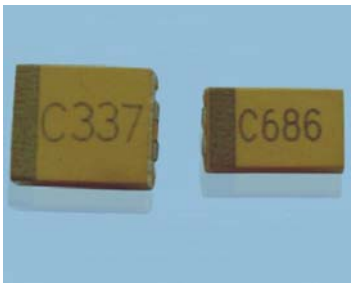
CA45L Series Epoxy Molded Solid Electrolytic Chip Tantalum Capacitor

※(Can replace KEMET's T494,AVX's TPS,VISHAY's 593D Series' Low ESR Capacitors)

Brief Introduction



●Epoxy molded encapsulation,Chip,Heteropolarity;

●Small in size,Light in weight,Stable in electricial & storage performances, Long life-span,High reliability;

●Low ESR,High frequency performance;

●Applying in Satellite,Telecommunications,DV,Computer,such Electrical Equipments with High reliable SMT DC & Impulse Circuit,which has high demanding in high-frequency electronic character;

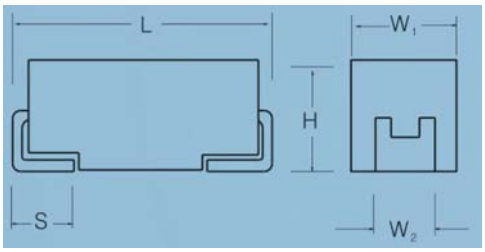
●Operative Standard:QJ/PWV305-2008;

●Order Information:CA45L-107M016ET:1000 pcs.

Features

●Operating Temperature Range: -55°C~+125°C(When ＞85°C,with rated voltage derating);

●Rated Voltage,Category Voltage,Nominal Capacitance:See Table 3;



●Capacitance Tolerance:K:±10%；M:±20%;

●DC Leakage at 25°C：$I_0 \leqslant 0.01 C_R U_R$(μA) or 0.5μA（Choose the greater one）;

●Dissipation Factors (tgδ) at 25°C:Not exceed the parameter in Table 3;

●ESR: Not exceed the parameter in Table 3;

●Temperature Characteristics:Not exceed the parameter in Table 2;

●Dimensions: See Table1 & Figure.

Table1 Dimensions

Unit:mm

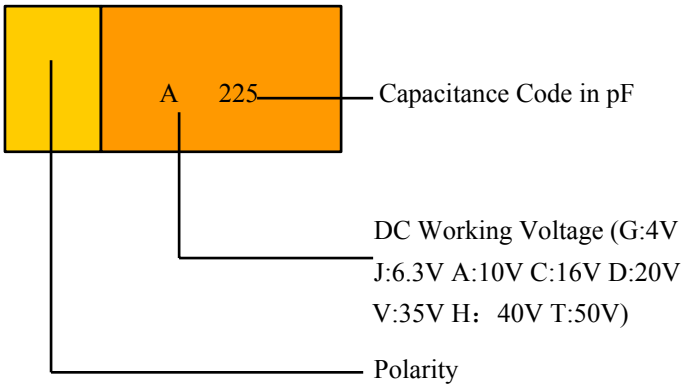
Case Code	L±0.2	W_1±0.2	H±0.4	S±0.2	W_2±0.2
A	3.2	1.6	1.6	0.8	1.2
B	3.5	2.8	1.9	0.8	2.2
C	6.0	3.2	2.5	1.3	2.2
D	7.3	4.3	2.8	1.3	2.4
E	7.3	4.3	4.1	1.3	2.4
V	7.3	6.1	3.6	1.35	3.0

Table2 Temperature Characteristics

Max					
tgδ(%) DF(%)				DCL (μA)	
-55℃	25℃	85℃	125℃	85℃	125℃
6	4	6		8 I 。	10 I 。
8	6	8			
10	8	10			
12	10	12			
14	12	14			

Marking Specification

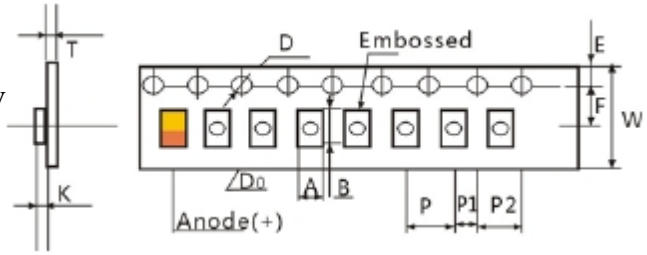
For example:10V2.2μF



Packing

T=Tape and reel
B=bulk pack

Taping and Packing



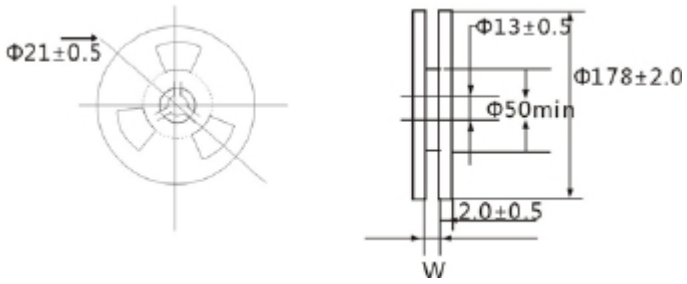
Carrier Tape Dimension

Unit:mm

Case Code	A±0.2	B±0.2	P±0.1	E±0.1	F±0.1	W±0.1
A	1.90	3.50	4.00	1.75	3.50	8.00
B	3.10	3.80	4.00	1.75	3.50	8.00
C	3.60	6.40	8.00	1.75	3.50	12.00
D	4.70	7.70	8.00	1.75	3.50	12.00
E	4.60	7.60	8.00	1.75	3.50	12.00
V	6.40	7.60	8.00	1.75	4.40	12.00

Reel Dimensions

Unit:mm



Case Code	W	Qty/reel
A、B	$8.4^{+1.5}_{0}$	2000
C、D	$12.4^{+2.0}_{0}$	500
E	$12.4^{+2.0}_{0}$	400
V	$12.4^{+2.0}_{0}$	400

Ordering Information

CA45L	105	M	035	A	T
Type	Capacitance Code	Tolerance	DC voltage	Case Size	Packaging
Chip Tantalum Capacitor	105 = $10x10^5$pF=1μF 105 $10x10^5$(pF)this is expressed in pico farads, the first two digits are the significant figures,the third is the number of zeros to follow	K=±10% M=±20%	4V=004 6.3V=006 10V=010 16V=016 20V=020 25V=025 35V=035 40V=040 50V=050 63V=063 75V=075 100V=100	A:3.2*1.6 B:3.5*2.8 C:6.0*3.2 D:7.3*4.3 E:7.3*4.3 V:7.3*6.1	T=Tape and reel B=bulk pack

Table 3 Electrical Characteristics

Nominal Capacitance（μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 4V,Category Voltage 2.7V							
2.2	A	0.5	6.0	6.0	0.094	0.047	0.032
3.3	A	0.5	6.0	6.0	0.041	0.038	0.026
4.7	A	0.5	6.0	3.5	0.151	0.143	0.096
4.7	B	0.5	6.0	3.0	0.151	0.143	0.096
6.8	A	0.5	6.0	3.0	0.050	0.047	0.032
6.8	B	0.5	6.0	2.0	0.050	0.047	0.032
10	A	0.5	6.0	2.0	0.041	0.125	0.084
10	B	0.5	6.0	1.5	0.132	0.143	0.096
15	B	0.6	6.0	1.8	0.151	0.143	0.096
15	C	0.6	6.0	1.2	0.247	0.235	0.156
22	B	0.9	6.0	1.6	0.143	0.143	0.096
22	C	0.9	6.0	0.6	0.235	0.235	0.156
33	B	1.3	6.0	1.2	0.179	0.170	0.113
33	C	1.3	6.0	0.9	0.247	0.235	0.156
33	D	1.3	6.0	0.6	0.247	0.235	0.156
47	B	1.9	6.0	0.9	0.262	0.249	0.166
47	C	1.9	6.0	1.0	0.433	0.411	0.274
47	D	1.9	6.0	0.3	0.433	0.411	0.274
68	C	2.7	6.0	0.6	0.303	0.287	0.191
68	D	2.7	6.0	0.25	0.408	0.387	0.258
100	C	4.0	8.0	0.5	0.303	0.411	0.191
100	D	4.0	8.0	0.2	0.433	0.287	0.274
150	C	6.0	8.0	0.5	0.428	0.406	0.271
150	D	6.0	8.0	0.35	0.428	0.406	0.271
150	E	6.0	8.0	0.15	0.574	0.544	0.363
220	D	8.8	10.0	0.3	0.463	0.439	0.293

Table 3 Electrical Characteristics

Nominal Capacitance（μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 4V,Category Voltage 2.7V							
220	E	8.8	10.0	0.15	0.094	0.089	0.059
330	E	13.0	10.0	0.2	0.433	0.411	0.274
330	V	13.0	10.0	0.2	0.433	0.411	0.274
470	E	19.0	12.0	0.15	0.050	0.047	0.032
470	V	19.0	12.0	0.15	0.050	0.047	0.032
Rated Voltage 6V,Category Voltage 4V							
1.5	A	0.5	6.0	6.0	0.076	0.072	0.048
2.2	A	0.5	6.0	6.0	0.094	0.089	0.059
3.3	A	0.5	8.0	6.0	0.094	0.059	0.070
4.7	A	0.5	6.0	4.0	0.108	0.102	0.068
4.7	B	0.5	6.0	3.5	0.108	0.102	0.068
6.8	A	0.5	6.0	2.5	0.108	0.102	0.068
6.8	B	0.5	6.0	2.0	0.151	0.143	0.096
10	A	0.6	6.0	2.0	0.132	0.125	0.084
10	B	0.6	6.0	1.8	0.151	0.143	0.096
15	B	0.9	6.0	1.8	0.151	0.143	0.096
15	C	0.9	6.0	0.6	0.247	0.235	0.156
22	B	1.4	6.0	1.2	0.151	0.143	0.096
22	C	1.4	6.0	0.8	0.247	0.235	0.156
33	B	2.0	6.0	1.2	0.179	0.170	0.113
33	C	2.0	6.0	0.8	0.247	0.235	0.156
47	B	2.9	6.0	0.6	0.200	0.190	0.126
47	C	2.9	6.0	0.5	0.262	0.249	0.166
47	D	2.9	6.0	0.3	0.433	0.411	0.274
68	C	4.1	6.0	0.5	0.350	0.332	0.221
68	D	4.1	6.0	0.2	0.433	0.411	0.274
100	C	6.0	8.0	0.4	0.350	0.332	0.221
100	D	6.0	8.0	0.2	0.433	0.411	0.274
100	E	6.3	8.0	0.15	0.433	0.411	0..274
150	C	9.0	8.0	0.5	0.303	0.287	0.191
150	D	9.0	8.0	0.3	0.463	0.439	0.293
150	E	9.0	8.0	0.15	0.574	0.544	0.363
220	E	13.2	8.0	0.2	0.486	0.460	0.307
220	V	13.2	8.0	0.2	0.612	0.581	0.387

Nominal Capacitance (μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 6V,Category Voltage 4V							
330	E	19.8	8.0	0.2	0.642	0.608	0.406
330	V	19.8	10.0	0.2	0.612	0.581	0.387
470	E	28.2	12.0	0.15	0.642	0.608	0.406
470	V	28.2	12.0	0.15	0.642	0.608	0.406
Rated Voltage 10V,Category Voltage 7V							
1.0	A	0.5	4.0	6.0	0.073	0.070	0.046
1.5	A	0.5	4.0	6.0	0.035	0.050	0.033
2.2	A	0.5	6.0	6.0	0.094	0.089	0.059
2.2	B	0.5	6.0	5.0	0.151	0.143	0.096
3.3	A	0.5	6.0	5.0	0.108	0.102	0.068
3.3	B	0.5	6.0	3.5	0.126	0.120	0.080
4.7	A	0.5	6.0	3.5	0.118	0.112	0.075
4.7	B	0.5	6.0	2.0	0.151	0.143	0.096
6.8	A	0.7	6.0	3.0	0.132	0.125	0.084
6.8	B	0.7	6.0	2.1	0.151	0.143	0.096
10.0	A	1.0	6.0	2.5	0.132	0.125	0.084
10.0	B	1.0	6.0	1.5	0.151	0.143	0.096
10.0	C	1.0	6.0	0.8	0.247	0.235	0.156
15.0	B	1.5	6.0	1.2	0.169	0.160	0.107
15.0	C	1.5	6.0	0.6	0.247	0.235	0.156
22.0	B	2.2	6.0	1.0	0.183	0.173	0.115
22.0	C	2.2	6.0	0.7	0.247	0.235	0.156
22.0	D	2.2	6.0	0.5	0.211	0.200	0.133
33.0	B	3.3	6.0	0.5	0.211	0.200	0.133
33.0	C	3.3	6.0	1.5	0.262	0.249	0.166
33.0	D	3.3	6.0	0.3	0.433	0.411	0.274
47.0	C	4.7	8.0	0.4	0.332	0.315	0.210
47.0	D	4.7	6.0	0.3	0.433	0.411	0.274
68.0	C	6.0	6.0	0.6	0.303	0.287	0.191
68.0	D	6.0	6.0	0.3	0.433	0.411	0.274
68.0	E	6.0	6.0	0.2	0.463	0.439	0.293
100	C	10	8.0	0.5	0.303	0.287	0.191
100	D	10	8.0	0.2	0.463	0.439	0.293
150	E	8.0	8.0	0.15	0.463	0.439	0.293
150	D	8.0	8.0	0.2	0.486	0.460	0.307
220	E	22	10.0	0.2	0.574	0.544	0.363
220	V	22	10.0	0.2	0.574	0.544	0.363
330	E	33	10.0	0.18	0.574	0.544	0.363
330	V	33	10.0	0.18	0.574	0.544	0.363
470	E	47	12.0	0.15	0.642	0.608	0.406
470	V	47	12.0	0.15	0.642	0.608	0.406

Nominal Capacitance（μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 16V,Category Voltage 10V							
0.68	A	0.6	4.0	8.0	0.032	0.030	0.020
1.0	A	1.0	4.0	6.0	0.080	0.076	0.050
1.5	A	1.5	6.0	6.0	0.094	0.089	0.059
1.5	B	1.5	6.0	0.5	0.094	0.089	0.059
2.2	A	2.2	6.0	5.0	0.108	0.102	0.068
2.2	B	2.2	6.0	3.0	0.132	0.125	0.083
3.3	A	0.5	6.0	5.0	0.118	0.112	0.075
4.7	A	0.5	6.0	3.0	0.141	0.134	0.089
4.7	B	0.5	6.0	2.0	0.141	0.134	0.089
6.8	A	1.1	6.0	3.0	0.141	0.143	0.089
6.8	B	1.1	6.0	1.5	0.179	0.170	0.113
6.8	C	1.1	6.0	1.0	0.241	0.228	0.152
10.0	B	1.6	6.0	1.2	0.169	0.160	0.107
10.0	C	1.6	6.0	0.8	0.247	0.235	0.156
15.0	B	2.4	6.0	1.2	0.179	0.170	0.113
15.0	C	2.4	6.0	0.6	0.247	0.235	0.156
15.0	D	2.4	6.0	0.6	0.433	0.411	0.274
22.0	C	3.6	6.0	0.4	0.262	0.249	0.166
22.0	D	3.6	6.0	0.5	0.433	0.411	0.274
33.0	C	5.3	6.0	0.5	0.303	0.287	0.191
33.0	D	5.3	6.0	0.3	0.433	0.411	0.274
47.0	C	7.6	6.0	0.6	0.303	0.287	0.191
47.0	D	7.6	6.0	0.3	0.433	0.411	0.274
47.0	E	7.6	6.0	0.2	0.433	0.411	0.274
68.0	D	11.0	6.0	0.2	0.463	0.439	0.293
68.0	E	11.0	6.0	0.2	0.463	0.439	0.293
100	D	16.0	8.0	0.2	0.463	0.439	0.293
100	E	16.0	8.0	0.2	0.486	0.486	0.460
150	D	24.0	8.0	0.5	0.463	0.439	0.293
150	E	24.0	8.0	0.2	0.574	0.544	0.363
220	E	35.0	10.0	0.2	0.574	0.544	0.363
220	V	35.0	10.0	0.2	0.574	0.544	0.363
330	E	52.0	10.0	0.18	0.574	0.544	0.363
330	V	52.0	10.0	0.18	0.574	0.544	0.363
Rated Voltage 20V,Category Voltage 15V							
2.2	A	0.5	6.0	4.5	0.100	0.095	0.063
2.2	B	0.5	6.0	2.5	0.151	0.143	0.096
3.3	A	0.7	6.0	4.0	0.125	0.118	0.079
3.3	B	0.7	6.0	3.0	0.163	0.155	0.103
3.3	C	0.7	6.0	2.5	0.210	0.199	0.133
4.7	B	1.0	6.0	1.5	0.163	0.155	0.103

Nominal Capacitance（μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 20V,Category Voltage 15V							
4.7	C	1.0	6.0	1.0	0.214	0.203	0.135
6.8	B	1.4	6.0	1.0	0.179	0.170	0.113
6.8	C	1.4	6.0	0.8	0.241	0.228	0.152
6.8	D	1.4	6.0	0.7	0.241	0.228	0.152
10.0	B	2.0	6.0	1.8	0.195	0.185	0.123
10.0	C	2.0	6.0	0.6	0.247	0.235	0.156
10.0	D	2.0	6.0	0.5	0.340	0.322	0.215
15.0	C	3.0	6.0	1.0	0.254	0.241	0.161
15.0	D	3.0	6.0	1.7	0.387	0.367	0.245
22.0	C	4.4	6.0	0.8	0.303	0.287	0.191
22.0	D	4.4	6.0	0.4	0.433	0.411	0.274
33.0	C	6.6	6.0	0.8	0.303	0.287	0.191
33.0	D	6.6	6.0	1.2	0.433	0.411	0.274
47.0	C	9.7	6.0	0.6	0.463	0.439	0.293
47.0	D	9.7	6.0	0.25	0.463	0.439	0.293
47.0	E	9.7	6.0	0.25	0.574	0.544	0.363
68.0	E	13.6	6.0	0.25	0.486	0.460	0.307
68.0	V	13.6	6.0	0.25	0.486	0.460	0.307
100	E	20.0	8.0	0.25	0.574	0.544	0.363
100	V	20.0	8.0	0.25	0.574	0.544	0.363
150	E	30.0	8.0	0.18	0.574	0.544	0.363
220	V	44.0	10.0	0.18	0.574	0.544	0.363
Rated Voltage 25V,Category Voltage 17V							
0.33	A	0.5	4.0	10.0	0.068	0.065	0.043
0.47	A	0.5	4.0	9.0	0.071	0.067	0.045
0.68	A	0.5	4.0	5.5	0.084	0.079	0.053
1.0	A	0.5	4.0	7.0	0.094	0.089	0.059
1.0	B	0.5	4.0	4.0	0.126	0.120	0.080
1.5	A	0.5	6.0	4.5	0.097	0.092	0.061
1.5	B	0.5	6.0	3.0	0.126	0.120	0.080
2.2	B	0.6	6.0	2.5	0.133	0.126	0.084
2.2	C	0.6	6.0	2.0	0.177	0.168	0.110
3.3	B	0.9	6.0	2.0	0.151	0.143	0.096
3.3	C	0.9	6.0	1.2	0.210	0.199	0.133
4.7	B	1.2	6.0	1.5	0.183	0.173	0.115
4.7	C	1.2	6.0	1.0	0.271	0.257	0.171
6.8	B	1.7	6.0	2.5	0.169	0.160	0.107
6.8	C	1.7	6.0	1.0	0.271	0.257	0.171
10	B	2.5	6.0	2.5	0.271	0.257	0.171
10	C	2.5	6.0	1.0	0.271	0.257	0.171
15	C	3.8	6.0	0.5	0.271	0.257	0.171

Nominal Capacitance（μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 25V,Category Voltage 17V							
15	D	3.8	6.0	0.4	0.387	0.367	0.245
22	C	5.5	6.0	0.8	0.280	0.266	0.177
22	D	5.5	6.0	0.4	0.433	0.411	0.274
33	D	7.5	6.0	0.3	0.463	0.439	0.293
33	E	7.5	6.0	0.25	0.486	0.460	0.307
47	E	11.8	6.0	0.3	0.486	0.460	0.307
47	V	11.8	6.0	0.3	0.486	0.460	0.307
68	E	17	6.0	0.25	0.486	0.460	0.307
68	V	17	6.0	0.25	0.486	0.460	0.307
Rated Voltage 35V,Category Voltage 23V							
0.1	A	0.5	4.0	12.0	0.059	0.056	0.037
0.15	A	0.5	4.0	10.0	0.061	0.058	0.038
0.22	A	0.5	4.0	8.0	0.062	0.059	0.039
0.33	A	0.5	4.0	7.0	0.068	0.065	0.043
0.47	A	0.5	4.0	4.0	0.076	0.072	0.048
0.47	B	0.5	4.0	4.0	0.100	0.095	0.063
0.68	A	0.5	4.0	7.0	0.094	0.089	0.059
0.68	B	0.5	4.0	3.5	0.111	0.105	0.070
1.0	A	0.5	4.0	6.0	0.097	0.092	0.061
1.0	B	0.5	6.0	3.0	0.126	0.120	0.080
1.5	B	0.6	6.0	3.0	0.126	0.120	0.080
1.5	C	0.6	6.0	2.5	0.156	0.148	0.099
2.2	B	0.8	6.0	2.5	0.141	0.134	0.089
2.2	C	0.8	6.0	2.0	0.177	0.168	0.112
3.3	C	1.3	6.0	1.2	0.210	0.199	0.133
3.3	D	1.3	6.0	1.0	0.210	0.199	0.133
4.7	C	1.8	6.0	0.8	0.224	0.212	0.141
4.7	D	1.8	6.0	0.7	0.316	0.300	0.200
6.8	C	2.7	6.0	0.7	0.247	0.235	0.156
6.8	D	2.7	6.0	0.6	0.340	0.322	0.215
10	C	4.0	6.0	0.7	0.262	0.249	0.166
10	D	4.0	6.0	0.4	0.387	0.367	0.245
15	D	6.0	6.0	0.35	0.408	0.387	0.258
15	E	6.0	6.0	0.3	0.454	0.430	0.287
22	E	8.8	6.0	0.3	0.486	0.460	0.307
22	V	8.8	6.0	0.3	0.486	0.460	0.307
33	E	11.0	6.0	0.3	0.486	0.460	0.307
33	V	11.0	6.0	0.3	0.486	0.460	0.307
Rated Voltage 50V,Category Voltage 33V							
0.1	A	0.5	4.0	12.0	0.059	0.056	0.037
0.15	A	0.5	4.0	8.0	0.066	0.063	0.042

Nominal Capacitance（μF)	Case Code	Max DCL at 25℃ (μA)	Max DF(100Hz) at 25℃ (%)	Max ESR (100KHz) at 25℃ (Ω)	Ripple Current (A) 100KHz Max		
					+25℃	+85℃	+125℃
Rated Voltage 50V,Category Voltage 33V							
0.22	A	0.5	4.0	10.0	0.068	0.065	0.043
0.22	B	0.5	4.0	6.0	0.076	0.072	0.048
0.33	A	0.5	4.0	8.0	0.089	0.085	0.057
0.33	B	0.5	4.0	5.0	0.089	0.085	0.057
0.47	B	0.5	4.0	3.0	0.094	0.089	0.060
0.68	B	0.5	4.0	3.0	0.100	0.095	0.063
0.68	C	0.5	4.0	2.0	0.125	0.119	0.079
1.0	B	0.5	4.0	3.0	0.107	0.101	0.068
1.0	C	0.5	4.0	1.8	0.141	0.134	0.089
1.5	C	0.7	6.0	1.8	0.156	0.148	0.099
1.5	D	0.7	6.0	1.0	0.207	0.196	0.131
2.2	C	1.1	6.0	1.5	0.191	0.182	0.121
2.2	D	1.1	6.0	0.7	0.245	0.232	0.155
3.3	C	1.6	6.0	1.2	0.210	0.199	0.133
3.3	D	1.6	6.0	0.7	0.274	0.260	0.173
4.7	D	2.3	6.0	0.6	0.327	0.311	0.207
6.8	D	3.4	6.0	0.6	0.387	0.367	0.245
6.8	E	3.4	6.0	0.5	0.406	0.385	0.257
10	E	5.0	6.0	0.4	0.486	0.460	0.307
10	V	7.5	6.0	0.4	0.486	0.460	0.307

P.S. : 1 Please do not use multimeter through the measuring procedures.

2 Capacitance and DF measured at :100Hz，U__=2.2°$_{-1.0}$V，U~=1.0°$_{-0.5}$V, Frequency=100Hz. Test only applied in series equivalent circuit.

3 Voltage derating is applied at +125℃.（The DCL parameter should be read after 5minutes when it connected to the circuit）.

4 Special size and demand could consult with us.