

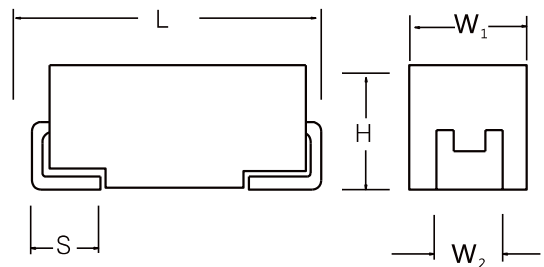
## CA45U Low ESR Chip Tantalum Capacitors (SMD Tantalum Capacitors)

### ◆ Brief Introduction

Low ESR series of robust MnO<sub>2</sub> solid tantalum electrolyte capacitors  
 Power supply applications, general medium power DC/DC convertors  
 Operating Standard: QJ/PWV330-2010  
 Factory quality control system: Military Standard GJB9001C-2017  
 Meets RoHS , Reach requirement

### ◆ Specifications

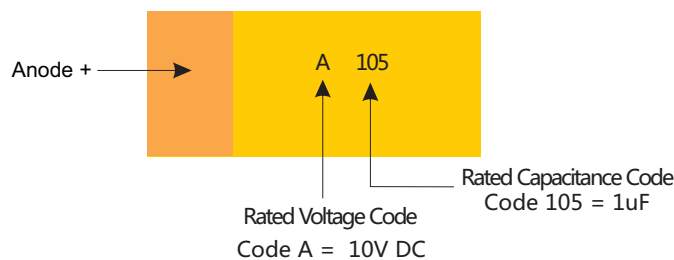
Operating Temperature Range: -55 °C ~ +125 °C; >85 °C(with rated voltage derating);  
 DC Leakage at 25 °C:  $I_o \leq 0.01C_R U_R$  or 0.5uA (Choose the greater one)  
 Capacitance Range: 1uF~1000uF  
 Voltage Range: 6.3V, 10V, 16V, 25V, 35V, 50V, 63V, 75V, 100V  
 Capacitance Tolerance: K: +/-10%; M: +/-20% (+/-20% tolerance is standard)  
 SPQ: A,B case: 2000pcs/reel; C,D case: 500pcs/reel; E case: 400pcs/reel  
 Low ESR parameter please refer to Table 3  
 How to order, please refer to Part Number System



### ◆ Table 1 Dimensions (Unit: mm)

Case Size		L±0.2	W <sub>1</sub> ±0.2	H±0.4	S±0.2	W <sub>2</sub> ±0.2
P	2012	2.00	1.25	1.20	0.50	0.90
A	3216	3.20	1.60	1.60	0.80	1.20
B	3528	3.50	2.80	1.90	0.80	2.20
C	6032	6.00	3.20	2.50	1.30	2.20
D	7343	7.30	4.30	2.80	1.30	2.40
E	7343	7.30	4.30	4.10	1.30	2.40

### ◆ Marking on Chip Tantalum Capacitor Body



Voltage Code Table for Chip Tantalum Capacitors

Voltage Code	G	J	A	C	D	E	V	H	T
Rated Voltage	4V	6.3V	10V	16V	20V	25V	35V	40V	50V

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◆Table 2 Temperature Characteristics

Max					
t gδ(%)				DCL (μA)	
-55°C	25°C	85°C	125°C	85°C	125°C
6	4	6		8 I <sub>0</sub>	10 I <sub>0</sub>
8	6	8			
10	8	10			
12	10	12			
14	12	14			
18	16	18			

◆Table 3 Electrical Characteristics

Nominal Capacitance uF	Case Code	Max DCL at +25°C μA	Max DF(100Hz) at +25°C	Max ESR ( 100 kHz ) +25°C Ω	Ripple Current ( A ) 100KHz Max		
					+25°C	+85°C	+125°C
Rated Voltage 4V, Category Voltage 2.7V							
68	C	2.7	6.0	0.2	0.307	0.277	0.123
100	C	4.0	8.0	0.2	0.307	0.277	0.123
150	C	6.0	8.0	0.2	0.307	0.277	0.123
220	D	8.8	10.0	0.1	0.396	0.357	0.159
330	D	13	10.0	0.1	0.396	0.357	0.159
470	D	19	12.0	0.1	0.396	0.357	0.159
680	E	27	16.0	0.1	1.535	1.381	0.614
1000	E	40	16.0	0.07	1.535	1.381	0.614
Rated Voltage 6.3V, Category Voltage 4V							
15	C	0.9	6.0	0.4	0.926	0.833	0.370
22	C	1.4	6.0	0.35	0.926	0.833	0.370
33	C	2.0	6.0	0.3	0.926	0.833	0.370
47	C	2.9	6.0	0.2	0.926	0.833	0.370
68	C	4.1	6.0	0.2	0.926	0.833	0.370
68	D	4.1	8.0	0.175	0.926	0.833	0.370
100	B	6.3	10.0	0.4	0.433	0.26	0.173
100	C	6.0	8.0	0.2 / 0.15	0.856	0.770	0.342
100	D	6.0	8.0	0.15	0.913	0.822	0.365
150	C	9.0	8.0	0.2	0.742	0.668	0.297
150	D	9.0	8.0	0.15	0.742	0.668	0.297
220	D	13.2	10.0	0.1	1.225	1.102	0.490
330	D	19.8	10.0	0.4	1.225	1.102	0.490
330	E	19.8	10.0	0.1	1.285	1.156	0.514
470	D	28.2	12.0	0.1	1.095	0.986	0.438
470	E	28.2	12.0	0.1	1.095	0.986	0.438
680	E	40.8	12.0	0.1	1.593	1.434	0.637
1000	E	60.0	16.0	0.1	1.816	1.634	0.726
1000	V	63	15.0	0.1	1.225	0.735	0.490

## CA45U Low ESR Chip Tantalum Capacitors (SMD Tantalum Capacitors)

◆Table 3 Electrical Characteristics

Nominal Capacitance uF	Case Code	Max DCL at +25°C $\mu$ A	Max DF(100Hz) at +25°C	Max ESR ( 100 kHz ) +25°C $\Omega$	Ripple Current ( A ) 100KHz Max		
					+25°C	+85°C	+125°C
Rated Voltage 10V, Category Voltage 6.3V							
10.0	C	1.5	6.0	0.5	0.565	0.508	0.226
15.0	C	1.5	6.0	0.4	0.565	0.508	0.226
22.0	C	2.2	6.0	0.345	0.565	0.508	0.226
33.0	C	3.3	6.0	0.3	0.565	0.508	0.226
47.0	D	4.7	6.0	0.2	0.866	0.780	0.346
68.0	D	6.0	6.0	0.15	1.000	0.900	0.400
100	D	10	8.0	0.1	1.200	1.100	0.490
150	D	8.0	8.0	0.1	1.225	1.102	0.490
220	D	22	10.0	0.125	1.095	0.986	0.438
330	E	33	12.0	0.8	1.095	0.986	0.438
470	E	47	12.0	0.1	1.285	1.162	0.51
470	E	47	12.0	0.15	1.049	0.949	0.416
Rated Voltage 16V, Category Voltage 10V							
6.8	C	1.1	6.0	0.5	0.132	0.119	0.053
10.0	C	1.6	6.0	0.5	0.132	0.119	0.053
15.0	C	2.4	6.0	0.4	0.632	0.569	0.253
22.0	D	3.6	6.0	0.25	0.632	0.569	0.253
33.0	C	5.3	6.0	0.3	0.632	0.569	0.253
33.0	D	5.3	6.0	0.2	0.816	0.735	0.327
47.0	D	7.5	6.0	0.2	1.000	0.900	0.400
68.0	C	10.9	8.0	0.5	0.300	0.180	0.120
68.0	D	10.9	6.0	0.15	1.000	0.900	0.400
100	E	16.0	6.0	0.125	1.095	0.986	0.438
100	D	16.0	6.0	0.1	1.285	1.156	0.514
150	E	24.0	6.0	0.1	1.285	1.156	0.514
220	E	35.0	10.0	0.2	1.285	1.156	0.514
Rated Voltage 20V, Category Voltage 13V							
4.7	C	2.3	6.0	0.6	0.738	0.665	0.295
6.8	C	3.4	6.0	0.5	0.738	0.665	0.295
10	C	5.0	6.0	0.45	0.738	0.665	0.295
15	D	7.5	6.0	0.275	0.738	0.665	0.295
22	D	11.0	6.0	0.275	0.816	0.735	0.326
33.0	D	5.3	6.0	0.2	0.866	0.780	0.346
47.0	D	7.5	6.0	0.175	0.926	0.833	0.370
47.0	E	7.5	6.0	0.15	1.049	0.944	0.420
68.0	D	10.9	6.0	0.15	1.000	0.900	0.400
68.0	E	10.9	1.0	0.15	1.049	0.944	0.420
100	E	16.0	8.0	0.12	1.049	0.944	0.420
150	E	24	8.0	0.12	1.049	0.944	0.420

◆Table 3 Electrical Characteristics

Nominal Capacitance uF	Case Code	Max DCL at +25°C μA	Max DF(100Hz) at +25°C	Max ESR ( 100 kHz ) +25°C Ω	Ripple Current ( A ) 100KHz Max		
					+25°C	+85°C	+125°C
Rated Voltage 25V, Category Voltage 16V							
4.7	C	2.3	6.0	0.6	0.469	0.422	0.188
6.8	C	3.4	6.0	0.5	0.469	0.422	0.188
10	C	5.0	6.0	0.45	0.494	0.445	0.198
15	D	7.5	6.0	0.3	0.738	0.665	0.295
22	D	11.0	6.0	0.3	0.866	0.780	0.346
33.0	D	5.3	6.0	0.3	0.707	0.636	0.283
47.0	D	7.5	6.0	0.25	0.908	0.817	0.363
68.0	E	10.9	6.0	0.2	0.908	0.817	0.363
100	E	16.0	8.0	0.1	0.908	0.817	0.363
Rated Voltage 35V, Category Voltage 20V							
4.7	C	2.3	6.0	0.6	0.428	0.385	0.171
6.8	D	3.4	6.0	0.4	0.612	0.551	0.245
10	D	5.0	6.0	0.4	0.707	0.636	0.283
15	D	7.5	6.0	0.3	0.856	0.771	0.343
22	E	11.0	6.0	0.3	0.775	0.697	0.410
22	D	11.0	6.0	0.3	0.707	0.636	0.283
33.0	C	5.3	6.0	0.25	0.812	0.731	0.325
47.0	D	7.5	6.0	0.3	0.742	0.667	0.297
Rated Voltage 50V, Category Voltage 32V							
2.2	C	1.1	6.0	0.5	0.742	0.667	0.297
2.2	D	1.6	6.0	0.8	0.742	0.667	0.297
3.3	D	1.6	6.0	0.6	0.742	0.667	0.297
4.7	D	2.3	6.0	0.3	0.742	0.667	0.297
6.8	D	3.4	6.0	0.3	0.700	0.600	0.300
10	E	5.0	6.0	0.3	0.742	0.667	0.297
15	E	7.5	6.0	0.3	0.742	0.667	0.297
Rated Voltage 63V, Category Voltage 40V							
1.0	C	0.7	6.0	2.0	0.742	0.667	0.297
1,5	D	0.7	6.0	1.5	0.742	0.667	0.297
2.2	D	0.7	6.0	0.8	0.742	0.667	0.297
3.3	D	1.6	6.0	0.6	0.742	0.667	0.297
4.7	E	2.3	6.0	0.6	0.742	0.667	0.297
6.8	E	3.4	6.0	0.5	0.700	0.600	0.300
10	E	6.3	6.0	0.4	0.742	0.667	0.297

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◆ **Table 3 Electrical Characteristics**

Nominal Capacitance uF	Case Code	Max DCL at +25°C $\mu$ A	Max DF(100Hz) at +25°C	Max ESR ( 100 kHz ) +25°C $\Omega$	Ripple Current ( A ) 100KHz Max		
					+25°C	+85°C	+125°C
Rated Voltage 75V, Category Voltage 50V							
1.0	D	0.7	6.0	2.0	0.742	0.667	0.297
1.5	D	0.7	6.0	1.5	0.742	0.667	0.297
3.3	E	1.6	6.0	0.8	0.742	0.667	0.297
4.7	E	2.3	6.0	0.6	0.742	0.667	0.297
6.8	E	3.4	6.0	0.6	0.700	0.600	0.300
Rated Voltage 100V, Category Voltage 63V							
1.5	D	1.5	6.0	2.0	0.742	0.667	0.297
2.2	E	2.2	6.0	1.5	0.742	0.667	0.297
3.3	E	3.3	6.0	0.8	0.742	0.667	0.297

### Important Note

1. Please do not use multimeter to test tantalum capacitors.
2. Capacitance and DF measured at :100Hz ,  $U_{-} = 2.2^{-.10}V$  ,  $U_{\sim} = 1.0^{-.05}V$  ,  
Frequency = 100Hz. Test only applied to series equivalent circuit.
3. Please refer to derating voltage or category voltage if temperature > 85°C
4. The DCL parameter should be read after 5 minutes when it connected to the circuit.
5. For special requirement please consult to our sales.

### ◆ How to order

<u>CA45U</u>	<u>T</u>	<u>107</u>	<u>K</u>	<u>0006</u>	<u>000B</u>	<u>R</u>	<u>401</u>
<u>Type</u>	<u>Material Code</u>	<u>Capacitance Code</u>	<u>Tolerance</u>	<u>For DC Voltage</u>	<u>Size Code</u>	<u>Package Code</u>	<u>Suffix Indicate Low ESR</u>
CA45U	<b>T: Tantalum Cap</b> For CA45U	pF Code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) 106 = 10uF 105 = 1uF	K: +/-10% M: +/-20%	0006: 6.3VDC 0010: 10VDC 0035: 35VDC 0050: 50VDC 0100: 100VDC	000A: A case 000B: B case 000C: C case 000D: D case 000E: E case	<b>R: Tape &amp; Reel</b>	<b>Low ESR code in m<math>\Omega</math></b> 151: mean 150m $\Omega$ (0.15 $\Omega$ ) 202: mean 2000m $\Omega$ (2 $\Omega$ ) 750: mean 75m $\Omega$ (0.075 $\Omega$ )