

# CB Series Tantalum Capacitors



## Features:

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

## Specifications:

Item	Performance Characteristics				
Operating temperature range	-55 to +125°C (>85°C with rated voltage derating)				
Rated working voltage range	6.3 to 50V dc				
Nominal capacitance range	0.1 to 300μF				
Capacitance tolerance	±20% (±10% is available) (120Hz, +20°C)				
Leakage current	Not more than 0.008CV (μA) or 0.5μA whichever is greater				
Tan δ (120Hz, +20°C)	Working voltage	6.3 to 50V			
	Capacitance	≤1.0μF	1.5 to 6.8μF	10 to 68μF	≥100μF
	Maximum tan δ	0.04	0.06	0.08	0.1
Characteristics at high and low temperature	-55°C	Capacitance change	±12% of initial measured value at +20°C		
	+105°C	Leakage current	≤10% of initial measured value		
		Capacitance change	±12% of initial measured value at +20°C		
Moisture resistance	<b>Test conditions</b> Relative humidity : 90 to 95% without load Ambient temperature : +40°C Duration : 500 hours Post test requirements at +20°C Leakage current : ≤0.012CV or 0.75 (μF), whichever is greater Capacitance change : ±10% of initial measured value Tan δ : ≤150% of initial specified value				

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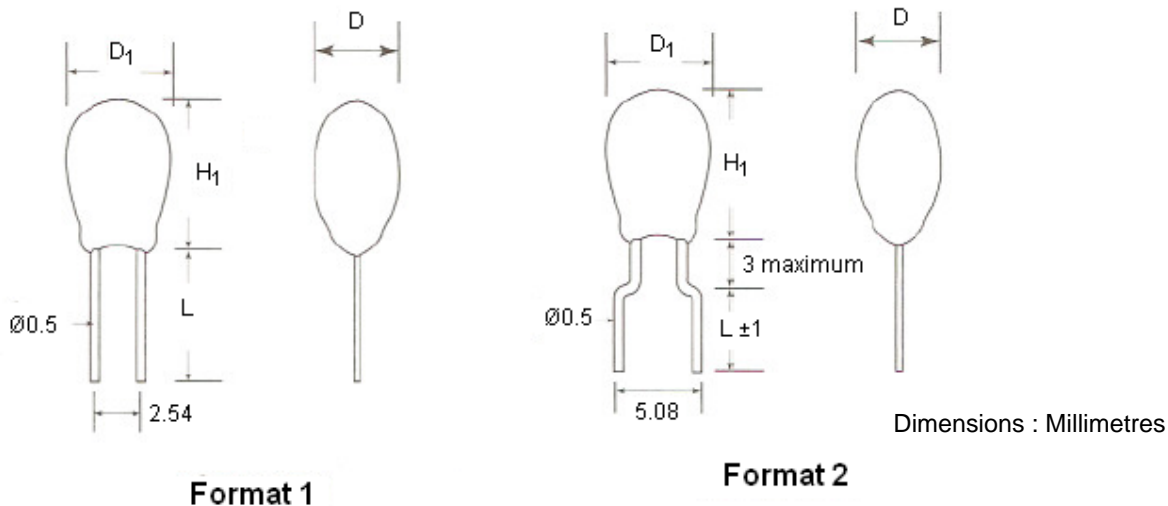


## Specifications:

Item	Performance Characteristics					
Endurance	Test conditions					
		Conditions	Derating (for 10 to 50V only)		Rating	
	Item					
	Duration		1000 hours		1000 hours	
	Ambient temperature		+105°C		+85°C	
	Applied voltage		Derated working voltage		Rated working voltage	
	Source impedance		1Ω/V		1Ω/V	
	Derating voltage +105°C for 10 to 50V working					
	Working Voltage (V dc)	10	16	25	35	50
	Derating Voltage (V dc)	6.3	10	16	23	33
Post test requirements at +20°C						
Leakage current : ≤0.01% CV or 00625 (μA), whichever is greater						
Capacitance change : ±10% of initial measured value						
Tan δ : ≤Initial specified value						
Shelf life	<b>Test Conditions</b>					
	Duration : 1000 hours					
	Ambient temperature : +85°C					
	Applied voltage : (none)					
	Post test requirements at +20°C Same limits for "Endurance"					

## Tantalum electrolytic capacitors resin dipped type

Tantalum capacitor dipped type outline drawings



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## Dimensions Table

Case Size (Maximum)	A	B	C	D	E	F
Formats 1/2 H <sub>1</sub>	7.0	8.0	9.5	11.0	13.0	16.5
D <sub>1</sub>	4.5	5.0	5.5	6.5	8.5	9.5
D	4.2	4.7				

Wire Length (L)	5,7 ±1	12, 14 ±1	18, 20 ±1
Code	A	B	C

Dimensions in Millimetres

## Rated Voltage, Capacitance of Capacitors

VR (V)	6.3	10	16	25	35	50
Code	0J	1A	1C	1E	1V	1H
Capacitance (µF)	Case Size					
0.10 (104)	-	-	-	-	A	A
0.15 (154)	-	-	-	-	-	-
0.22 (224)	-	-	-	-	-	-
0.33 (334)	-	-	-	-	-	-
0.47 (474)	-	-	-	-	-	-
0.68 (684)	-	-	-	-	-	-
1.0 (105)	-	-	-	A	-	B
1.5 (155)	-	-	A		-	C
2.2 (225)	-	A		A	B	D
3.3 (335)	A		A		B	
4.7 (475)		A		A	C	E
6.8 (685)	B		B		C	
10 (106)		B	B	C	D	E
15 (156)	B		C	C	D	F
22 (226)		C	C	C	D	E

# CB Series

## Tantalum Capacitors



### Rated voltage, capacitance of capacitors

VR (V)	6.3	10	16	25	35	50
Code	0J	1A	1C	1E	1V	1H
Capacitance (µF)	Case Size					
33 (336)	C	D	D	E	F	-
47 (476)	D		E	F	-	-
68 (686)		E			E	F
100 (107)	F		-	-	-	
150 (157)	-		-	-	-	
220 (227)	F	-	-	-	-	

### Ratings

Case Size	Capacitance µF	DCL (µA) Maximum	DF % Maximum	ESR Maximum (Ω) at 100kHz	Part Number
<b>6.3 Volt at 85°C (4 Volt, at 125°C)</b>					
A	4.7	0.5	6	10.0	CB0J475##A##
	6.8			8.0	CB0J685##A##
B	10	0.8	8	6.0	CB0J106##B##
	15			5.0	CB0J156##B##
C	22	1.1	8	3.7	CB0J226##C##
	33	1.7		3.0	CB0J336##C##
D	47	2.4	8	2.0	CB0J476##D##
	68	3.4		1.8	CB0J686##D##
E	100	5.0	10	1.6	CB0J107##E##
	150	7.6		0.9	CB0J157##E##
	220	11.0		0.9	CB0J227##E##
<b>10 Volt at 85°C (6.3 Volt, at 125°C)</b>					
A	4.7	0.5	6	8.0	CB1A475##A##
B	6.8			6.0	CB1A685##B##
	10	0.8	8	5.0	CB1A106##B##
C	15	1.2		3.7	CB1A156##C##
	22	1.7	2.7	CB1A226##C##	

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## Tantalum Capacitors



### Ratings

Case Size	Capacitance $\mu\text{F}$	DCL ( $\mu\text{A}$ ) Maximum	DF % Maximum	ESR Maximum ( $\Omega$ ) at 100kHz	Part Number
<b>10 Volt at 85°C (6.3 Volt, at 125°C)</b>					
D	33	2.6	8	2.1	CB1A336##D##
	47	3.7		1.7	CB1A476##D##
	68	5.4		1.3	CB1A686##D##
E	100	8.0	10	1.0	CB1A107##E##
E	150	12.0		0.8	CB1A157##E##
F	220	17.6		0.8	CB1A227##F##
<b>16 Volt at 85°C (10 Volt, at 125°C)</b>					
A	2.2	0.5	6	8.0	CB1C225##A##
	3.3			6.0	CB1C335##A##
B	4.7	0.6	8	5.0	CB1C475##B##
	6.8	0.8		4.0	CB1C685##B##
	10	1.2		3.2	CB1C106##B##
C	15	1.9	8	2.5	CB1C156##C##
	22	2.8		2.0	CB1C226##C##
D	33	4.2	8	1.6	CB1C336##D##
	47	6.0		1.3	CB1C476##D##
E	68	8.7	10	1.0	CB1C686##E##
	100	12.8		0.8	CB1C107##E##
F	150	19.2	10	0.6	CB1C157##F##
<b>25 Volt at 85°C (16 Volt, at 125°C)</b>					
A	1.0	0.5	4	10.0	CB1E105##A##
	1.5			8.0	CB1E155##A##
	2.2			6.0	CB1E225##A##
B	3.3	0.6	6	5.0	CB1E335##B##
	4.7	0.9		4.0	CB1E475##B##
C	6.8	1.3	8	3.1	CB1E685##C##
	10	2.0		2.5	CB1E106##C##
D	15	3.0	8	2.0	CB1E156##D##
	22	4.4		1.5	CB1E226##D##
E	33	6.6	8	1.2	CB1E336##E##
	47	9.4		1.0	CB1E476##E##
F	68	13.6	10	0.8	CB1E686##F##
	100	20		0.8	CB1E107##F##

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# CB Series Tantalum Capacitors



## Ratings

Case Size	Capacitance $\mu\text{F}$	DCL ( $\mu\text{A}$ ) Maximum	DF % Maximum	ESR Maximum ( $\Omega$ ) at 100kHz	Part Number
<b>35 Volt at 85°C (23 Volt, at 125°C)</b>					
A	0.1	0.5	4	26.0	CB1V104##A##
	0.15			21.0	CB1V154##A##
	0.22			17.0	CB1V224##A##
	0.33			15.0	CB1V334##A##
	0.47			13.0	CB1V474##A##
	0.68			10.0	CB1V684##A##
	1.0			8.0	CB1V105##A##
	1.5			6.0	CB1V155##A##
B	2.2	0.6	6	5.0	CB1V225##B##
	3.3	0.9		4.0	CB1V335##B##
C	4.7	1.3		3.0	CB1V475##C##
D	6.8	1.9		2.5	CB1V685##D##
	10	2.8	8	2.0	CB1V106##D##
E	15	4.2		1.6	CB1V156##E##
	22	6.1		1.3	CB1V226##E##
F	33	9.2		1.0	CB1V336##F##
	47	10.0	0.8	CB1V476##F##	
<b>50 Volt at 85°C (33 Volt, at 125°C)</b>					
A	0.1	0.5	4	26.0	CB1H104##A##
	0.22			17.0	CB1H224##A##
	0.33			15.0	CB1H334##A##
	0.47			13.0	CB1H474##A##
	0.68			10.0	CB1H684##A##
B	1.0	6	8.0	CB1H105##B##	
C	1.5		0.6	6.0	CB1H155##C##
	2.2	0.8	3.5	CB1H225##C##	
D	3.3	1.3	6	3.0	CB1H335##D##
	4.7	1.8		2.5	CB1H475##D##
E	6.8	2.7	8	2.0	CB1H685##E##
	10	4.0		1.6	CB1H106##E##

**Note:** All # # A # # to ambient temperature of +20°C measured at 120Hz, 0.5V rms unless otherwise stated

- insert capacitance tolerance : K for  $\pm 10\%$  and M for  $\pm 20\%$
- insert format 1 for pitch 2.54mm; format 2. for pitch 5.08mm
- insert wire length see page 8.
- insert bulk : Code B or Ammo pack : Code T.

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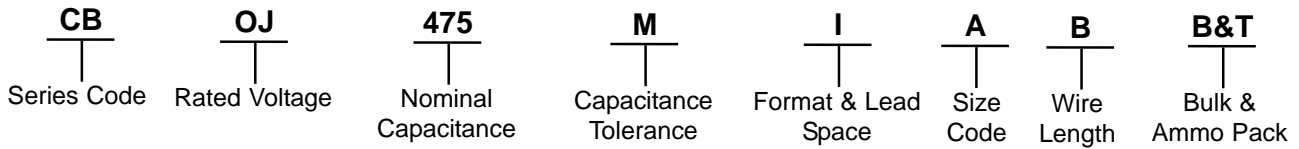


# CB Series

# Tantalum Capacitors



## Packaging of bead tantalum capacitors explanation of part numbers



Quantity per bag: Code B.  
The capacity of the plastic bags depends on.

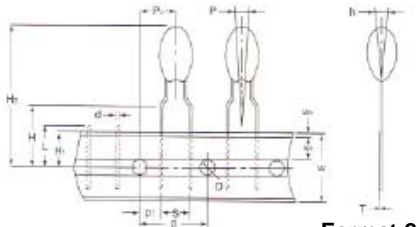
Case Size Format (1)	Qty per bag (cut ≤ 7mm)
Form A to B	1000
Form C to D	1000
Form E to F	500

Case Size Format (1)	Qty per bag (cut ≤ 14mm)
Form A to B	1000
Form C to D	1000
Form E to F	500

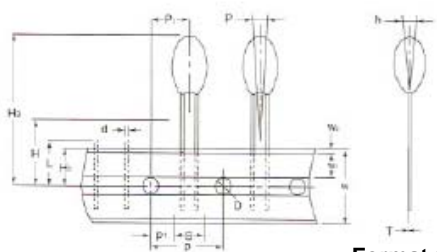
Case Size Format (2)	Qty per bag (cut ≤ 7mm)
Form A to B	1000
Form C to D	1000
Form E to F	500

## Tape and Ammo Packing (conform to: IEC286-2) Code T.

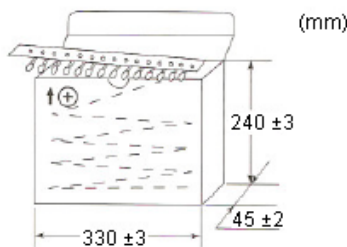
Tape and ammo packing (conform to: IEC286-2)



Format 2



Format 1



Item	Code	Dimension (mm)
Carrier tape width	W	18.0 <sup>+1.0</sup> <sub>-0.5</sub>
Hold down tape width	W <sub>1</sub>	6.0 ± 0.5
Hold down tape position	W <sub>2</sub>	1.0 maximum
Feed hole diameter	D	4.0 ± 0.2
Feed hole pitch	P	12.7 ± 0.3
Hole centre to lead	P <sub>1</sub>	Format 1: 5.05 ± 0.7
		Format 2: 3.85 ± 0.7
Hole centre to component centre	P	6.35 ± 1.0
Lead wire clench height	H	16 ± 0.5
Hole position	H <sub>1</sub>	9.0 ± 0.5
Base of component height	H <sub>2</sub>	.08 minimum
Component height	H <sub>3</sub>	32.2 maximum
Component alignment	ΔP	0 ± 1.3
	Δh	0 ± 2.0
Lead spacing	S	'S' wires: 2.5 <sup>+0.6</sup> <sub>-0.1</sub>
		'B' wires: 5.0 <sup>+0.6</sup> <sub>-0.5</sub>
Lead diameter	d	0.5 ± 0.05
Length of snipped lead	L	11.0 maximum
Carrier tape thickness	T	0.5 ± 0.1

Case Code	A to B	C to D	E to F
Qty. (PCS/box)	2500	2000	1000

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