0.117	0.052	5
CA45-A-25V-2.2 μF-□	2.2	A	6	0.6	0.104	0.093	0.041	7

□:K=±10%,M=±20%

# TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
CA45-B-25V-2.2μF-□	2.2	B	6	0.6	0.137	0.124	0.055	4.5
CA45-A-25V-3.3μF-□	3.3	A	6	0.8	0.142	0.128	0.057	3.7
CA45-B-25V-3.3μF-□	3.3	B	6	0.8	0.156	0.140	0.062	3.5
CA45-C-25V-3.3μF-□	3.3	C	6	0.8	0.210	0.189	0.084	2.5
CA45-A-25V-4.7μF-□	4.7	A	6	1.2	0.137	0.123	0.055	4
CA45-B-25V-4.7μF-□	4.7	B	6	1.2	0.168	0.151	0.067	3
CA45-C-25V-4.7μF-□	4.7	C	6	1.2	0.224	0.201	0.089	2.2
CA45-B-25V-6.8μF-□	6.8	B	6	1.7	0.174	0.157	0.070	2.8
CA45-C-25V-6.8μF-□	6.8	C	6	1.7	0.235	0.211	0.094	2
CA45-B-25V-10μF-□	10	B	8	2.5	0.184	0.166	0.074	2.5
CA45-C-25V-10μF-□	10	C	6	2.5	0.247	0.222	0.099	1.8
CA45-D-25V-10μF-□	10	D	6	2.5	0.354	0.318	0.141	1.2
CA45-C-25V-15μF-□	15	C	6	3.8	0.262	0.236	0.105	1.6
CA45-D-25V-15μF-□	15	D	6	3.8	0.387	0.349	0.155	1
CA45-C-25V-22μF-□	22	C	8	5.5	0.280	0.252	0.112	1.4
CA45-D-25V-22μF-□	22	D	6	5.5	0.408	0.367	0.163	0.9
CA45-E-25V-22μF-□	22	E	6	5.5	0.592	0.532	0.237	0.5
CA45-D-25V-33μF-□	33	D	6	8.3	0.408	0.367	0.163	0.9
CA45-E-25V-33μF-□	33	E	6	8.3	0.441	0.397	0.176	0.9
CA45-D-25V-47μF-□	47	D	6	11.8	0.408	0.367	0.163	0.9
CA45-E-25V-47μF-□	47	E	6	11.8	0.441	0.397	0.176	0.9
CA45-E-25V-68μF-□	68	E	6	17.0	0.441	0.397	0.176	0.9
CA45-E-25V-100μF-□	100	E	10	25.0	0.661	0.595	0.265	0.4
			<b>Rated voltage:35V</b>	<b>Category Voltage:23V</b>				
CA45-A-35V-0.22μF-□	0.22	A	4	0.5	0.065	0.058	0.026	18
CA45-A-35V-0.33μF-□	0.33	A	4	0.5	0.071	0.064	0.028	15
CA45-A-35V-0.47μF-□	0.47	A	4	0.5	0.079	0.071	0.032	12
CA45-B-35V-0.47μF-□	0.47	B	4	0.5	0.092	0.083	0.037	10
CA45-A-35V-0.68μF-□	0.68	A	4	0.5	0.097	0.087	0.039	8
CA45-B-35V-0.68μF-□	0.68	B	4	0.5	0.103	0.093	0.041	8
CA45-A-35V-1μF-□	1	A	4	0.5	0.100	0.090	0.040	7.5
CA45-B-35V-1μF-□	1	B	6	0.5	0.110	0.099	0.044	7
CA45-A-35V-1.5μF-□	1.5	A	6	0.5	0.100	0.090	0.040	7.5
CA45-B-35V-1.5μF-□	1.5	B	6	0.5	0.128	0.115	0.051	5.2
CA45-C-35V-1.5μF-□	1.5	C	6	0.5	0.156	0.141	0.063	4.5
CA45-B-35V-2.2μF-□	2.2	B	6	0.8	0.142	0.128	0.057	4.2
CA45-C-35V-2.2μF-□	2.2	C	6	0.8	0.177	0.160	0.071	3.5
CA45-B-35V-3.3μF-□	3.3	B	6	1.2	0.156	0.140	0.062	3.5

□:K=±10%,M=±20%

# TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
CA45-C-35V-3.3μF-□	3.3	C	6	1.2	0.210	0.189	0.084	2.5
CA45-D-35V-3.3μF-□	3.3	D	6	1.2	0.274	0.246	0.110	2
CA45-B-35V-4.7μF-□	4.7	B	6	1.6	0.166	0.149	0.066	3.1
CA45-C-35V-4.7μF-□	4.7	C	6	1.6	0.224	0.201	0.089	2.2
CA45-D-35V-4.7μF-□	4.7	D	6	1.6	0.316	0.285	0.126	1.5
CA45-C-35V-6.8μF-□	6.8	C	6	2.4	0.247	0.222	0.099	1.8
CA45-D-35V-6.8μF-□	6.8	D	6	2.4	0.340	0.306	0.136	1.3
CA45-C-35V-10μF-□	10	C	6	3.5	0.262	0.236	0.105	1.6
CA45-D-35V-10μF-□	10	D	6	3.5	0.387	0.349	0.155	1
CA45-E-35V-10μF-□	10	E	6	3.5	0.441	0.397	0.176	0.9
CA45-C-35V-15μF-□	15	C	6	5.3	0.280	0.252	0.112	1.4
CA45-D-35V-15μF-□	15	D	6	5.3	0.387	0.349	0.155	1
CA45-E-35V-15μF-□	15	E	6	5.3	0.540	0.486	0.216	0.6
CA45-D-35V-22μF-□	22	D	6	7.7	0.408	0.367	0.163	0.9
CA45-E-35V-22μF-□	22	E	6	7.7	0.592	0.532	0.237	0.5
CA45-D-35V-33μF-□	33	D	6	11.6	0.408	0.367	0.163	0.9
CA45-E-35V-33μF-□	33	E	6	11.6	0.441	0.397	0.176	0.9
CA45-E-35V-47μF-□	47	E	6	16.5	0.441	0.397	0.176	0.9
			<b>Rated voltage:50V</b>	<b>Category Voltage:33V</b>				
CA45-A-50V-0.22μF-□	0.22	A	4	0.5	0.065	0.058	0.026	18
CA45-A-50V-0.33μF-□	0.33	A	4	0.5	0.066	0.060	0.027	17
CA45-B-50V-0.33μF-□	0.33	B	4	0.5	0.084	0.076	0.034	12
CA45-A-50V-0.47μF-□	0.47	A	4	0.5	0.089	0.080	0.036	9.5
CA45-B-50V-0.47μF-□	0.47	B	4	0.5	0.095	0.085	0.038	9.5
CA45-A-50V-0.68μF-□	0.68	A	4	0.5	0.097	0.087	0.039	8
CA45-B-50V-0.68μF-□	0.68	B	4	0.5	0.103	0.093	0.041	8
CA45-A-50V-1μF-□	1	A	8	0.5	0.107	0.096	0.043	6.6
CA45-B-50V-1μF-□	1	B	6	0.5	0.110	0.099	0.044	7
CA45-B-50V-1.5μF-□	1.5	B	6	0.8	0.125	0.113	0.050	5.4
CA45-C-50V-1.5μF-□	1.5	C	6	0.8	0.156	0.141	0.063	4.5
CA45-C-50V-2.2μF-□	2.2	C	8	1.1	0.210	0.189	0.084	2.5
CA45-D-50V-2.2μF-□	2.2	D	6	1.1	0.245	0.220	0.098	2.5
CA45-C-50V-3.3μF-□	3.3	C	6	1.7	0.210	0.189	0.084	2.5
CA45-D-50V-3.3μF-□	3.3	D	6	1.7	0.274	0.246	0.110	2
CA45-C-50V-4.7μF-□	4.7	C	6	2.4	0.224	0.201	0.089	2.2
CA45-D-50V-4.7μF-□	4.7	D	6	2.4	0.316	0.285	0.126	1.5
CA45-E-50V-4.7μF-□	4.7	E	6	2.4	0.342	0.307	0.137	1.5
CA45-C-50V-6.8μF-□	6.8	C	10	3.4	0.332	0.298	0.133	1

□:K=±10%,M=±20%

## TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(Ω) @100kHz 25°C
					25°C	85°C	125°C	
CA45-D-50V-6.8μF-□	6.8	D	6	3.4	0.387	0.349	0.155	1
CA45-E-50V-6.8μF-□	6.8	E	6	3.4	0.441	0.397	0.176	0.9
CA45-D-50V-10μF-□	10	D	6	5.0	0.387	0.349	0.155	1
CA45-E-50V-10μF-□	10	E	6	5.0	0.418	0.376	0.167	1
CA45-E-50V-15μF-□	15	E	6	7.5	0.540	0.486	0.216	0.6

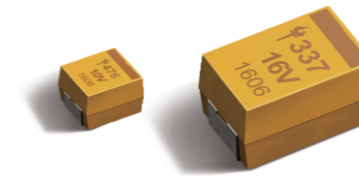
□:K=±10%,M=±20%

### » ELECTRICAL CHARACTERISTICS

Capacitance and DF are measured at 100Hz,1V RMS with DC bias of 2.2V.  
Leakage Current is measured at rated voltage after 3 minutes,protective resistance of 1000Ω is connected in series with the capacitor in the measuring circuit.

## POLYMER TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

### FEATURES



- Extremely low ESR
- Low leakage current
- High frequency capacitance retention
- Non-ignition failure mode
- Voltage rating of 2.5V-63V
- Operating temperature rang of -55°C to +125°C
- Moisture Sensitivity Level 3
- RoHS Compliant and lead-free terminations

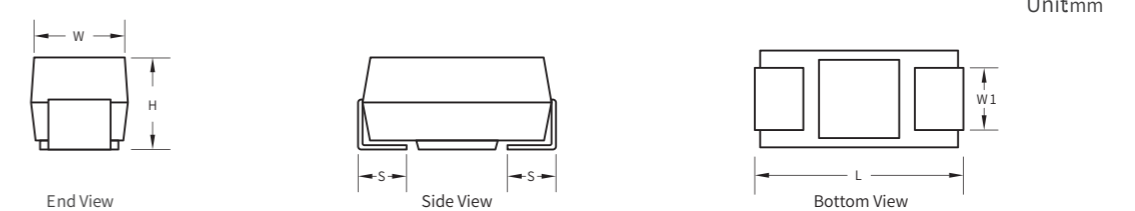
### » APPLICATIONS

Typical applications include decoupling and filtering in industrial and automotive end applications such as DC/DC converters, portable electronics, telecommunications, and control units.

### » ORDERING INFORMATION

CA55 Series	— D Case size	— 35V Rate voltage	— 22μF Capacitance	— M Capacitance tolerance
Polymer Tantalum Solid Electrolytic Chip Capacitors	A、B、C、D、D1、E、F	2.5V 4V 6.3V 10V 16V 20V 25V 35V 50V 63V	Refer to Capacitance and Rated Voltage Range Table	M=±20%

### » DIMENSIONS



Size code	L	W	H	S	W1
A	3.20±0.35	1.60±0.25	1.60±0.25	0.80±0.30	1.20±0.10
B	3.50±0.35	2.80±0.25	1.90±0.25	0.80±0.30	2.20±0.10
C	6.00±0.35	3.20±0.30	2.50±0.30	1.30±0.30	2.20±0.10
D	7.30±0.35	4.30±0.30	2.80±0.30	1.30±0.30	2.40±0.10
D1	7.30±0.35	4.30±0.30	2.00±0.30	1.30±0.30	2.40±0.10
E	7.30±0.35	4.30±0.30	4.10±0.30	1.30±0.30	2.80±0.10
F	7.50±0.35	6.10±0.30	3.80±0.30	1.30±0.30	3.80±0.10

» CAPACITANCE AND RATED VOLTAGE RANGE

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA ) @25°C	Rms Current(A)			ESR(mΩ) @100kHz 25°C
					25°C	85°C	125°C	
Rated voltage:2.5V C ategoryV oltage:1.7V								
CA55-D-2.5V-330μF-M <sup>①</sup>	330	D	10	83	1.826	1.643	0.730	45
CA55-D1-2.5V-330μF-M <sup>①</sup>	330	D1	10	83	1.826	1.643	0.730	45
CA55-D-2.5V-470μF-M <sup>①</sup>	470	D	10	118	1.826	1.643	0.730	45
CA55-D1-2.5V-470μF-M <sup>①</sup>	470	D1	10	118	1.826	1.643	0.730	45
CA55-D-2.5V-680μF-M <sup>①</sup>	680	D	14	170	1.826	1.643	0.730	45
CA55-E-2.5V-1000μF-M <sup>①</sup>	1000	E	14	250	1.972	1.775	0.789	45
Rated voltage:4V C ategoryV oltage:2.7V								
CA55-A-4V-22μF-M	22	A	6	9	0.354	0.318	0.141	600
CA55-B-4V-22μF-M	22	B	6	9	0.376	0.339	0.151	600
CA55-A-4V-33μF-M <sup>②</sup>	33	A	6	13	0.387	0.349	0.155	500
CA55-B-4V-33μF-M	33	B	6	13	0.412	0.371	0.165	500
CA55-B-4V-47μF-M	47	B	6	19	0.652	0.587	0.261	200
CA55-B-4V-68μF-M <sup>②</sup>	68	B	6	27	0.922	0.830	0.369	100
CA55-C-4V-68μF-M	68	C	6	27	1.049	0.944	0.420	100
CA55-C-4V-100μF-M	100	C	10	40	1.049	0.944	0.420	100
CA55-C-4V-150μF-M	150	C	10	60	1.173	1.055	0.469	80
CA55-C-4V-220μF-M <sup>②</sup>	220	C	10	88	1.254	1.128	0.501	70
CA55-D-4V-220μF-M	220	D	10	88	1.464	1.317	0.586	70
CA55-D1-4V-220μF-M	220	D1	10	88	1.464	1.317	0.586	70
CA55-D-4V-330μF-M <sup>②</sup>	330	D	10	132	1.651	1.486	0.661	55
CA55-D1-4V-330μF-M <sup>②</sup>	330	D1	10	132	1.651	1.486	0.661	55
CA55-E-4V-330μF-M	330	E	10	132	1.784	1.605	0.714	55
CA55-E-4V-470μF-M	470	E	10	188	1.972	1.775	0.789	45
CA55-E-4V-680μF-M	680	E	14	272	1.972	1.775	0.789	45
CA55-E-4V-1000μF-M <sup>①</sup>	1000	E	14	400	1.972	1.775	0.789	45
CA55-F-4V-1000μF-M	1000	F	14	400	2.000	1.800	0.800	45
Rated voltage:6.3V C ategoryV oltage:4V								
CA55-A-6.3V-6.8μF-M	6.8	A	6	5	0.306	0.276	0.122	800
CA55-A-6.3V-10μF-M	10	A	6	6	0.387	0.349	0.155	500
CA55-B-6.3V-10μF-M	10	B	6	6	0.412	0.371	0.165	500
CA55-A-6.3V-15μF-M	15	A	6	9	0.387	0.349	0.155	500
CA55-B-6.3V-15μF-M	15	B	6	9	0.532	0.479	0.213	300
CA55-A-6.3V-22μF-M	22	A	6	14	0.354	0.318	0.141	600
CA55-B-6.3V-22μF-M	22	B	6	14	0.412	0.371	0.165	500
CA55-B-6.3V-33μF-M	33	B	6	21	0.652	0.587	0.261	200
CA55-B-6.3V-47μF-M <sup>②</sup>	47	B	6	30	0.652	0.587	0.261	200
CA55-C-6.3V-47μF-M	47	C	6	30	0.742	0.667	0.297	200

Note①:ΔC/C≤±30% after accelerated steady state aging.  
 Note②:ΔC/C≤±40% after accelerated steady state aging.

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA ) @25°C	Rms Current(A)			ESR(mΩ) @100kHz 25°C
					25°C	85°C	125°C	
CA55-B-6.3V-68μF-M <sup>②</sup>	68	B	6	43	0.652	0.587	0.261	200
CA55-C-6.3V-68μF-M	68	C	6	43	1.049	0.944	0.420	100
CA55-C-6.3V-100μF-M	100	C	10	63	1.049	0.944	0.420	100
CA55-C-6.3V-150μF-M	150	C	10	95	1.049	0.944	0.420	100
CA55-D-6.3V-150μF-M	150	D	10	95	1.225	1.102	0.490	100
CA55-D1-6.3V-150μF-M	150	D1	10	95	1.225	1.102	0.490	100
CA55-D-6.3V-220μF-M	220	D	10	139	1.464	1.317	0.586	70
CA55-D1-6.3V-220μF-M <sup>②</sup>	220	D1	10	139	1.464	1.317	0.586	70
CA55-D-6.3V-330μF-M <sup>②</sup>	330	D	10	208	1.651	1.486	0.661	55
CA55-E-6.3V-330μF-M	330	E	10	208	1.784	1.605	0.714	55
CA55-E-6.3V-470μF-M	470	E	10	296	1.972	1.775	0.789	45
CA55-E-6.3V-680μF-M <sup>②</sup>	680	E	14	428	1.972	1.775	0.789	45
CA55-F-6.3V-1000μF-M <sup>②</sup>	1000	F	14	630	2.000	1.800	0.800	45
Rated voltage:10V C ategoryV oltage:7V								
CA55-A-10V-4.7μF-M	4.7	A	6	5	0.306	0.276	0.122	800
CA55-A-10V-6.8μF-M	6.8	A	6	7	0.306	0.276	0.122	800
CA55-B-10V-6.8μF-M	6.8	B	6	7	0.412	0.371	0.165	500
CA55-A-10V-10μF-M	10	A	6	10	0.500	0.450	0.200	300
CA55-B-10V-10μF-M	10	B	6	10	0.532	0.479	0.213	300
CA55-A-10V-15μF-M	15	A	6	15	0.500	0.450	0.200	300
CA55-B-10V-15μF-M	15	B	6	15	0.532	0.479	0.213	300
CA55-C-10V-15μF-M	15	C	6	15	0.742	0.667	0.297	200
CA55-B-10V-22μF-M	22	B	6	22	0.532	0.479	0.213	300
CA55-C-10V-22μF-M	22	C	6	22	0.856	0.771	0.343	150
CA55-B-10V-33μF-M <sup>②</sup>	33	B	6	33	0.652	0.587	0.261	200
CA55-C-10V-33μF-M	33	C	6	33	0.742	0.667	0.297	200
CA55-C-10V-47μF-M	47	C	6	47	1.049	0.944	0.420	100
CA55-D-10V-47μF-M	47	D	6	47	1.225	1.102	0.490	100
CA55-C-10V-68μF-M	68	C	6	68	1.049	0.944	0.420	100
CA55-D-10V-68μF-M	68	D	6	68	1.225	1.102	0.490	100
CA55-D1-10V-68μF-M	68	D1	6	68	1.225	1.102	0.490	100
CA55-C-10V-100μF-M <sup>②</sup>	100	C	10	100	1.049	0.944	0.420	100
CA55-D-10V-100μF-M	100	D	10	100	1.225	1.102	0.490	100
CA55-D1-10V-100μF-M	100	D1	10	100	1.225	1.102	0.490	100
CA55-C-10V-150μF-M <sup>①</sup>	150	C	10	150	1.049	0.944	0.420	100
CA55-D-10V-150μF-M	150	D	10	150	1.225	1.102	0.490	100
CA55-D1-10V-150μF-M <sup>②</sup>	150	D1	10	150	1.225	1.102	0.490	100
CA55-E-10V-150μF-M	150	E	10	150	1.323	1.191	0.529	100
CA55-D-10V-220μF-M	220	D	10	220	1.464	1.317	0.586	70

Note①:ΔC/C≤±30% after accelerated steady state aging.  
 Note②:ΔC/C≤±40% after accelerated steady state aging.

# POLYMER TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

# POLYMER TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(mΩ) @100kHz 25°C
					25°C	85°C	125°C	
CA55-E-10V-220μF-M	220	E	10	220	1.581	1.423	0.632	70
CA55-E-10V-330μF-M	330	E	10	330	1.784	1.605	0.714	55
CA55-F-10V-330μF-M	330	F	10	330	1.809	1.628	0.724	55
CA55-E-10V-470μF-M <sup>®</sup>	470	E	10	470	1.972	1.775	0.789	45
CA55-F-10V-470μF-M	470	F	10	470	2.000	1.800	0.800	45
<b>Rated voltage:16V Category Voltage:10V</b>								
CA55-A-16V-4.7μF-M	4.7	A	6	8	0.354	0.318	0.141	600
CA55-A-16V-6.8μF-M	6.8	A	6	11	0.354	0.318	0.141	600
CA55-B-16V-6.8μF-M	6.8	B	6	11	0.376	0.339	0.151	600
CA55-B-16V-10μF-M	10	B	6	16	0.532	0.479	0.213	300
CA55-C-16V-15μF-M	15	C	6	24	0.742	0.667	0.297	200
CA55-C-16V-22μF-M	22	C	6	35	0.856	0.771	0.343	150
CA55-C-16V-33μF-M	33	C	6	53	0.856	0.771	0.343	150
CA55-C-16V-47μF-M	47	C	6	75	1.049	0.944	0.420	100
CA55-D-16V-47μF-M	47	D	6	75	1.225	1.102	0.490	100
CA55-D1-16V-47μF-M	47	D1	6	75	1.225	1.102	0.490	100
CA55-C-16V-68μF-M	68	C	6	109	1.049	0.944	0.420	100
CA55-D-16V-68μF-M	68	D	6	109	1.225	1.102	0.490	100
CA55-D1-16V-68μF-M	68	D1	6	109	1.225	1.102	0.490	100
CA55-D-16V-100μF-M	100	D	10	160	1.225	1.102	0.490	100
CA55-D1-16V-100μF-M	100	D1	10	160	1.225	1.102	0.490	100
CA55-E-16V-100μF-M	100	E	10	160	1.323	1.191	0.529	100
CA55-E-16V-150μF-M	150	E	10	240	1.323	1.191	0.529	100
CA55-E-16V-220μF-M	220	E	10	352	1.581	1.423	0.632	70
CA55-F-16V-330μF-M	330	F	10	528	1.809	1.628	0.724	55
<b>Rated voltage:20V Category Voltage:13V</b>								
CA55-B-20V-4.7μF-M	4.7	B	6	9	0.326	0.293	0.130	800
CA55-B-20V-6.8μF-M	6.8	B	6	14	0.376	0.339	0.151	600
CA55-B-20V-10μF-M	10	B	6	20	0.532	0.479	0.213	300
CA55-C-20V-10μF-M	10	C	6	20	0.606	0.545	0.242	300
CA55-C-20V-15μF-M	15	C	6	30	0.742	0.667	0.297	200
CA55-C-20V-22μF-M	22	C	6	44	0.782	0.704	0.313	180
CA55-D-20V-22μF-M	22	D	6	44	0.913	0.822	0.365	180
CA55-D1-20V-22μF-M	22	D1	6	44	0.913	0.822	0.365	180
CA55-C-20V-33μF-M	33	C	6	66	0.856	0.771	0.343	150
CA55-D-20V-33μF-M	33	D	6	66	1.000	0.900	0.400	150
CA55-D1-20V-33μF-M	33	D1	6	66	1.000	0.900	0.400	150

Note①: ΔC/C ≤ ± 30% after accelerated steady state aging.  
 Note②: ΔC/C ≤ ± 40% after accelerated steady state aging.

Part NO.	Cap (μF)	Size Code	Maximum Value					
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			ESR(mΩ) @100kHz 25°C
					25°C	85°C	125°C	
CA55-C-20V-47μF-M	47	C	6	94	0.957	0.862	0.383	120
CA55-D-20V-47μF-M	47	D	6	94	1.118	1.006	0.447	120
CA55-D1-20V-47μF-M	47	D1	6	94	1.118	1.006	0.447	120
CA55-D-20V-68μF-M	68	D	6	136	1.225	1.102	0.490	100
CA55-D1-20V-68μF-M	68	D1	6	136	1.225	1.102	0.490	100
CA55-E-20V-68μF-M	68	E	6	136	1.323	1.191	0.529	100
CA55-E-20V-100μF-M	100	E	10	200	1.323	1.191	0.529	100
CA55-E-20V-150μF-M	150	E	10	300	1.323	1.191	0.529	100
CA55-F-20V-150μF-M	150	F	10	300	1.342	1.207	0.537	100
CA55-F-20V-220μF-M	220	F	10	440	1.342	1.207	0.537	100
<b>Rated voltage:25V Category Voltage:17V</b>								
CA55-B-25V-4.7μF-M	4.7	B	6	12	0.326	0.293	0.130	800
CA55-B-25V-6.8μF-M	6.8	B	6	17	0.376	0.339	0.151	600
CA55-C-25V-6.8μF-M	6.8	C	6	17	0.428	0.385	0.171	600
CA55-B-25V-10μF-M	10	B	6	25	0.532	0.479	0.213	300
CA55-C-25V-10μF-M	10	C	6	25	0.606	0.545	0.242	300
CA55-C-25V-15μF-M	15	C	6	38	0.742	0.667	0.297	200
CA55-C-25V-22μF-M	22	C	6	55	0.782	0.704	0.313	180
CA55-D-25V-22μF-M	22	D	6	55	0.913	0.822	0.365	180
CA55-D1-25V-22μF-M	22	D1	6	55	0.913	0.822	0.365	180
CA55-C-25V-33μF-M	33	C	6	83	0.856	0.771	0.343	150
CA55-D-25V-33μF-M	33	D	6	83	1.000	0.900	0.400	150
CA55-D1-25V-33μF-M	33	D1	6	83	1.000	0.900	0.400	150
CA55-E-25V-33μF-M	33	E	6	83	1.080	0.972	0.432	150
CA55-C-25V-47μF-M	47	C	6	118	0.856	0.771	0.343	150
CA55-D-25V-47μF-M	47	D	6	118	1.000	0.900	0.400	150
CA55-D1-25V-47μF-M	47	D1	6	118	1.000	0.900	0.400	150
CA55-E-25V-47μF-M	47	E	6	118	1.080	0.972	0.432	150
CA55-D-25V-68μF-M	68	D	6	170	1.225	1.102	0.490	100
CA55-E-25V-68μF-M	68	E	6	170	1.323	1.191	0.529	100
CA55-E-25V-100μF-M	100	E	10	250	1.323	1.191	0.529	100
CA55-F-25V-100μF-M	100	F	10	250	1.342	1.207	0.537	100
CA55-E-25V-150μF-M	150	E	10	375	1.323	1.191	0.529	100
CA55-F-25V-150μF-M	150	F	10	375	1.342	1.207	0.537	100
CA55-F-25V-220μF-M	220	F	10	550	1.342	1.207	0.537	100



# POLYMER TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					ESR(mΩ) @100kHz 25°C
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			
					25°C	85°C	125°C	
			Rated voltage:35V		Category Voltage:23V			
CA55-A-35V-1μF-M	1	A	6	5	0.158	0.142	0.063	3000
CA55-A-35V-1.5μF-M	1.5	A	6	5	0.173	0.156	0.069	2500
CA55-B-35V-1.5μF-M	1.5	B	6	5	0.184	0.166	0.074	2500
CA55-B-35V-2.2μF-M	2.2	B	6	8	0.230	0.207	0.092	1600
CA55-B-35V-3.3μF-M	3.3	B	6	12	0.230	0.207	0.092	1600
CA55-C-35V-4.7μF-M	4.7	C	6	16	0.371	0.334	0.148	800
CA55-C-35V-6.8μF-M	6.8	C	6	24	0.428	0.385	0.171	600
CA55-C-35V-10μF-M	10	C	6	35	0.742	0.667	0.297	200
CA55-D-35V-10μF-M	10	D	6	35	0.866	0.779	0.346	200
CA55-D1-35V-10μF-M	10	D1	6	35	0.866	0.779	0.346	200
CA55-D-35V-15μF-M	15	D	6	53	1.000	0.900	0.400	150
CA55-D1-35V-15μF-M	15	D1	6	53	1.000	0.900	0.400	150
CA55-E-35V-15μF-M	15	E	6	53	1.080	0.972	0.432	150
CA55-D-35V-22μF-M	22	D	6	77	1.000	0.900	0.400	150
CA55-D1-35V-22μF-M	22	D1	6	77	1.000	0.900	0.400	150
CA55-E-35V-22μF-M	22	E	6	77	1.080	0.972	0.432	150
CA55-D-35V-33μF-M	33	D	6	116	1.000	0.900	0.400	150
CA55-E-35V-33μF-M	33	E	6	116	1.080	0.972	0.432	150
CA55-F-35V-33μF-M	33	F	6	116	1.095	0.986	0.438	150
CA55-E-35V-47μF-M	47	E	6	165	1.323	1.191	0.529	100
CA55-F-35V-47μF-M	47	F	6	165	1.342	1.207	0.537	100
CA55-E-35V-68μF-M	68	E	6	238	1.323	1.191	0.529	100
CA55-F-35V-68μF-M	68	F	6	238	1.342	1.207	0.537	100
			Rated voltage:50V		Category Voltage:33V			
CA55-B-50V-1μF-M	1	B	6	5	0.184	0.166	0.074	2500
CA55-C-50V-1.5μF-M	1.5	C	6	8	0.235	0.211	0.094	2000
CA55-C-50V-2.2μF-M	2.2	C	6	11	0.291	0.262	0.116	1300
CA55-C-50V-3.3μF-M	3.3	C	6	17	0.303	0.272	0.121	1200
CA55-D-50V-3.3μF-M	3.3	D	6	17	0.354	0.318	0.141	1200
CA55-D1-50V-3.3μF-M	3.3	D1	6	17	0.354	0.318	0.141	1200
CA55-C-50V-4.7μF-M	4.7	C	6	24	0.371	0.334	0.148	800
CA55-D-50V-4.7μF-M	4.7	D	6	24	0.433	0.390	0.173	800
CA55-D1-50V-4.7μF-M	4.7	D1	6	24	0.433	0.390	0.173	800

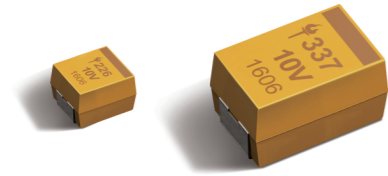
# POLYMER TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value					ESR(mΩ) @100kHz 25°C
			DF(%) @25°C	DCL(μA) @25°C	Rms Current(A)			
					25°C	85°C	125°C	
CA55-D-50V-6.8μF-M	6.8	D	6	34	0.500	0.450	0.200	600
CA55-D1-50V-6.8μF-M	6.8	D1	6	34	0.500	0.450	0.200	600
CA55-D-50V-10μF-M	10	D	6	50	0.866	0.779	0.346	200
CA55-D1-50V-10μF-M	10	D1	6	50	0.866	0.779	0.346	200
CA55-E-50V-10μF-M	10	E	6	50	0.935	0.842	0.374	200
CA55-D-50V-15μF-M	15	D	6	75	1.000	0.900	0.400	150
CA55-E-50V-15μF-M	15	E	6	75	1.080	0.972	0.432	150
CA55-D-50V-22μF-M	22	D	6	110	1.000	0.900	0.400	150
CA55-E-50V-22μF-M	22	E	6	110	1.080	0.972	0.432	150
CA55-F-50V-22μF-M	22	F	6	110	1.095	0.986	0.438	150
CA55-E-50V-33μF-M	33	E	6	165	1.080	0.972	0.432	150
CA55-F-50V-33μF-M	33	F	6	165	1.095	0.986	0.438	150
CA55-F-50V-47μF-M	47	F	6	235	1.342	1.207	0.537	100
			Rated voltage:63V		Category Voltage:45V			
CA55-C-63V-1μF-M	1	C	6	6	0.235	0.211	0.094	2000
CA55-C-63V-1.5μF-M	1.5	C	6	9	0.235	0.211	0.094	2000
CA55-C-63V-2.2μF-M	2.2	C	6	14	0.291	0.262	0.116	1300
CA55-D-63V-2.2μF-M	2.2	D	6	14	0.340	0.306	0.136	1300
CA55-D1-63V-2.2μF-M	2.2	D1	6	14	0.340	0.306	0.136	1300
CA55-C-63V-3.3μF-M	3.3	C	6	21	0.303	0.272	0.121	1200
CA55-D-63V-3.3μF-M	3.3	D	6	21	0.354	0.318	0.141	1200
CA55-D1-63V-3.3μF-M	3.3	D1	6	21	0.354	0.318	0.141	1200
CA55-D-63V-4.7μF-M	4.7	D	6	30	0.433	0.390	0.173	800
CA55-D1-63V-4.7μF-M	4.7	D1	6	30	0.433	0.390	0.173	800
CA55-D-63V-6.8μF-M	6.8	D	6	43	0.500	0.450	0.200	600
CA55-E-63V-6.8μF-M	6.8	E	6	43	0.540	0.486	0.216	600
CA55-D-63V-10μF-M	10	D	6	63	0.866	0.779	0.346	200
CA55-E-63V-10μF-M	10	E	6	63	0.935	0.842	0.374	200
CA55-E-63V-15μF-M	15	E	6	95	1.080	0.972	0.432	150
CA55-F-63V-15μF-M	15	F	6	95	1.095	0.986	0.438	150
CA55-E-63V-22μF-M	22	E	6	139	1.080	0.972	0.432	150
CA55-F-63V-22μF-M	22	F	6	139	1.095	0.986	0.438	150
CA55-F-63V-33μF-M	33	F	6	208	1.095	0.986	0.438	150

## » ELECTRICAL CHARACTERISTICS

Capacitance and DF are measured at 100Hz, 1V RMS with DC bias of 2.2V. Leakage Current is measured at rated voltage after 3 minutes, protective resistance of 1000Ω is connected in series with the capacitor in the measuring circuit.

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS



## FEATURES

Lower ESR version of CA45 series  
 Capacitance 0.15μF to 1500μF  
 Voltage rating of 4V - 50V  
 Operating temperature rang of -55°C to +125°C  
 RoHS Compliant and lead-free terminations

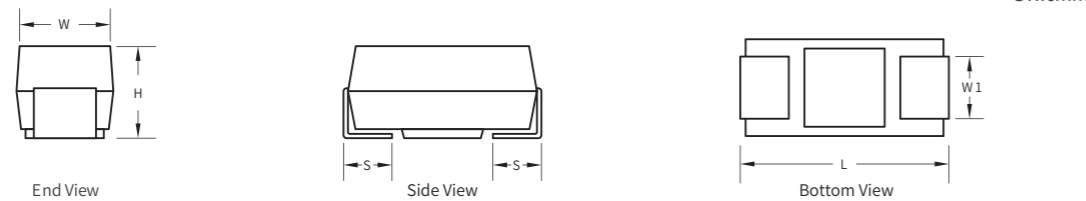
## »» APPLICATIONS

Typical applications include decoupling and filtering in industrial and automotive end applications such as DC/DC converters, portable electronics, telecommunications, and control units.

## »» ORDERING INFORMATION

CA45L	— D	— 50V	— 10μF	— K
Series	Case size	Rated voltage	Capacitance	Capacitance tolerance
Tantalum Solid Electrolytic Chip Capacitors	A, B, C, D D1, E, F	4V 6.3V 10V 16V 20V 25V 35V 50V	Refer to Capacitance and Rated Voltage Range Table	K=±10% M=±20%

## »» DIMENSIONS



Size code	L	W	H	S	W1
A	3.2±0.2	1.6±0.2	1.6±0.2	0.8±0.3	1.2±0.1
B	3.5±0.2	2.8±0.2	1.9±0.2	0.8±0.3	2.2±0.1
C	6.0±0.3	3.2±0.3	2.5±0.3	1.3±0.3	2.2±0.1
D	7.3±0.3	4.3±0.3	2.8±0.3	1.3±0.3	2.4±0.1
D1	7.3±0.3	4.3±0.3	2.0±0.3	1.3±0.3	2.4±0.1
E	7.3±0.3	4.3±0.3	4.1±0.3	1.3±0.3	2.8±0.1
F	7.3±0.3	6.0±0.3	3.8±0.3	1.3±0.3	3.8±0.1

Note: Size A, B, C, D, D1, E, are compatible with reflow, Size F only allow Hand Soldering.

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

## »» CAPACITANCE AND RATED VOLTAGE RANGE

Part NO.	Cap (μF)	Size Code	Maximum Value												ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100kHz			Cap Deviation(%)			
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C	
			Rated voltage:4V			Category Voltage:2.7V			Surge Voltage:5V						
CA45L-A-4V-47μF-□	47	A	10	6	10	1.9	19.0	23.8	0.387	0.349	0.155	±10	±10	±12	500
CA45L-B-4V-100μF-□	100	B	12	10	12	4.0	40.0	50.0	0.412	0.371	0.165	±10	±10	±12	500
CA45L-C-4V-150μF-□	150	B	12	10	12	6.0	60.0	75.0	0.583	0.525	0.233	±10	±10	±12	250
CA45L-D-4V-220μF-□	220	D	12	10	12	8.8	88.0	110.0	1.225	1.102	0.49	±10	±10	±12	100
CA45L-D1-4V-220μF-□	220	D1	12	10	12	8.8	88.0	110.0	1.291	1.162	0.516	±10	±10	±12	75
CA45L-C-4V-330μF-□	330	C	12	10	12	13.2	132.0	165.0	1.049	0.944	0.42	±10	±10	±12	100
CA45L-D-4V-330μF-□	330	D	12	10	12	13.2	132.0	165.0	1.225	1.102	0.49	±10	±10	±12	100
CA45L-D-4V-470μF-□	470	D	12	10	12	18.8	188.0	235.0	1.826	1.643	0.73	±10	±10	±12	80
CA45L-E-4V-470μF-□	470	E	12	10	12	18.8	188.0	235.0	1.285	1.156	0.514	±10	±10	±12	80
CA45L-D-4V-680μF-□	680	D	16	14	16	27.2	272.0	340.0	1.225	1.102	0.49	±10	±10	±12	80
CA45L-E-4V-680μF-□	680	E	16	14	16	27.2	272.0	340.0	1.285	1.156	0.514	±10	±10	±12	80
CA45L-E-4V-1000μF-□	1000	E	16	14	16	40.0	400.0	500.0	1.658	1.492	0.663	±10	±10	±12	60
CA45L-F-4V-1000μF-□	1000	F	16	14	16	40.0	400.0	500.0	2.236	2.012	0.894	±10	±10	±12	50
CA45L-E-4V-1500μF-□	1500	E	16	14	16	60.0	600.0	750.0	1.483	1.335	0.593	±10	±10	±12	75
CA45L-F-4V-1500μF-□	1500	F	16	14	16	60.0	600.0	750.0	1.826	1.643	0.73	±10	±10	±12	75
			Rated voltage:6.3V			Category Voltage:4V			Surge Voltage:8V						
CA45L-A-6.3V-3.3μF-□	3.3	A	10	6	10	0.5	5.0	6.3	0.189	0.17	0.076	±10	±10	±12	2100
CA45L-A-6.3V-6.8μF-□	6.8	A	10	6	10	0.5	5.0	6.3	0.204	0.184	0.082	±10	±10	±12	1800
CA45L-A-6.3V-10μF-□	10	A	10	6	10	0.6	6.0	7.5	0.224	0.201	0.089	±10	±10	±12	1500
CA45L-B-6.3V-10μF-□	10	B	10	6	10	0.6	6.0	7.5	0.238	0.214	0.095	±10	±10	±12	1500
CA45L-A-6.3V-15μF-□	15	A	10	6	10	0.9	9.0	11.3	0.224	0.201	0.089	±10	±10	±12	1500
CA45L-A-6.3V-22μF-□	22	A	10	6	10	1.4	14.0	17.5	0.289	0.26	0.115	±10	±10	±12	900
CA45L-B-6.3V-22μF-□	22	B	10	6	10	1.4	14.0	17.5	0.376	0.339	0.151	±10	±10	±12	600
CA45L-C-6.3V-22μF-□	22	C	10	6	10	1.4	14.0	17.5	0.469	0.422	0.188	±10	±10	±12	500
CA45L-A-6.3V-33μF-□	33	A	10	6	10	2.1	21.0	26.3	0.354	0.318	0.141	±10	±10	±12	600
CA45L-B-6.3V-33μF-□	33	B	10	6	10	2.1	21.0	26.3	0.376	0.339	0.151	±10	±10	±12	600
CA45L-A-6.3V-47μF-□	47	A	10	6	10	3.0	30.0	37.5	0.306	0.276	0.122	±10	±10	±12	800
CA45L-B-6.3V-47μF-□	47	B	10	6	10	3.0	30.0	37.5	0.412	0.371	0.165	±10	±10	±12	500
CA45L-C-6.3V-47μF-□	47	C	10	6	10	3.0	30.0	37.5	0.606	0.545	0.242	±10	±10	±12	300
CA45L-B-6.3V-68μF-□	68	B	10	6	10	4.3	43.0	53.8	0.412	0.371	0.165	±10	±10	±12	500
CA45L-C-6.3V-68μF-□	68	C	10	6	10	4.3	43.0	53.8	0.742	0.667	0.297	±10	±10	±12	200
CA45L-B-6.3V-100μF-□	100	B	12	10	12	6.3	63.0	78.8	0.461	0.415	0.184	±10	±10	±12	400
CA45L-C-6.3V-100μF-□	100	C	12	10	12	6.3	63.0	78.8	0.856	0.771	0.343	±10	±10	±12	150
CA45L-D-6.3V-100μF-□	100	D	12	10	12	6.3	63.0	78.8	0.707	0.636	0.283	±10	±10	±12	300
CA45L-D1-6.3V-100μF-□	100	D1	12	10	12	6.3	63.0	78.8	1.118	1.006	0.447	±10	±10	±12	100
CA45L-C-6.3V-150μF-□	150	C	12	10	12	9.5	95.0	118.8	0.663	0.597	0.265	±10	±10	±12	250
CA45L-D-6.3V-150μF-□	150	D	12	10	12	9.5	95.0	118.8	1.095	0.986	0.438	±10	±10	±12	125
CA45L-D1-6.3V-150μF-□	150	D1	12	10	12	9.5	95.0	118.8	1.581	1.423	0.632	±10	±10	±12	50

□: Insert K for ±10% or M for ±20%.

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value													ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100KHz			Cap Deviation(%)				
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C		
CA45L-C-6.3V-220μF-□	220	C	12	10	12	13.9	139.0	173.8	0.938	0.844	0.375	±10	±10	±12	150	
CA45L-D-6.3V-220μF-□	220	D	12	10	12	13.9	139.0	173.8	1.095	0.986	0.438	±10	±10	±12	125	
CA45L-E-6.3V-220μF-□	220	E	12	10	12	13.9	139.0	173.8	1.285	1.156	0.514	±10	±10	±12	100	
CA45L-D1-6.3V-220μF-□	220	D1	12	10	12	13.9	139.0	173.8	0.913	0.822	0.365	±10	±10	±12	150	
CA45L-C-6.3V-330μF-□	330	C	12	10	12	20.8	208.0	260.0	1.049	0.944	0.42	±10	±10	±12	100	
CA45L-D-6.3V-330μF-□	330	D	12	10	12	20.8	208.0	260.0	1.225	1.102	0.49	±10	±10	±12	100	
CA45L-E-6.3V-330μF-□	330	E	12	10	12	20.8	208.0	260.0	1.285	1.156	0.514	±10	±10	±12	100	
CA45L-F-6.3V-330μF-□	330	F	12	10	12	20.8	208.0	260.0	1.581	1.423	0.632	±10	±10	±12	100	
CA45L-D1-6.3V-330μF-□	330	D1	12	10	12	20.8	208.0	260.0	1.118	1.006	0.447	±10	±10	±12	100	
CA45L-D-6.3V-470μF-□	470	D	12	10	12	29.6	296.0	370.0	1.225	1.102	0.49	±10	±10	±12	150	
CA45L-E-6.3V-470μF-□	470	E	12	10	12	29.6	296.0	370.0	1.285	1.156	0.514	±10	±10	±12	80	
CA45L-F-6.3V-470μF-□	470	F	12	10	12	29.6	296.0	370.0	1.581	1.423	0.632	±10	±10	±12	80	
CA45L-D1-6.3V-470μF-□	470	D1	12	10	12	29.6	296.0	370.0	0.913	0.822	0.365	±10	±10	±12	150	
CA45L-E-6.3V-680μF-□	680	E	16	14	16	42.8	428.0	535.0	1.285	1.156	0.514	±10	±10	±12	80	
CA45L-F-6.3V-680μF-□	680	F	16	14	16	42.8	428.0	535.0	2.236	2.012	0.894	±10	±10	±12	80	
CA45L-E-6.3V-1000μF-□	1000	E	16	14	16	63.0	630.0	787.5	1.285	1.156	0.514	±10	±10	±12	80	
CA45L-F-6.3V-1000μF-□	1000	F	16	14	16	63.0	630.0	787.5	2.236	2.012	0.894	±10	±10	±12	50	
			Rated voltage:10V			Category Voltage:7V			Surge Voltage:13V							
CA45L-A-10V-2.2μF-□	2.2	A	10	6	10	0.5	5.0	6.3	0.204	0.184	0.082	±10	±10	±12	1800	
CA45L-A-10V-4.7μF-□	4.7	A	10	6	10	0.5	5.0	6.3	0.231	0.208	0.093	±10	±10	±12	1400	
CA45L-B-10V-4.7μF-□	4.7	B	10	6	10	0.5	5.0	6.3	0.246	0.222	0.099	±10	±10	±12	1400	
CA45L-A-10V-6.8μF-□	6.8	A	10	6	10	0.7	7.0	8.8	0.204	0.184	0.082	±10	±10	±12	1800	
CA45L-B-10V-6.8μF-□	6.8	B	10	6	10	0.7	7.0	8.8	0.256	0.23	0.102	±10	±10	±12	1300	
CA45L-A-10V-10μF-□	10	A	10	6	10	1.0	10.0	12.5	0.204	0.184	0.082	±10	±10	±12	1800	
CA45L-B-10V-10μF-□	10	B	10	6	10	1.0	10.0	12.5	0.292	0.262	0.117	±10	±10	±12	1000	
CA45L-A-10V-15μF-□	15	A	10	6	10	1.5	15.0	18.8	0.274	0.246	0.11	±10	±10	±12	1000	
CA45L-B-10V-15μF-□	15	B	10	6	10	1.5	15.0	18.8	0.376	0.339	0.151	±10	±10	±12	600	
CA45L-C-10V-15μF-□	15	C	10	6	10	1.5	15.0	18.8	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-A-10V-22μF-□	22	A	10	6	10	2.2	22.0	27.5	0.289	0.26	0.115	±10	±10	±12	900	
CA45L-B-10V-22μF-□	22	B	10	6	10	2.2	22.0	27.5	0.348	0.314	0.139	±10	±10	±12	700	
CA45L-C-10V-22μF-□	22	C	10	6	10	2.2	22.0	27.5	0.606	0.545	0.242	±10	±10	±12	300	
CA45L-A-10V-33μF-□	33	A	10	6	10	3.3	33.0	41.3	0.327	0.295	0.131	±10	±10	±12	700	
CA45L-B-10V-33μF-□	33	B	10	6	10	3.3	33.0	41.3	0.362	0.325	0.145	±10	±10	±12	650	
CA45L-C-10V-33μF-□	33	C	10	6	10	3.3	33.0	41.3	0.469	0.422	0.188	±10	±10	±12	500	
CA45L-B-10V-47μF-□	47	B	10	6	10	4.7	47.0	58.8	0.362	0.325	0.145	±10	±10	±12	650	
CA45L-C-10V-47μF-□	47	C	10	6	10	4.7	47.0	58.8	0.561	0.505	0.224	±10	±10	±12	350	
CA45L-D-10V-47μF-□	47	D	10	6	10	4.7	47.0	58.8	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-B-10V-68μF-□	68	B	10	6	10	6.8	68.0	85.0	0.376	0.339	0.151	±10	±10	±12	600	
CA45L-C-10V-68μF-□	68	C	10	6	10	6.8	68.0	85.0	0.606	0.545	0.242	±10	±10	±12	300	
CA45L-D-10V-68μF-□	68	D	10	6	10	6.8	68.0	85.0	1	0.9	0.4	±10	±10	±12	150	

□:Insert K for ±10% or M for ±20%.

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value													ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100KHz			Cap Deviation(%)				
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C		
CA45L-D1-10V-68μF-□	68	D1	10	6	10	6.8	68.0	85.0	0.791	0.712	0.316	±10	±10	±12	200	
CA45L-B-10V-100μF-□	100	B	12	10	12	10.0	100.0	125.0	0.461	0.415	0.184	±10	±10	±12	400	
CA45L-C-10V-100μF-□	100	C	12	10	12	10.0	100.0	125.0	0.742	0.667	0.297	±10	±10	±12	200	
CA45L-D-10V-100μF-□	100	D	12	10	12	10.0	100.0	125.0	1	0.9	0.4	±10	±10	±12	150	
CA45L-E-10V-100μF-□	100	E	12	10	12	10.0	100.0	125.0	1.149	1.034	0.46	±10	±10	±12	125	
CA45L-D1-10V-100μF-□	100	D1	12	10	12	10.0	100.0	125.0	0.791	0.712	0.316	±10	±10	±12	200	
CA45L-C-10V-150μF-□	150	C	12	10	12	15.0	150.0	187.5	0.856	0.771	0.343	±10	±10	±12	150	
CA45L-D-10V-150μF-□	150	D	12	10	12	15.0	150.0	187.5	1.225	1.102	0.49	±10	±10	±12	100	
CA45L-E-10V-150μF-□	150	E	12	10	12	15.0	150.0	187.5	1.285	1.156	0.514	±10	±10	±12	100	
CA45L-D1-10V-150μF-□	150	D1	12	10	12	15.0	150.0	187.5	0.791	0.712	0.316	±10	±10	±12	200	
CA45L-D-10V-220μF-□	220	D	12	10	12	22.0	220.0	275.0	1	0.9	0.4	±10	±10	±12	150	
CA45L-E-10V-220μF-□	220	E	12	10	12	22.0	220.0	275.0	1.049	0.944	0.42	±10	±10	±12	150	
CA45L-D1-10V-220μF-□	220	D1	12	10	12	22.0	220.0	275.0	0.913	0.822	0.365	±10	±10	±12	150	
CA45L-D-10V-330μF-□	330	D	12	10	12	33.0	330.0	412.5	1	0.9	0.4	±10	±10	±12	90	
CA45L-E-10V-330μF-□	330	E	12	10	12	33.0	330.0	412.5	1.285	1.156	0.514	±10	±10	±12	80	
CA45L-F-10V-330μF-□	330	F	12	10	12	33.0	330.0	412.5	1.581	1.423	0.632	±10	±10	±12	80	
CA45L-E-10V-470μF-□	470	E	12	10	12	47.0	470.0	587.5	1.285	1.156	0.514	±10	±10	±12	80	
CA45L-F-10V-470μF-□	470	F	12	10	12	47.0	470.0	587.5	1.581	1.423	0.632	±10	±10	±12	80	
			Rated voltage:16V			Category Voltage:10V			Surge Voltage:20V							
CA45L-A-16V-1μF-□	1	A	6	4	6	0.5	5.0	6.3	0.11	0.099	0.044	±10	±10	±12	6200	
CA45L-A-16V-2.2μF-□	2.2	A	10	6	10	0.5	5.0	6.3	0.146	0.132	0.059	±10	±10	±12	3500	
CA45L-A-16V-3.3μF-□	3.3	A	10	6	10	0.5	5.0	6.3	0.146	0.132	0.059	±10	±10	±12	3500	
CA45L-B-16V-3.3μF-□	3.3	B	10	6	10	0.5	5.0	6.3	0.184	0.166	0.074	±10	±10	±12	2500	
CA45L-A-16V-4.7μF-□	4.7	A	10	6	10	0.8	8.0	10.0	0.194	0.174	0.077	±10	±10	±12	2000	
CA45L-B-16V-4.7μF-□	4.7	B	10	6	10	0.8	8.0	10.0	0.238	0.214	0.095	±10	±10	±12	1500	
CA45L-A-16V-6.8μF-□	6.8	A	10	6	10	1.1	11.0	13.8	0.224	0.201	0.089	±10	±10	±12	1500	
CA45L-B-16V-6.8μF-□	6.8	B	10	6	10	1.1	11.0	13.8	0.266	0.24	0.106	±10	±10	±12	1200	
CA45L-A-16V-10μF-□	10	A	10	6	10	1.6	16.0	20.0	0.274	0.246	0.11	±10	±10	±12	1000	
CA45L-B-16V-10μF-□	10	B	10	6	10	1.6	16.0	20.0	0.326	0.293	0.13	±10	±10	±12	800	
CA45L-C-16V-10μF-□	10	C	10	6	10	1.6	16.0	20.0	0.469	0.422	0.188	±10	±10	±12	500	
CA45L-B-16V-15μF-□	15	B	10	6	10	2.4	24.0	30.0	0.326	0.293	0.13	±10	±10	±12	800	
CA45L-C-16V-15μF-□	15	C	10	6	10	2.4	24.0	30.0	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-B-16V-22μF-□	22	B	10	6	10	3.5	35.0	43.8	0.376	0.339	0.151	±10	±10	±12	600	
CA45L-C-16V-22μF-□	22	C	10	6	10	3.5	35.0	43.8	0.542	0.487	0.217	±10	±10	±12	375	
CA45L-D-16V-22μF-□	22	D	10	6	10	3.5	35.0	43.8	0.463	0.417	0.185	±10	±10	±12	700	
CA45L-B-16V-33μF-□	33	B	10	6	10	5.3	53.0	66.3	0.412	0.371	0.165	±10	±10	±12	500	
CA45L-C-16V-33μF-□	33	C	10	6	10	5.3	53.0	66.3	0.606	0.545	0.242	±10	±10	±12	300	
CA45L-D-16V-33μF-□	33	D	10	6	10	5.3	53.0	66.3	0.866	0.779	0.346	±10	±10	±12	200	
CA45L-D1-16V-33μF-□	33	D1	10	6	10	5.3	53.0	66.3	0.559	0.503	0.224					

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value													ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100KHz			Cap Deviation(%)				
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C		
CA45L-D-16V-47μF-□	47	D	10	6	10	7.5	75.0	93.8	0.866	0.779	0.346	±10	±10	±12	200	
CA45L-D1-16V-47μF-□	47	D1	10	6	10	7.5	75.0	93.8	0.707	0.636	0.283	±10	±10	±12	250	
CA45L-C-16V-68μF-□	68	C	10	6	10	10.9	109.0	136.3	0.742	0.667	0.297	±10	±10	±12	200	
CA45L-D-16V-68μF-□	68	D	10	6	10	10.9	109.0	136.3	1	0.9	0.4	±10	±10	±12	150	
CA45L-D1-16V-68μF-□	68	D1	10	6	10	10.9	109.0	136.3	0.707	0.636	0.283	±10	±10	±12	250	
CA45L-C-16V-100μF-□	100	C	12	10	12	16.0	160.0	200.0	0.742	0.667	0.297	±10	±10	±12	200	
CA45L-D-16V-100μF-□	100	D	12	10	12	16.0	160.0	200.0	1	0.9	0.4	±10	±10	±12	150	
CA45L-E-16V-100μF-□	100	E	12	10	12	16.0	160.0	200.0	1.049	0.944	0.42	±10	±10	±12	150	
CA45L-D1-16V-100μF-□	100	D1	12	10	12	16.0	160.0	200.0	0.913	0.822	0.365	±10	±10	±12	150	
CA45L-D-16V-150μF-□	150	D	12	10	12	24.0	240.0	300.0	1.095	0.986	0.438	±10	±10	±12	125	
CA45L-E-16V-150μF-□	150	E	12	10	12	24.0	240.0	300.0	1.285	1.156	0.514	±10	±10	±12	100	
CA45L-F-16V-150μF-□	150	F	12	10	12	24.0	240.0	300.0	1.826	1.643	0.73	±10	±10	±12	75	
CA45L-D1-16V-150μF-□	150	D1	12	10	12	24.0	240.0	300.0	0.791	0.712	0.316	±10	±10	±12	125	
CA45L-E-16V-220μF-□	220	E	12	10	12	35.2	352.0	440.0	1.285	1.156	0.514	±10	±10	±12	100	
CA45L-F-16V-220μF-□	220	F	12	10	12	35.2	352.0	440.0	1.581	1.423	0.632	±10	±10	±12	100	
CA45L-E-16V-330μF-□	330	E	12	10	12	52.8	528.0	660.0	0.908	0.817	0.363	±10	±10	±12	100	
			Rated voltage:20V			Category Voltage:13V			Surge Voltage:26V							
CA45L-A-20V-1μF-□	1	A	6	4	6	0.5	5.0	6.3	0.158	0.142	0.063	±10	±10	±12	3000	
CA45L-A-20V-1.5μF-□	1.5	A	10	6	10	0.5	5.0	6.3	0.158	0.142	0.063	±10	±10	±12	3000	
CA45L-A-20V-2.2μF-□	2.2	A	10	6	10	0.5	5.0	6.3	0.158	0.142	0.063	±10	±10	±12	3000	
CA45L-B-20V-2.2μF-□	2.2	B	10	6	10	0.5	5.0	6.3	0.224	0.201	0.089	±10	±10	±12	1700	
CA45L-A-20V-3.3μF-□	3.3	A	10	6	10	0.7	7.0	8.8	0.173	0.156	0.069	±10	±10	±12	2500	
CA45L-B-20V-3.3μF-□	3.3	B	10	6	10	0.7	7.0	8.8	0.256	0.23	0.102	±10	±10	±12	1300	
CA45L-A-20V-4.7μF-□	4.7	A	10	6	10	0.9	9.0	11.3	0.204	0.184	0.082	±10	±10	±12	1800	
CA45L-B-20V-4.7μF-□	4.7	B	10	6	10	0.9	9.0	11.3	0.292	0.262	0.117	±10	±10	±12	1000	
CA45L-A-20V-6.8μF-□	6.8	A	10	6	10	1.4	14.0	17.5	0.274	0.246	0.11	±10	±10	±12	1000	
CA45L-B-20V-6.8μF-□	6.8	B	10	6	10	1.4	14.0	17.5	0.292	0.262	0.117	±10	±10	±12	1000	
CA45L-C-20V-6.8μF-□	6.8	C	10	6	10	1.4	14.0	17.5	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-B-20V-10μF-□	10	B	10	6	10	2.0	20.0	25.0	0.292	0.262	0.117	±10	±10	±12	1000	
CA45L-C-20V-10μF-□	10	C	10	6	10	2.0	20.0	25.0	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-B-20V-15μF-□	15	B	10	6	10	3.0	30.0	37.5	0.412	0.371	0.165	±10	±10	±12	500	
CA45L-C-20V-15μF-□	15	C	10	6	10	3.0	30.0	37.5	0.494	0.445	0.198	±10	±10	±12	450	
CA45L-B-20V-22μF-□	22	B	10	6	10	4.4	44.0	55.0	0.461	0.415	0.184	±10	±10	±12	400	
CA45L-C-20V-22μF-□	22	C	10	6	10	4.4	44.0	55.0	0.524	0.472	0.21	±10	±10	±12	400	
CA45L-D-20V-22μF-□	22	D	10	6	10	4.4	44.0	55.0	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-C-20V-33μF-□	33	C	10	6	10	6.6	66.0	82.5	0.606	0.545	0.242	±10	±10	±12	300	
CA45L-D-20V-33μF-□	33	D	10	6	10	6.6	66.0	82.5	0.866	0.779	0.346	±10	±10	±12	200	
CA45L-D-20V-47μF-□	47	D	10	6	10	9.4	94.0	117.5	0.866	0.779	0.346	±10	±10	±12	200	
CA45L-E-20V-47μF-□	47	E	10	6	10	9.4	94.0	117.5	0.908	0.817	0.363	±10	±10	±12	200	
CA45L-D-20V-68μF-□	68	D	10	6	10	13.6	136.0	170.0	0.707	0.636	0.283	±10	±10	±12	300	

□:Insert K for ±10% or M for ±20%.

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value													ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100KHz			Cap Deviation(%)				
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C		
CA45L-E-20V-68μF-□	68	E	10	6	10	13.6	136.0	170.0	0.908	0.817	0.363	±10	±10	±12	200	
CA45L-D-20V-100μF-□	100	D	12	10	12	20.0	200.0	250.0	1	0.9	0.4	±10	±10	±12	150	
CA45L-E-20V-100μF-□	100	E	12	10	12	20.0	200.0	250.0	1.049	0.944	0.42	±10	±10	±12	150	
CA45L-F-20V-100μF-□	100	F	12	10	12	20.0	200.0	250.0	1.581	1.423	0.632	±10	±10	±12	100	
CA45L-F-20V-150μF-□	150	F	12	10	12	30.0	300.0	375.0	1.768	1.591	0.707	±10	±10	±12	80	
			Rated voltage:25V			Category Voltage:17V			Surge Voltage:32V							
CA45L-A-25V-0.47μF-□	0.47	A	6	4	6	0.5	5.0	6.3	0.104	0.093	0.041	±10	±10	±12	7000	
CA45L-A-25V-0.68μF-□	0.68	A	6	4	6	0.5	5.0	6.3	0.112	0.101	0.045	±10	±10	±12	6000	
CA45L-A-25V-1μF-□	1	A	6	4	6	0.5	5.0	6.3	0.137	0.123	0.055	±10	±10	±12	3500	
CA45L-A-25V-1.5μF-□	1.5	A	10	6	10	0.5	5.0	6.3	0.158	0.142	0.063	±10	±10	±12	3000	
CA45L-B-25V-1.5μF-□	1.5	B	10	6	10	0.5	5.0	6.3	0.217	0.196	0.087	±10	±10	±12	1800	
CA45L-A-25V-2.2μF-□	2.2	A	10	6	10	0.6	6.0	7.5	0.173	0.156	0.069	±10	±10	±12	2500	
CA45L-B-25V-2.2μF-□	2.2	B	10	6	10	0.6	6.0	7.5	0.184	0.166	0.074	±10	±10	±12	2500	
CA45L-A-25V-3.3μF-□	3.3	A	10	6	10	0.8	8.0	10.0	0.224	0.201	0.089	±10	±10	±12	1500	
CA45L-B-25V-3.3μF-□	3.3	B	10	6	10	0.8	8.0	10.0	0.206	0.186	0.082	±10	±10	±12	2000	
CA45L-B-25V-4.7μF-□	4.7	B	10	6	10	1.2	12.0	15.0	0.238	0.214	0.095	±10	±10	±12	1500	
CA45L-C-25V-4.7μF-□	4.7	C	10	6	10	1.2	12.0	15.0	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-B-25V-6.8μF-□	6.8	B	10	6	10	1.7	17.0	21.3	0.348	0.314	0.139	±10	±10	±12	700	
CA45L-C-25V-6.8μF-□	6.8	C	10	6	10	1.7	17.0	21.3	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-B-25V-10μF-□	10	B	10	6	10	2.5	25.0	31.3	0.217	0.196	0.087	±10	±10	±12	1200	
CA45L-C-25V-10μF-□	10	C	10	6	10	2.5	25.0	31.3	0.469	0.422	0.188	±10	±10	±12	500	
CA45L-D-25V-10μF-□	10	D	10	6	10	2.5	25.0	31.3	0.548	0.493	0.219	±10	±10	±12	500	
CA45L-C-25V-15μF-□	15	C	10	6	10	3.8	38.0	47.5	0.606	0.545	0.242	±10	±10	±12	300	
CA45L-D-25V-15μF-□	15	D	10	6	10	3.8	38.0	47.5	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-C-25V-22μF-□	22	C	10	6	10	5.5	55.0	68.8	0.524	0.472	0.21	±10	±10	±12	400	
CA45L-D-25V-22μF-□	22	D	10	6	10	5.5	55.0	68.8	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-D-25V-33μF-□	33	D	10	6	10	8.3	83.0	103.8	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-E-25V-33μF-□	33	E	10	6	10	8.3	83.0	103.8	0.742	0.667	0.297	±10	±10	±12	300	
CA45L-D1-25V-33μF-□	33	D1	10	6	10	8.3	83.0	103.8	0.791	0.712	0.316	±10	±10	±12	200	
CA45L-D-25V-47μF-□	47	D	10	6	10	11.8	118.0	147.5	0.775	0.697	0.31	±10	±10	±12	250	
CA45L-E-25V-47μF-□	47	E	10	6	10	11.8	118.0	147.5	1.149	1.034	0.46	±10	±10	±12	125	
CA45L-E-25V-68μF-□	68	E	10	6	10	17.0	170.0	212.5	0.908	0.817	0.363	±10	±10	±12	200	
CA45L-F-25V-68μF-□	68	F	10	6	10	17.0	170.0	212.5	1.118	1.006	0.447	±10	±10	±12	200	
CA45L-E-25V-100μF-□	100	E	12	10	12	25.0	250.0	312.5	1.049	0.944	0.42	±10	±10	±12	150	
CA45L-F-25V-100μF-□	100	F	12	10	12	25.0	250.0	312.5	1.581	1.423	0.632	±10	±10	±12	100	
CA45L-F-25V-150μF-□	150	F	12	10	12	37.5	375.0	468.8	1.291	1.162	0.516	±10	±10	±12	150	
			Rated voltage:35V			Category Voltage:23V			Surge Voltage:46V							
CA45L-A-35V-0.22μF-□	0.22	A	6	4	6	0.5	5.0	6.3	0.112	0.101	0.045	±10	±10	±12	6000	
CA45L-A-35V-0.33μF-□	0.33	A	6	4	6	0.5	5.0	6.3	0.112	0.101	0.045	±10	±10	±12	6000	
CA45L-A-35V-0.47μF-□	0.47	A	6	4	6	0.5	5.0	6.3	0.112							

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value													ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100KHz			Cap Deviation(%)				
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C		
CA45L-B-35V-0.47μF-□	0.47	B	6	4	6	0.5	5.0	6.3	0.146	0.131	0.058	±10	±10	±12	4000	
CA45L-A-35V-0.68μF-□	0.68	A	6	4	6	0.5	5.0	6.3	0.112	0.101	0.045	±10	±10	±12	6000	
CA45L-A-35V-1μF-□	1	A	6	4	6	0.5	5.0	6.3	0.158	0.142	0.063	±10	±10	±12	3000	
CA45L-B-35V-1μF-□	1	B	6	4	6	0.5	5.0	6.3	0.206	0.186	0.082	±10	±10	±12	2000	
CA45L-A-35V-1.5μF-□	1.5	A	10	6	10	0.5	5.0	6.3	0.158	0.142	0.063	±10	±10	±12	3000	
CA45L-B-35V-1.5μF-□	1.5	B	10	6	10	0.5	5.0	6.3	0.184	0.166	0.074	±10	±10	±12	2500	
CA45L-A-35V-2.2μF-□	2.2	A	10	6	10	0.8	8.0	10.0	0.224	0.201	0.089	±10	±10	±12	2500	
CA45L-B-35V-2.2μF-□	2.2	B	10	6	10	0.8	8.0	10.0	0.206	0.186	0.082	±10	±10	±12	2000	
CA45L-C-35V-2.2μF-□	2.2	C	10	6	10	0.8	8.0	10.0	0.332	0.298	0.133	±10	±10	±12	1000	
CA45L-B-35V-3.3μF-□	3.3	B	10	6	10	1.2	12.0	15.0	0.292	0.262	0.117	±10	±10	±12	1000	
CA45L-C-35V-3.3μF-□	3.3	C	10	6	10	1.2	12.0	15.0	0.396	0.357	0.159	±10	±10	±12	700	
CA45L-B-35V-4.7μF-□	4.7	B	10	6	10	1.6	16.0	20.0	0.238	0.214	0.095	±10	±10	±12	1200	
CA45L-C-35V-4.7μF-□	4.7	C	10	6	10	1.6	16.0	20.0	0.428	0.385	0.171	±10	±10	±12	600	
CA45L-D-35V-4.7μF-□	4.7	D	10	6	10	1.6	16.0	20.0	0.463	0.417	0.185	±10	±10	±12	700	
CA45L-C-35V-6.8μF-□	6.8	C	10	6	10	2.4	24.0	30.0	0.561	0.505	0.224	±10	±10	±12	350	
CA45L-D-35V-6.8μF-□	6.8	D	10	6	10	2.4	24.0	30.0	0.548	0.493	0.219	±10	±10	±12	500	
CA45L-C-35V-10μF-□	10	C	10	6	10	3.5	35.0	43.8	0.428	0.385	0.171	±10	±10	±12	500	
CA45L-D-35V-10μF-□	10	D	10	6	10	3.5	35.0	43.8	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-E-35V-10μF-□	10	E	10	6	10	3.5	35.0	43.8	0.908	0.817	0.363	±10	±10	±12	200	
CA45L-D1-35V-10μF-□	10	D1	10	6	10	3.5	35.0	43.8	0.707	0.636	0.283	±10	±10	±12	250	
CA45L-C-35V-15μF-□	15	C	10	6	10	5.3	53.0	66.3	0.494	0.445	0.198	±10	±10	±12	450	
CA45L-D-35V-15μF-□	15	D	10	6	10	5.3	53.0	66.3	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-D1-35V-15μF-□	15	D1	10	6	10	5.3	53.0	66.3	0.707	0.636	0.283	±10	±10	±12	250	
CA45L-D-35V-22μF-□	22	D	10	6	10	7.7	77.0	96.3	0.612	0.551	0.245	±10	±10	±12	400	
CA45L-E-35V-22μF-□	22	E	10	6	10	7.7	77.0	96.3	0.742	0.667	0.297	±10	±10	±12	300	
CA45L-D1-35V-22μF-□	22	D1	10	6	10	7.7	77.0	96.3	0.791	0.712	0.316	±10	±10	±12	200	
CA45L-D-35V-33μF-□	33	D	10	6	10	11.6	116.0	145.0	0.707	0.636	0.283	±10	±10	±12	300	
CA45L-E-35V-33μF-□	33	E	10	6	10	11.6	116.0	145.0	0.742	0.667	0.297	±10	±10	±12	300	
CA45L-F-35V-33μF-□	33	F	10	6	10	11.6	116.0	145.0	1.118	1.006	0.447	±10	±10	±12	200	
CA45L-E-35V-47μF-□	47	E	10	6	10	16.5	165.0	206.3	0.812	0.731	0.325	±10	±10	±12	250	
CA45L-F-35V-47μF-□	47	F	10	6	10	16.5	165.0	206.3	1.118	1.006	0.447	±10	±10	±12	200	
CA45L-F-35V-68μF-□	68	F	10	6	10	23.8	238.0	297.5	1.291	1.162	0.516	±10	±10	±12	150	
			Rated voltage:50V			Category Voltage:33V			Surge Voltage:65V							
CA45L-A-50V-0.15μF-□	0.15	A	6	4	6	0.5	5.0	6.3	0.091	0.082	0.037	±10	±10	±12	9000	
CA45L-A-50V-0.22μF-□	0.22	A	6	4	6	0.5	5.0	6.3	0.104	0.093	0.041	±10	±10	±12	7000	
CA45L-A-50V-0.33μF-□	0.33	A	6	4	6	0.5	5.0	6.3	0.104	0.093	0.041	±10	±10	±12	7000	
CA45L-A-50V-0.47μF-□	0.47	A	6	4	6	0.5	5.0	6.3	0.107	0.097	0.043	±10	±10	±12	6500	
CA45L-B-50V-0.47μF-□	0.47	B	6	4	6	0.5	5.0	6.3	0.119	0.107	0.048	±10	±10	±12	6000	
CA45L-C-50V-0.47μF-□	0.47	C	6	4	6	0.5	5.0	6.3	0.219	0.197	0.087	±10	±10	±12	2300	
CA45L-B-50V-0.68μF-□	0.68	B	6	4	6	0.5	5.0	6.3	0.146	0.131	0.058	±10	±10	±12	4000	

□:Insert K for ±10% or M for ±20%.

# LOW ESR TANTALUM SOLID ELECTROLYTIC CHIP CAPACITORS

Part NO.	Cap (μF)	Size Code	Maximum Value													ESR(mΩ) @100kHz 25°C
			DF(%)			DCL(μA)			Rms Current(A) @100KHz			Cap Deviation(%)				
			-55°C	25°C	85°C 125°C	25°C	85°C	125°C	25°C	85°C	125°C	-55°C	85°C	125°C		
CA45L-B-50V-1μF-□	1	B	6	4	6	0.5	5.0	6.3	0.168	0.151	0.067	±10	±10	±12	3000	
CA45L-C-50V-1μF-□	1	C	6	4	6	0.5	5.0	6.3	0.21	0.189	0.084	±10	±10	±12	2500	
CA45L-C-50V-1.5μF-□	1.5	C	10	6	10	0.8	8.0	10.0	0.271	0.244	0.108	±10	±10	±12	1500	
CA45L-C-50V-2.2μF-□	2.2	C	10	6	10	1.1	11.0	13.8	0.271	0.244	0.108	±10	±10	±12	1300	
CA45L-D-50V-2.2μF-□	2.2	D	10	6	10	1.1	11.0	13.8	0.354	0.318	0.141	±10	±10	±12	1200	
CA45L-C-50V-3.3μF-□	3.3	C	10	6	10	1.7	17.0	21.3	0.332	0.298	0.133	±10	±10	±12	900	
CA45L-D-50V-3.3μF-□	3.3	D	10	6	10	1.7	17.0	21.3	0.433	0.39	0.173	±10	±10	±12	800	
CA45L-C-50V-4.7μF-□	4.7	C	10	6	10	2.4	24.0	30.0	0.371	0.334	0.148	±10	±10	±12	800	
CA45L-D-50V-4.7μF-□	4.7	D	10	6	10	2.4	24.0	30.0	0.548	0.493	0.219	±10	±10	±12	500	
CA45L-D-50V-6.8μF-□	6.8	D	10	6	10	3.4	34.0	42.5	0.548	0.493	0.219	±10	±10	±12	500	
CA45L-D-50V-10μF-□	10	D	10	6	10	5.0	50.0	62.5	0.548	0.493	0.219	±10	±10	±12	500	
CA45L-E-50V-10μF-□	10	E	10	6	10	5.0	50.0	62.5	0.642	0.578	0.257	±10	±10	±12	400	
CA45L-E-50V-15μF-□	15	E	10	6	10	7.5	75.0	93.8	0.812	0.731	0.325	±10	±10	±12	250	
CA45L-F-50V-15μF-□	15	F	10	6	10	7.5	75.0	93.8	1	0.9	0.4	±10	±10	±12	250	

□:Insert K for ±10% or M for ±20%.

## » ELECTRICAL CHARACTERISTICS

Capacitance and DF are measured at 100Hz,1V RMS with DC bias of 2.2V.

Leakage Current is measured at rated voltage after 3 minutes,protective resistance of 1000Ω is connected in series with the capacitor in the measuring circuit.

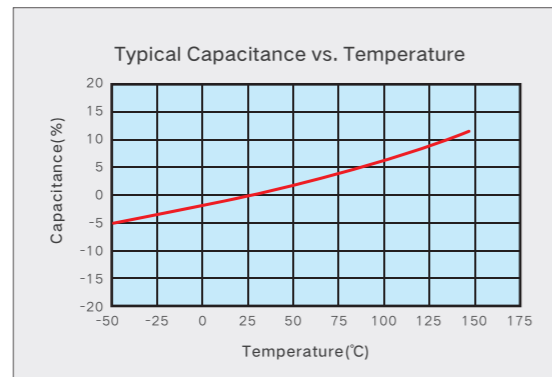
» CAPACITANCE

**Rated Capacitance**

For tantalum and Polymer capacitors it is measured as the capacitance of the equivalent series circuit at 25°C using a measuring bridge supplied by a 1.0Vrms @100Hz sinusoidal signal, free of harmonics with a bias of 2.2Vdc.

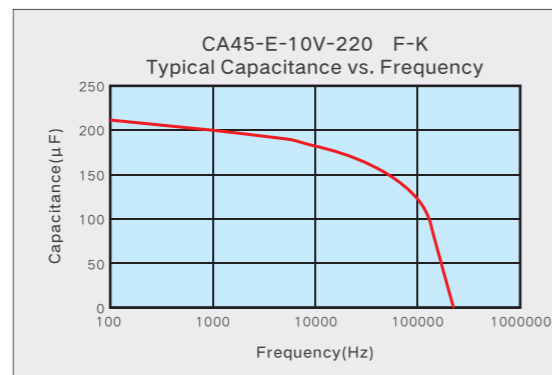
**Temperature Dependence Of Capacitance**

The capacitance of a tantalum capacitor varies with temperature. This variation itself is dependent to a small extent on the rated voltage and capacitor size.



**Frequency Dependence Of Capacitance**

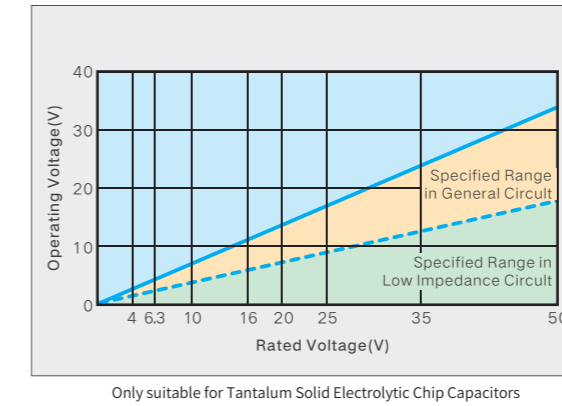
The effective capacitance decreases as frequency increases. Beyond 100kHz the capacitance continues to drop until resonance is reached (typically between 0.5 - 5MHz depending on the rating). Beyond the resonant frequency the device becomes inductive.



» VOLTAGE

**Rated Voltage**

This is the rated d.c. voltage for continuous operation up to 85 ° C. Operating voltage consists of the sum of DC bias voltage and ripple peak voltage. The peak voltage should not exceed the category voltage. For recommended voltage derating refer to the following figure.



**Category Voltage and Surge Voltage**

Category Voltage is the maximum voltage that may be applied continuously to a capacitor. It is equal to the rated voltage up to +85°C, beyond which it is subject to a linear derating to 2/3 VR at 125°C for tantalum.

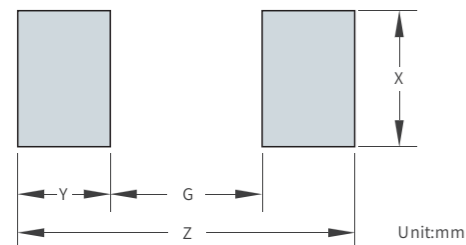
Surge Voltage is the highest voltage that may be applied to a capacitor for short periods of time in circuits with minimum series resistance of 33Ω (CECC states 1kΩ). The surge voltage may be applied up to 10 times in an hour for periods of up to 30 seconds at a time. The surge voltage must not be used as a parameter in the design of circuits.

85°C		125°C	
Rated Voltage(Vdc)	Surge Voltage (Vdc)	Category Voltage(Vdc)	Surge Voltage (Vdc)
2.5	3.2	1.7	2
4	5	2.7	3.2
6.3	8	4	5
10	13	7	8
16	20	10	13
20	26	13	16
25	32	17	20
35	46	23	28
50	65	33	40
63	75	45	49

## »» RIPPLE CURRENT

The maximum ripple current allowed is derived from the power dissipation limits for a given temperature rise above ambient temperature, please refer to CAPACITANCE AND RATED VOLTAGE RANGE.

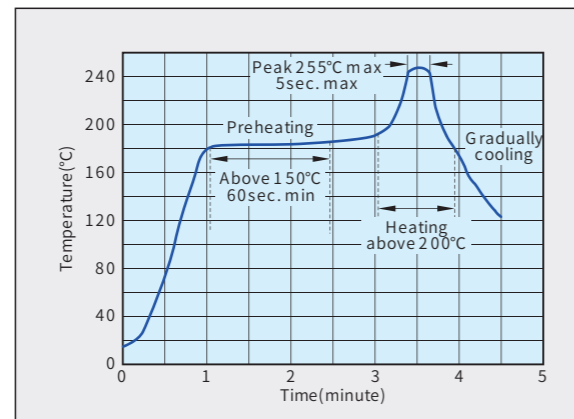
## »» LAND PATTERN DESIGN RECOMMENDATIONS



Case Size	G. Max.	Z Min.	X Min.	Y(Typical)
A	1.0	3.8	1.5	1.05
B	1.4	4.1	2.7	1.35
C	2.9	6.9	2.7	2.0
D/D1	4.1	8.2	2.9	2.05
E	4.1	8.2	2.9	2.05
F	4.1	8.2	4.6	2.05

## »» SOLDERING

Reflow soldering



Hand soldering

- Pre-heating: 125°C~150°C/300sec. min
- Max. Tip Temperature: 300°C
- Max. Exposure Time: 3sec.
- Soldering Iron: 30W

## »» CLEANING

Both Tantalum and Polymer are compatible with most PCB board cleaning systems. If aqueous cleaning is performed, parts must be allowed to dry prior to test. Ultrasonic agitation are not to be recommended.

## »» STORAGE

To maintain the solderability of terminal electrodes and to keep packaging materials in good condition, care must be taken to control temperature and humidity.

- Recommended conditions

Temperature : From -5 °C to 40 °C, Humidity : Below 60% RH

Even under ideal storage conditions, solderability of capacitor is deteriorated as time passes, so capacitors shall be used within 12 months from the time of delivery. If exceeding the above period, please check solderability before using the capacitors.