

# CB Series Tantalum Capacitor



RoHS  
Compliant



## Features:

- Lead-Free
- Specially designed of general purpose
- Highly reliable resin dipped type
- Excellent frequency and temperature characteristics
- Non-flammable epoxy resin

## Technical Specifications:

Item	Performance Characteristics				
Operating Temperature Range	-55°C to +125°C (>85°C with rated voltage derating)				
Rated Working Voltage Range	6.3V DC to 50V DC				
Nominal Capacitance Range	0.1µF to 220µF				
Capacitance Tolerance	± 20%				
Leakage Current	Not more than 0.01 C <sub>R</sub> V <sub>R</sub> or 0.5µA whichever is greater				
Dissipation Factor	Capacitance	≤1µF	1.5 to 6.8 µF	10 to 68 µF	≥100 µF
	Max. tan δ	0.04	0.06	0.08	0.1

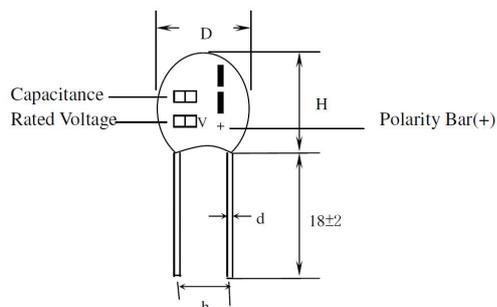
## Temperature Characteristics:

Cap. (µF)	Change in Cap. (%)			DF Max. (%)				DCL max. (µA)		
	-55°C	+85°C	+125°C	-55°C	+20°C	+85°C	+125°C	+20°C	+85°C	+125°C
≤1	±10	±15	±25	6	4	6	6	I <sub>o</sub> =0.01C <sub>R</sub> V <sub>R</sub> 0.5µA (whichever is greater)	10I <sub>o</sub>	12.5I <sub>o</sub>
1.5 ~ 6.8				8	6	8	8			
10 ~ 68				10	8	10	10			
100 ~ 680				12	10	12	12			

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## Appearance & Dimensions:



Case Size	D Max.	H Max.	h(±0.5mm)	d(±0.05mm)
A	4.5	7	2.5	0.5
B	5	8		
C	5.5	9.5		
D	6.5	11	5	
E	8.5	13		
F	9.5	16.5		

Dimensions : Millimetres

## The Range of the Capacitance and Case:

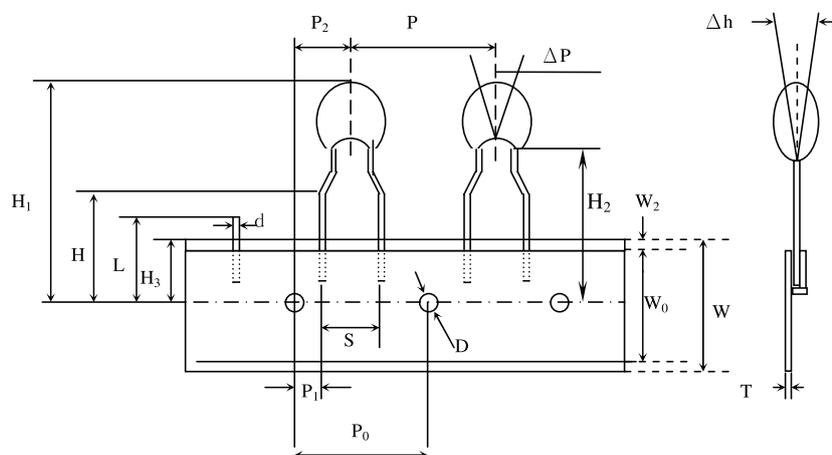
Capacitance µF	Rated voltage								
	3V	4V	6.3V	10V	16V	20V	25V	35V	50V
0.1								A	A
0.15								A	A
0.22								A	A
0.33								A	A
0.47								A	A
0.68								A	A
1.0					A	A	A	A	B
1.5					A	A	A	A	C
2.2				A	A	A	A	B	C
3.3			A	A	A	B	B	B	D
4.7	A	A	A	A	B	B	B	C	D
6.8	A	A	A	B	B	C	C	D	E
10	A	A	B	B	B	C	C	D	E
15	A	A	B	C	C	D	D	E	F
22	B	B	C	C	C	D	D	E	F
33	B	B	C	D	D	E	E	F	
47	C	C	D	D	D	E	E	F	
68	D	D	D	D	E	F	F		
100	D	D	E	E	E	F	F		
150	D	E	E	E	F				
220	E	E	E	F					



# CB Series Tantalum Capacitor



## Taping Dimension:



Symbol	Dimension (mm)	
P	12.7 ±1	
P <sub>0</sub>	12.7 ±0.3	
W	18 <sup>+1</sup> <sub>-0.5</sub>	
W <sub>0</sub>	12 ±0.5	
H <sub>3</sub>	9 <sup>+0.75</sup> <sub>-0.5</sub>	
W <sub>2</sub>	3 max.	
H <sub>1</sub>	32.5 max	
ΔP	±1.3 max	
D	4 ±0.3	
T	0.5 ±0.2	
Δh	±2 max	
L	11 max	
H	16 ±0.5	
S	2.5 ±0.5	5 ±0.5
P <sub>1</sub>	5.1 ±0.5	3.85 ±0.7
P <sub>2</sub>	6.35 ±0.4	
H <sub>2</sub>	18-22	
d	0.5 ±0.05	

# CB Series Tantalum Capacitor



## The Method of Mounting

Recommend the method of mounting: the capacitor directly insets PCB when it is used. The body and the lead are steadied in the application of the vibration and shock tests, the distance between the body and the mounting point shall be  $6\pm 1\text{mm}$ .

Recommended Soldering condition : resin-coated tantalum capacitor(RoHS) generally uses wave soldering.

Pre-Heating :  $150^{\circ}\text{C} \pm 15^{\circ}\text{C} / 60\text{-}90\text{s}$

Max. peak gradient :  $2.5^{\circ}\text{C/s}$

The peak temperature is  $250^{\circ}\text{C}$  to  $260^{\circ}\text{C}$  for 3-5s

Time at  $>230^{\circ}\text{C}$  : 40s Max.

## Note in use

For circuits with low resistance circuit, make the use voltage be 1/3 or under of the rated voltage; in general circuit, make the use voltage be 1/2 or under of the rated voltage.

In case of circuits with large instantaneous rush current or rapid charging/discharging circuits, connect the protection resistor of  $3\Omega / \text{V}$  or more in series to the capacitor to limit the current to 300mA or less. when the protection resistor can not be inserted, lower the use voltage to 1/3 or under of the rated voltage.

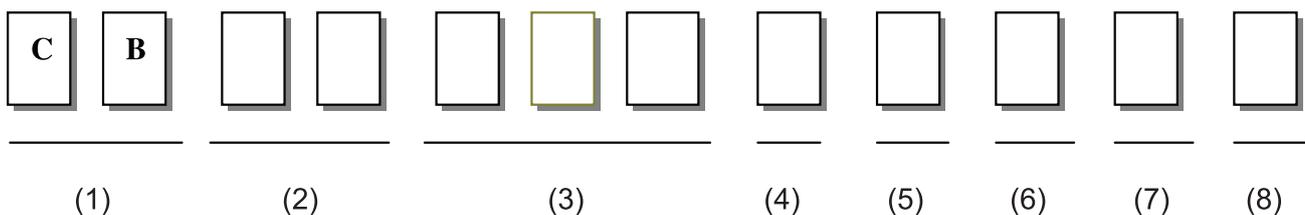
Use the capacitors within the permissible ripple voltage specified independently. Use in the range that the sum of the DC voltage value and the peak value of ripple voltage does not exceed the rated voltage. Design not to apply over voltage made by fluctuation of superimposed DC voltage or reverse voltage to the capacitors.

Use the capacitors within the specified use temperature range. In case use temperature exceeds  $+85^{\circ}\text{C}$ , apply the reduced voltage shown in the below figure as the rated voltage.

Environmental conditions

- Do not use the equipment fit with the capacitor in the below environment.
- Environment where capacitors are directly splashed with water, salt water and oil
- Environment where capacitors are directly exposed to sunlight
- Environment in high temperature and humidity causing dewing on capacitor surface
- Environment where capacitors touch various active gases
- Acid and alkaline atmosphere
- Environment with high frequency induction
- Environment with excessive vibration and shock

## Taping Dimension:



1. CB represents series number of epoxy-coated solid electrolytic tantalum capacitors.
2. Rated DC voltage Code is expressed in two digits.

Rated Voltage	6.3V	10V	16V	25V	35V	50V
Code	0J	1A	1C	1E	1V	1H

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3. Capacitance code: Expressed in Pico farad, 1st two digits represent significant figures and 3rd digit represents multiplier (number of zeros to follow).

4. Capacitance tolerance code is listed as follows:

Allowable Tolerance	Tolerance Code
±20	M

5. Lead Space:

Lead Space	Symbol
2.54m/m ±0.5	1
5.08m/m ±0.5	2

6. Case Code is specified in Appearance & Dimensions in Page 2

7. Wire Length: Wire Length (L) code is listed as follows

Wire Length (L)	(+)20(-)18 ±1m/m
Code	C

Pack Style	Packing Code: B	Bulk T	Ammo
CB	Δ C/C±20%	35V10μF	CB1V106M1DCB

## Part Number Table

Description	Part Number
Capacitor, 4.7μF, 6.3V	CB0J475M2ACB
Capacitor, 6.8μF, 6.3V	CB0J685M2ACB
Capacitor, 15μF, 6.3V	CB0J156M2BCB
Capacitor, 33μF, 6.3V	CB0J336M2CCB
Capacitor, 150μF, 6.3V	CB0J157M2ECB
Capacitor, 220μF, 6.3V	CB0J227M2ECB
Capacitor, 6.8μF, 10V	CB1A685M2BCB
Capacitor, 15μF, 10V	CB1A156M2CCB
Capacitor, 68μF, 10V	CB1A686M2DCB
Capacitor, 150μF, 10V	CB1A157M2ECB
Capacitor, 220μF, 10V	CB1A227M2FCB
Capacitor, 3.3μF, 16V	CB1C335M2ACB
Capacitor, 15μF, 16V	CB1C156M2CCB
Capacitor, 150μF, 16V	CB1C157M2FCB
Capacitor, 1.5μF, 25V	CB1E155M2ACB
Capacitor, 3.3μF, 25V	CB1E335M2BCB
Capacitor, 47μF, 25V	CB1E476M2ECB

Description	Part Number
Capacitor, 68μF, 25V	CB1E686M2FCB
Capacitor, 100μF, 25V	CB1E107M2FCB
Capacitor, 0.15μF, 35V	CB1V154M2ACB
Capacitor, 0.68μF, 35V	CB1V684M2ACB
Capacitor, 1.5μF, 35V	CB1V155M2ACB
Capacitor, 33μF, 35V	CB1V336M2FCB
Capacitor, 0.1μF, 50V	CB1H104M2ACB
Capacitor, 0.22μF, 50V	CB1H224N2ACB
Capacitor, 0.33μF, 50V	CB1H334M2ACB
Capacitor, 0.47μF, 50V	CB1H474M2ACB
Capacitor, 0.68μF, 50V	CB1H684M2ACB
Capacitor, 1μF, 50V	CB1H105M2BCB
Capacitor, 1.5μF, 50V	CB1H155M2CCB
Capacitor, 2.2μF, 50V	CB1H225M2CCB
Capacitor, 3.3μF, 50V	CB1H335M2DCB
Capacitor, 4.7μF, 50V	CB1H475M2DCB
Capacitor, 6.8μF, 50V	CB1H685M2ECB

# CB Series

## Tantalum Capacitor



Description	Part Number
Capacitor, 10 $\mu$ F, 50V	CB1H106M2ECB
Capacitor, 10 $\mu$ F, 6.3V	CB0J106M2BCB
Capacitor, 22 $\mu$ F, 6.3V	CB0J226M2CCB
Capacitor, 47 $\mu$ F, 6.3V	CB0J476M2DCB
Capacitor, 68 $\mu$ F, 6.3V	CB0J686M2DCB
Capacitor, 100 $\mu$ F, 6.3V	CB0J107M2ECB
Capacitor, 4.7 $\mu$ F, 10V	CB1A475M2ACB
Capacitor, 10 $\mu$ F, 10V	CB1A106M2BCB
Capacitor, 22 $\mu$ F, 10V	CB1A226M2CCB
Capacitor, 33 $\mu$ F, 10V	CB1A336M2DCB
Capacitor, 47 $\mu$ F, 10V	CB1A476M2DCB
Capacitor, 100 $\mu$ F, 10V	CB1A107M2ECB
Capacitor, 2.2 $\mu$ F, 16V	CB1C225M2ACB
Capacitor, 4.7 $\mu$ F, 16V	CB1C475M2BCB
Capacitor, 6.8 $\mu$ F, 16V	CB1C685M2BCB
Capacitor, 10 $\mu$ F, 16V	CB1C106M2BCB
Capacitor, 22 $\mu$ F, 16V	CB1C226M2CCB
Capacitor, 33 $\mu$ F, 16V	CB1C336M2DCB
Capacitor, 47 $\mu$ F, 16V	CB1C476M2DCB
Capacitor, 68 $\mu$ F, 16V	CB1C686M2ECB
Capacitor, 100 $\mu$ F, 16V	CB1C107M2ECB

Description	Part Number
Capacitor, 1 $\mu$ F, 25V	CB1E105M2ACB
Capacitor, 2.2 $\mu$ F, 25V	CB1E225M2ACB
Capacitor, 4.7 $\mu$ F, 25V	CB1E475M2BCB
Capacitor, 6.8 $\mu$ F, 25V	CB1E685M2CCB
Capacitor, 10 $\mu$ F, 25V	CB1E106M2CCB
Capacitor, 15 $\mu$ F, 25V	CB1E156M2DCB
Capacitor, 22 $\mu$ F, 25V	CB1E226M2DCB
Capacitor, 33 $\mu$ F, 25V	CB1E336M2ECB
Capacitor, 0.1 $\mu$ F, 35V	CB1V104M2ACB
Capacitor, 0.22 $\mu$ F, 35V	CB1V224M2ACB
Capacitor, 0.33 $\mu$ F, 35V	CB1V334M2ACB
Capacitor, 0.47 $\mu$ F, 35V	CB1V474M2ACB
Capacitor, 1 $\mu$ F, 35V	CB1V105M2ACB
Capacitor, 2.2 $\mu$ F, 35V	CB1V225M2BCB
Capacitor, 3.3 $\mu$ F, 35V	CB1V335M2BCB
Capacitor, 4.7 $\mu$ F, 35V	CB1V475M2CCB
Capacitor, 6.8 $\mu$ F, 35V	CB1V685M2DCB
Capacitor, 10 $\mu$ F, 35V	CB1V106M2DCB
Capacitor, 15 $\mu$ F, 35V	CB1V156M2ECB
Capacitor, 22 $\mu$ F, 35V	CB1V226M2ECB
Capacitor, 47 $\mu$ F, 35V	CB1V476M2FCB

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