

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
	Maximum tan δ	0.04	0.06	0.08
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	Test conditions 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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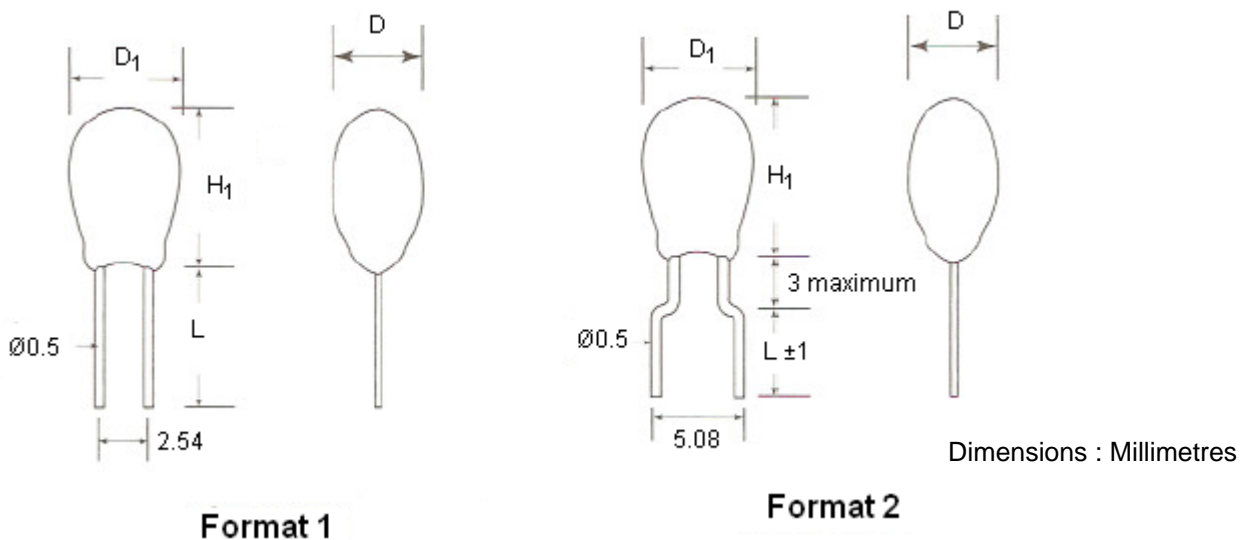


Specifications:

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	Test Conditions					
	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 ₁	7.0	8.0	9.5	11.0	13.0	16.5
D ₁	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	
3.3 (335)	A		A	B	C	
4.7 (475)		B		B	C	D
6.8 (685)	B		B		C	D
10 (106)	B	C	C	D	E	F
15 (156)						
22 (226)	C	C	C	D	E	F

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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	
6.3 Volt at 85°C (4 Volt, at 125°C)						
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			3.7	CB0J226##C##
	33		3.0		CB0J336##C##	
D	47	2.4	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##	
10 Volt at 85°C (6.3 Volt, at 125°C)						
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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Ratings

Case Size	Capacitance μF	DCL (μA) Maximum	DF % Maximum	ESR Maximum (Ω) at 100kHz	Part Number
10 Volt at 85°C (6.3 Volt, at 125°C)					
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##
16 Volt at 85°C (10 Volt, at 125°C)					
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	10	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##
25 Volt at 85°C (16 Volt, at 125°C)					
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	10	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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Ratings

Case Size	Capacitance μF	DCL (μA) Maximum	DF % Maximum	ESR Maximum (Ω) at 100kHz	Part Number	
35 Volt at 85°C (23 Volt, at 125°C)						
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		2.0	CB1V106##D##	
E	15	4.2		8	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##	
50 Volt at 85°C (33 Volt, at 125°C)						
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	0.6	8.0	CB1H105##B##		
C	1.5		6.0	CB1H155##C##		
	2.2	0.8	6	3.5	CB1H225##C##	
D	3.3	1.3		3.0	CB1H335##D##	
	4.7	1.8		2.5	CB1H475##D##	
E	6.8	2.7		2.0	CB1H685##E##	
	10	4.0		8	1.6	CB1H106##E##

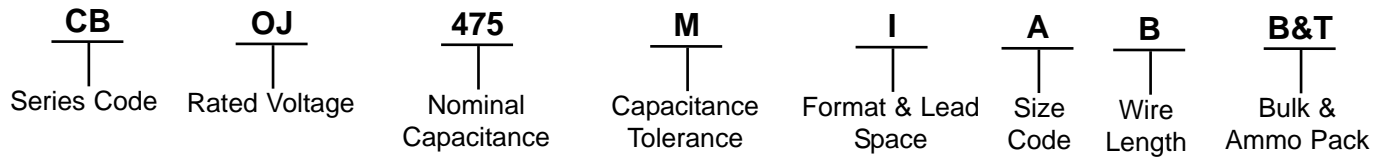
Note: All ##A## to ambient temperature of +20°C measured at 120Hz, 0.5V rms unless otherwise stated

- 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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Packaging of bead tantalum capacitors explanation of part numbers



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

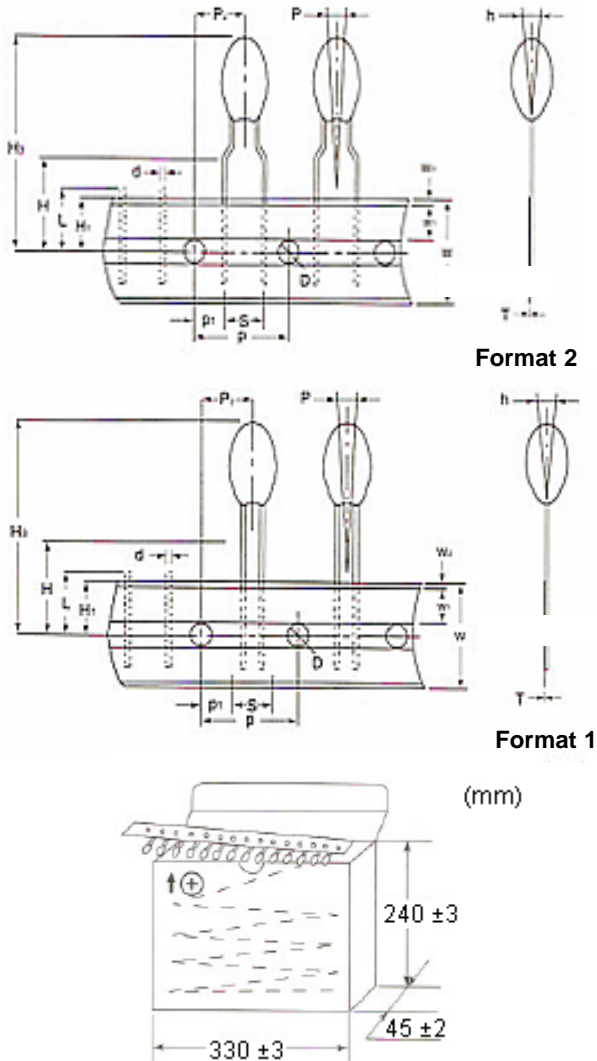
Case Size Format (1)	Qty per bag (cut ≤ 7mm)
Form A to B	1000
Form C to D	1000
Form E to F	500

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

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

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

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



Item	Code	Dimension (mm)
Carrier tape width	W	18.0 ^{+1.0} _{-0.5}
Hold down tape width	W ₁	6.0 ±0.5
Hold down tape position	W ₂	1.0 maximum
Feed hole diameter	D	4.0 ±0.2
Feed hole pitch	P	12.7 ±0.3
Hole centre to lead	P ₁	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 ₁	9.0 ±0.5
Base of component height	H ₂	.8 minimum
Component height	H ₃	32.2 maximum
Component alignment	ΔP	0 ±1.3
	Δh	0 ±2.0
Lead spacing	S	'S'wires: 2.5 ^{+0.6} _{-0.1}
		'B'wires: 5.0 ^{+0.6} _{-0.5}
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

<http://www.farnell.com>
<http://www.newark.com>
<http://www.cpc.co.uk>



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Part Number Table

Description	Part Number
CAPACITOR, 4.7 μ F, 6.3V	CB0J475M2ACB
CAPACITOR, 6.8 μ F, 6.3V	CB0J685M2ACB
CAPACITOR, 10 μ F, 6.3V	CB0J106M2BCB
CAPACITOR, 15 μ F, 6.3V	CB0J156M2BCB
CAPACITOR, 22 μ F, 6.3V	CB0J226M2CCB
CAPACITOR, 33 μ F, 6.3V	CB0J336M2CCB
CAPACITOR, 47 μ F, 6.3V	CB0J476M2DCB
CAPACITOR, 68 μ F, 6.3V	CB0J686M2DCB
CAPACITOR, 100 μ F, 6.3V	CB0J107M2ECB
CAPACITOR, 150 μ F, 6.3V	CB0J157M2ECB
CAPACITOR, 220 μ F, 6.3V	CB0J227M2ECB
CAPACITOR, 4.7 μ F, 10V	CB1A475M2ACB
CAPACITOR, 6.8 μ F, 10V	CB1A685M2BCB
CAPACITOR, 10 μ F, 10V	CB1A106M2BCB
CAPACITOR, 15 μ F, 10V	CB1A156M2CCB
CAPACITOR, 22 μ F, 10V	CB1A226M2CCB
CAPACITOR, 33 μ F, 10V	CB1A336M2DCB
CAPACITOR, 47 μ F, 10V	CB1A476M2DCB
CAPACITOR, 68 μ F, 10V	CB1A686M2DCB
CAPACITOR, 100 μ F, 10V	CB1A107M2ECB
CAPACITOR, 150 μ F, 10V	CB1A157M2ECB
CAPACITOR, 220 μ F, 10V	CB1A227M2FCB
CAPACITOR, 2.2 μ F, 16V	CB1C225M2ACB
CAPACITOR, 3.3 μ F, 16V	CB1C335M2ACB
CAPACITOR, 4.7 μ F, 16V	CB1C475M2BCB
CAPACITOR, 6.8 μ F, 16V	CB1C685M2BCB
CAPACITOR, 10 μ F, 16V	CB1C106M2BCB
CAPACITOR, 15 μ F, 16V	CB1C156M2CCB
CAPACITOR, 22 μ F, 16V	CB1C226M2CCB
CAPACITOR, 33 μ F, 16V	CB1C336M2DCB
CAPACITOR, 47 μ F, 16V	CB1C476M2DCB
CAPACITOR, 68 μ F, 16V	CB1C686M2ECB
CAPACITOR, 100 μ F, 16V	CB1C107M2ECB

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Part Number Table

Description	Part Number
CAPACITOR, 150 μ F, 16V	CB1C157M2FCB
CAPACITOR, 1 μ F, 25V	CB1E105M2ACB
CAPACITOR, 1.5 μ F, 25V	CB1E155M2ACB
CAPACITOR, 2.2 μ F, 25V	CB1E225M2ACB
CAPACITOR, 3.3 μ F, 25V	CB1E335M2BCB
CAPACITOR, 4.7 μ F, 25V	CB1E475M2BCB
CAPACITOR, 6.8 μ F, 25V	CB1E685M2CCB
CAPACITOR, 10 μ F, 25V	CB1E106M2CCB
CAPACITOR, 15 μ F, 25V	CB1E156M2DCB
CAPACITOR, 22 μ F, 25V	CB1E226M2DCB
CAPACITOR, 33 μ F, 25V	CB1E336M2ECB
CAPACITOR, 47 μ F, 25V	CB1E476M2ECB
CAPACITOR, 68 μ F, 25V	CB1E686M2FCB
CAPACITOR, 100 μ F, 25V	CB1E107M2FCB
CAPACITOR, 0.1 μ F, 35V	CB1V104M2ACB
CAPACITOR, 0.15 μ F, 35V	CB1V154M2ACB
CAPACITOR, 0.22 μ F, 35V	CB1V224M2ACB
CAPACITOR, 0.33 μ F, 35V	CB1V334M2ACB
CAPACITOR, 0.47 μ F, 35V	CB1V474M2ACB
CAPACITOR, 0.68 μ F, 35V	CB1V684M2ACB
CAPACITOR, 1 μ F, 35V	CB1V105M2ACB
CAPACITOR, 1.5 μ F, 35V	CB1V155M2ACB
CAPACITOR, 2.2 μ F, 35V	CB1V225M2BCB
CAPACITOR, 3.3 μ F, 35V	CB1V335M2BCB
CAPACITOR, 4.7 μ F, 35V	CB1V475M2CCB
CAPACITOR, 6.8 μ F, 35V	CB1V685M2DCB
CAPACITOR, 10 μ F, 35V	CB1V106M2DCB
CAPACITOR, 15 μ F, 35V	CB1V156M2ECB
CAPACITOR, 22 μ F, 35V	CB1V226M2ECB
CAPACITOR, 33 μ F, 35V	CB1V336M2FCB
CAPACITOR, 47 μ F, 35V	CB1V476M2FCB
CAPACITOR, 0.1 μ F, 50V	CB1H104M2ACB
CAPACITOR, 0.22 μ F, 50V	CB1H224N2ACB

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Part Number Table

Description	Part Number
CAPACITOR, 0.33 μ F, 50V	CB1H334M2ACB
CAPACITOR, 0.47 μ F, 50V	CB1H474M2ACB
CAPACITOR, 0.68 μ F, 50V	CB1H684M2ACB
CAPACITOR, 1 μ F, 50V	CB1H105M2BCB
CAPACITOR, 1.5 μ F, 50V	CB1H155M2CCB
CAPACITOR, 2.2 μ F, 50V	CB1H225M2CCB
CAPACITOR, 3.3 μ F, 50V	CB1H335M2DCB
CAPACITOR, 4.7 μ F, 50V	CB1H475M2DCB
CAPACITOR, 6.8 μ F, 50V	CB1H685M2ECB
CAPACITOR, 10 μ F, 50V	CB1H106M2ECB

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