

SOLID ELECTROLYTIC TANTALUM CHIP CAPACITOR

CA 45 Series

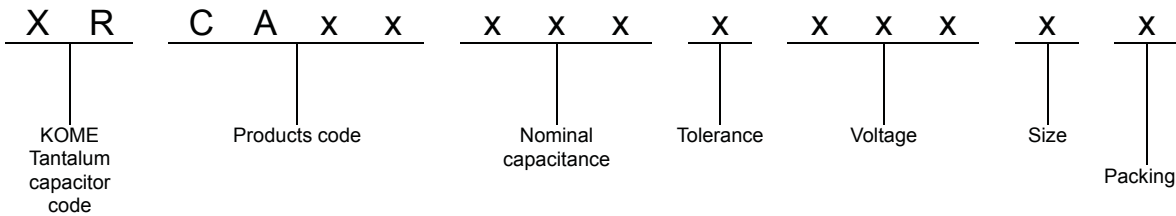
Brief Introduction.

The CA45 Series is sinter-anode, molded solid tantalum chip capacitor, featuring small size, high capacitance, high reliability and excellent operation performances, used for telecommunications, computers, camcorder, SMT electric circuits,....etc. The CA45 Series meets the requirements of EIA Standard 535BAAC-A

Features:

- Operating temperature Range: $-55^{\circ}\text{C}\sim+125^{\circ}\text{C}$ > 85°C with rated voltage derating
- Capacitance tolerance: $\pm 20\%$ $\pm 10\%$ (for special order)
- DC leakage at 20°C : $I_o \leq 0.01C_R V_R$ or $0.5\mu\text{A}$ (whichever is greater)
- Dissipation factor at 20°C : Please see table 3
- Dimensions, rated voltage and nominal capacitance: Please see table 1&2 and Figure 1
- ESR: see table 4

HOW TO ORDER



Example:

CA 45 Series: $\Delta c/c \pm 20\%$, 35V10uF, Tape packing; XRCA45106M350DT

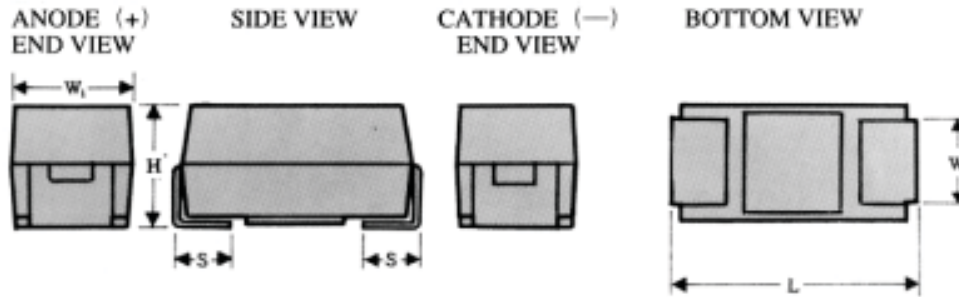
CA Series: $\Delta c/c \pm 20\%$, 10V10uF, Bulk packing; XRCA-106M1002B

CA 301 Series: $\Delta c/c \pm 20\%$, 100V10uF, Bulk packing; XRCA301106M1011B

SOLID ELECTROLYTIC TANTALUM CHIP CAPACITOR

CA 45 Series

Outline drawings:



Dimensions - mm (inches)

CASE SIZE	$L \pm 0.2$ (0.008)	$W1 \pm 0.2$ (0.008)	$H \pm 0.2$ (0.008)	$S \pm 0.3$ (0.0012)	$W2 \pm 0.1$ (0.004)
S	2.0 (0.2)	1.2(0.2)	1.2(0.2)	0.5(0.3)	1.2(0.1)
A	3.2 (0.126)	1.6 (0.063)	1.6 (0.063)	0.8 (0.031)	1.2 (0.047)
B	3.5 (0.137)	2.8 (0.110)	1.9 (0.075)	0.8 (0.031)	2.2 (0.087)
C	6.0 (0.236)	3.2 (0.126)	2.5 (0.098)	1.3 (0.051)	2.2 (0.087)
D	7.3 (0.287)	4.3 (0.169)	2.8 (0.110)	1.3 (0.051)	2.4 (0.094)

Table 1

Rated Voltage, Voltage Derating, Surge Voltage and Nominal Capacitance

Rated Voltage	4	6.3	10	16	20	25	35	50
Voltage Derating	2.5	4	6.3	10	13	16	23	33
Surge Voltage	5	7	11.5	18	23	29	40	57
Nominal Capacitance	CASE SIZE (Extended / Standard)							
0.1					S		A	A
0.15					S		A	A / B
0.22					S		A	B
0.33					S		A	B
0.47				S	S	A	A / B	C
0.68			S	S	A/S	A	B	C
1.0		A/S	A/S	A/S	A	A / B	B	C
1.5	S	A/S	A/S	A/S	A / B	B	B / C	C / D
2.2	S	A/S	A/S	A / B	B	B	C	D
3.3	A / S	A / S	A / S	A / B	B / C	C	C / D	D
4.7	A / S	A / S	A / B	A / B	C / D	C	C / D	E
6.8	A / S	A / B	A / B	B / C	C / D	C / D	D	
10	A / B	A / B	A / B	B / C	D	C / D	D	
15	A / B	B / C	B / C	C	D	D	E	
22	B / C	B / C	B / C	C / D	D	D	E	
33	C	C / D	C / D	D	D	E		
47	C / D	C / D	C / D	D / C	D / E			
68	C / D	C / D	D	D	E			
100	C / D	C / D	D	D				
150	D	E	E	E				
220	D	E	E	E				
330	E	E	E					
470	E							

Table 2

SOLID ELECTROLYTIC TANTALUM CHIP CAPACITOR

CA 45 Series

Temperature characteristics

Capacitance (uF)	Capacitance change (%)			Dissipation factor Max (%)				Current leakage Max (uA)	
	-55°C	+85°C	+125°C	-55°C	+20°C	+85°C	+125°C	+85°C	+125°C
<=1.0	-10	+10	+12	6	4	6	6	10 I ₀	12 I ₀
1.5 ~ 68				10	6	10	10		
100				12	8	12	12		

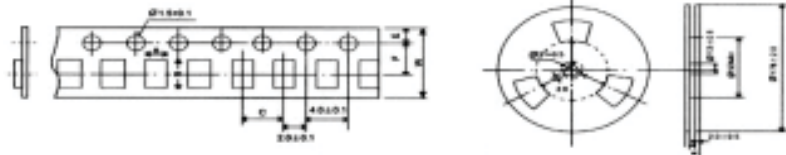
Table 3

ESR

Rated Voltage	4	6.3	10	16	20	25	35	50
Nominal Capacitance	CASE SIZE (Extended / Standard)							
0.1					25.0		24	22
0.15					25.0		21	15/17
0.22					25.0		18	14
0.33					25.0		15	12
0.47				25.0	25.0	14	12 / 10	8
0.68			30.0	25.0	12/25.0	10	8	7
1.0		14/25	13/25	11/20	9	8 / 7	6.5	5.5
1.5	30.0	12/25	10/25	8/12	6.5 / 5	5	5.2 / 4.5	4.5 / 4
2.2	25.0	9/20	7/15	5.5/6.5	3.5/5.3	4.5	3.5	2.5
3.3	9/20	7/12	5.5/10	5 / 4.5	3 / 2.5	2.8	2.5 / 2	2
4.7	7.5/10	6 / 7	4/5	3.5/4	2.5/2.8	2.4	2.2 / 1.5	1.4
6.8	6.5 / 6	6 / 4	4 / 3	2.5 / 2.5	2 / 1.8	2 / 1.4	1.3	
10	6 / 4	4 / 3	3 / 2.5	2.8 / 2	1.3	1.8 / 1.2	1	
15	6 / 6	3.2 / 2.5	2.8 / 2.2	1.8	1.1	1	0.9	
22	3.2 / 2.5	2.5 / 2	2.4 / 1.8	1.6 / 1.1	0.9	0.9	0.9	
33	2.2	1.8 / 1.3	1.6 / 1.1	0.9/1.5	0.9	0.9		
47	1.8 / 1.3	1.6 / 1.1	1.2 / 0.9	0.9/1.4	0.9/0.9			
68	1.6 / 1.1	1.6 / 0.9	0.9	0.9	0.9			
100	1.3 / 0.9	1.4 / 0.9	0.9	0.9				
150	0.9	0.9	0.9	0.9				
220	0.9	0.9	0.9	0.9				
330	0.9	0.9	0.9					
470	0.9							

Table 4

Tape and Reel Dimensions:



Size	A + 0.2	B + 0.2	C + 0.1	E + 0.1	F + 0.1	W + 0.3
S	1.6	2.4	4.0	1.75	3.5	8.0
A	1.9	3.5	4.0	1.75	3.5	8.0
B	3.3	3.9	4.0	1.75	3.5	8.0
C	3.7	6.4	8.0	1.75	5.5	12.0
D	4.8	7.7	8.0	1.75	5.5	12.0
E	4.6	7.6	8.0	1.75	5.5	12.0

Size	W (mm)			Qty. / reel
A, B	+1.50	8.4	-0.00	2000
C, D	+2.00	12.4	-0.00	500
E	+2.00	12.4	-0.00	400
S	+2.00	12.4	-0.00	2500

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Capacitor markings:

Direct designation is used for case sizes B,C,D while code designation is used for case size A

Rated Voltage Code

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

Capacitance Code

Example: A6C

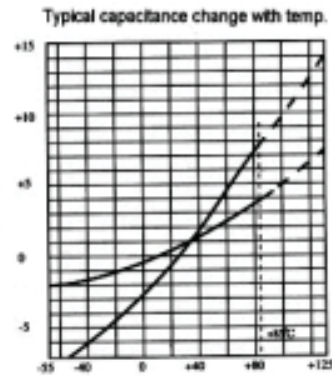
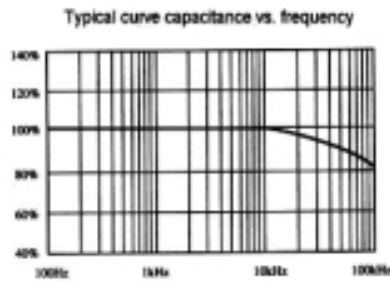
A represents nominal capacitance code, the second digit represents multiplier and the third digit represents rated voltage, that is Voltage 16V ; Capacitance $1 \times 10^6 \mu\text{F}$. 16V1 μF .

Nominal Capacitance Code

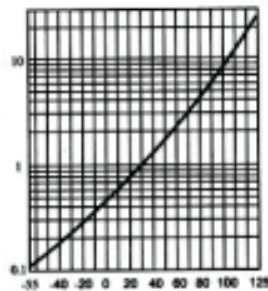
Nominal Capacitance	1	1.5	2.2	3.3	4.7	6.8
Capacitance Code	A	E	J	N	S	W

Multiplier	10^4	10^5	10^6	10^7
Second digit	4	5	6	7

Characteristic Curve:



Typical leakage current change with temp.



Frequency dependence of impedance and ESR

