

CA45型片式固体电解质钽电容器

CA45 Series Solid Electrolytic Chip Tantalum Capacitor

Brief Introduction

产品介绍

CA45系列电容器是烧结阳极，树脂模压封装的片式固体电解质钽电容器，体积小、重量轻、可靠性高、性能优良。适用于通讯、计算机、摄像机、移动通讯等各种表面贴装电路。执行GB/T14122-93，Q/PWV601-2003技术标准。

CA45 Series sinter-anode, molded solid tantalum chip capacitor, small in size, high capacitance, high reliability and excellent operate performances, is used for telecommunications, computers, camcorder, SMT electric circuits and so on. CA45 Series meets the requirements of standard GB/T14122-93, Q/PWV601-2003.



Features

主要性能

- 温度范围：-55℃~125℃（>85℃时施加降额电压使用）
- 电容值允许偏差：K级：±10%；M级：±20%
- 室温漏电流：25℃时 $I_L \leq 0.01C_r U_r$ 或 $0.5\mu A$ （取大者）
- 外形尺寸：见表1
- Operating Temperature Range: -55℃ ~ +125℃ > 85℃ (with rated voltage derating)
- Capacitance Tolerance: K: ±10%; M: ±20%
- DC Leakage at 25℃: $I_L \leq 0.01C_r U_r$ or $0.5\mu A$ (which is greater)
- Dimensions: See Table1

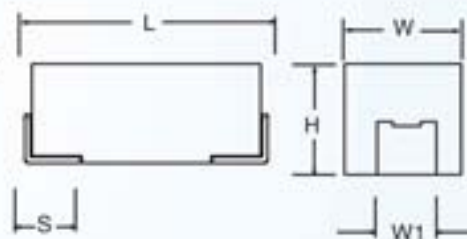


Table1 Dimensions

表1 外形尺寸

外壳代码	L±0.2	W ₁ ±0.2	H±0.2	S±0.2	W ₂ ±0.2
A	3.2	1.6	1.6	0.8	1.2
B	3.5	2.8	1.9	0.8	2.2
C	6.0	3.2	2.5	1.3	2.2
D	7.3	4.3	2.8	1.3	2.4
E	7.3	4.3	4.1	1.3	2.4
V	7.3	6.1	3.6	1.35	3.0

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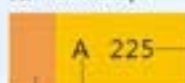
表2 电性能一览表
Table 2 Electrical Features

额定电压 (V)	4	6.3	10	16	20	25	35	40	50	63	75	100	
类别电压 (V)	2.7	4	7	10	15	17	23	25	33	40	50	63	
浪涌电压 (V)	5	8	13	20	26	32	46	50	65	82	97	130	
标称电容量(μF)	壳号 (标准型、缩小型、超小型)							A	A				
0.1							A	A	B/A				
0.15							A	A	B/A				
0.22							A	B/A	B/A	C	C	C	
0.33						A	A	B/A	C/B/A	C	C	C	
0.47					A	A	B/A	C/B/A	C/B	C	C	C	
0.68				A	A	B/A	B/A	C/B	C/B	C	C	D	
1.0			B/A	B/A	B/A	B/A	B/A	C/B	D/C	D	D	D	
1.5		A	A	B/A	B/A	B/A	C/B	D/C	D/C	D	D	E	
2.2	A	A	B/A	B/A	B/A	C/B/A	C/B	D/C	D/C	D	E	V/E	
3.3	A	B/A	B/A	B/A	C/B/A	C/B	C/B	D/C	D/C	E	E		
4.7	B/A	B/A	B/A	C/B/A	C/B/A	C/B	C/B	E/D	E/D	E	V/E		
6.8	B/A	B/A	C/B/A	C/B/A	C/B	C/B	D/C	E/D	E/D	E			
10	B/A	C/B/A	C/B/A	C/B/A	C/B	C/B	D/C	E	E	V/E			
15	C/B/A	C/B/A	C/B/A	C/B	C/B	D/C	E/D	E	E	V			
22	C/B/A	C/B/A	C/B/A	D/C/B	D/C	D/C	E/D						
33	C/B	C/B/A	C/B	D/C	D/C	E/D	V/E						
47	C/B	C/B/A	C/B	D/C	E/D	E/D	E/D						
68	C/B	C/B	D/C	D/C	E/D	V/E	E						
100	D/C	D/C/B	D/C	E/D	V/E	V/E							
150	E/D/C	E/D/C	E/D	E/D	E	V/E							
220	E/D/C	E/D/C	V/E/D	V/E	V/E								
330	V/E/D	V/E/D	V/E/D	V/E									
470	V/E/D	E	E	E									
680	E	E	E										
1000	E												

标记

Marking Specification

如: 10V2.2 μF



容量代码
Capacitance Code in PE

直流工作电压 DC Working Voltage
(G:4V J:6.3V A:10V C:16V D:20V
E:25V V:35V H:40V T:50V)

正极
Polarity

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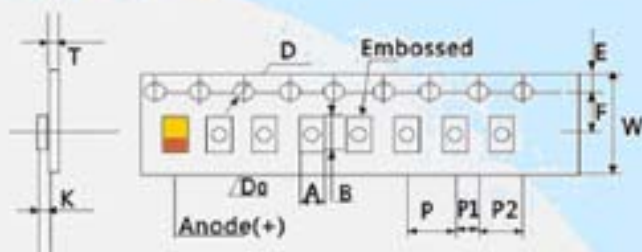
包装方式

Packing

T代表编带包装 T= Tape and reel
B代表散装 B= bulk pack

编带包装

Taping and Packing



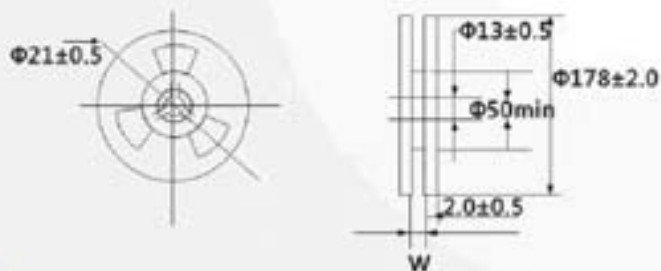
载带尺寸

Carrier Tape Dimension

壳号 Case Size	A±0.2	B±0.2	P±0.1	E±0.1	F±0.1	W±0.1
A	1.90	3.50	4.00	1.75	3.50	8.00
B	3.10	3.80	4.00	1.75	3.50	8.00
C	3.60	6.40	8.00	1.75	3.50	12.00
D	4.70	7.70	8.00	1.75	3.50	12.00
E	4.60	7.60	8.00	1.75	3.50	12.00

卷盘尺寸

Reel Dimensions



壳号 Case Size	W	每盘标准数量 Qty/reel
A, B	8.4"±	2000
C, D	12.4"±	500
E	12.4"±	400

订货方法

Order Information

CA45	105	M	035	A	T
型号 Type	标称容量代码 Capacitance Code	容量精度 Tolerance	额定电压 DC voltage	壳号 Case Size	包装形式 Packaging
片式钽电容 Chip Tantalum Capacitor	105代表10x10 ⁵ PF=1μF 105 10x10 ⁵ (PF) this is expressed in pico farads, the first two digits are the significant figures, the third is the number of zeros to follow	K = ±10 % M = ±20 %	4V=004 6.3V=006 10V=010 16V=016 20V=020 25V=025 35V=035 40V=040 50V=050	A:3.2*1.6 B:3.5*2.8 C:6.0*3.2 D:7.3*4.3 E:7.3*4.3	T代表编带 B代表散装 T= Tape and reel B= bulk pack

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表3 电性能一览表
Table 3 Electrical Features

额定电压 U_r (V) Rated Voltage	标称电容量 Nominal Capacitance C_n (μ F)	壳号 Case Size	漏电流 DCL(μ A) Max.	损耗角正切 $\text{tg}\delta$ (%) Max	等效串联电阻 ESR.	额定电压 U_r (V) Rated Voltage	标称电容量 Nominal Capacitance C_n (μ F)	壳号 Case Size	漏电流 DCL(μ A) Max.	损耗角正切 $\text{tg}\delta$ (%) Max	等效串联电阻 ESR.
4 V (2.5 V 125°C)						6.3	6.8	A	0.5	8	8.0
4	2.2	A	0.5	6	8.0	6.3	10	B	0.63	6	3.5
4	3.3	A	0.5	6	8.0	6.3	10	A	0.63	8	8.0
4	4.7	A	0.5	6	8.0	6.3	15	C	0.94	6	3.0
4	6.8	B	0.5	6	5.5	6.3	15	B	0.94	6	5.0
4	6.8	A	0.5	6	8.0	6.3	15	A	0.94	8	6.0
4	10	B	0.5	6	4.0	6.3	22	C	1.38	6	2.2
4	10	A	0.5	8	8.0	6.3	22	B	1.38	6	5.0
4	15	B	0.6	6	3.5	6.3	22	A	1.38	8	6.0
4	15	A	0.6	8	6.0	6.3	33	C	2.07	6	2.5
4	22	C	0.88	6	3.2	6.3	33	B	2.07	6	3.5
4	22	B	0.88	6	5.0	6.3	33	A	2.07	12	3.0
4	22	A	0.88	8	6.0	6.3	47	C	2.96	8	2.0
4	33	C	1.32	6	2.2	6.3	47	B	2.96	8	3.0
4	33	B	1.32	8	3.5	6.3	47	A	2.96	12	4.0
4	47	D	1.88	6	1.6	6.3	68	D	4.28	6	0.9
4	47	C	1.88	6	2.0	6.3	68	C	4.28	8	2.0
4	47	B	1.88	8	3.0	6.3	68	B	4.28	10	2.5
4	68	D	2.72	6	1.1	6.3	100	D	6.3	8	1.2
4	68	C	2.72	6	2.0	6.3	100	C	6.3	10	1.5
4	68	B	2.72	8	4.2	6.3	100	B	6.3	14	3.0
4	100	D	4.0	8	0.9	6.3	150	E	9.45	10	0.7
4	100	C	4.0	10	1.5	6.3	150	D	9.45	10	1.0
4	150	E	6.0	8	0.8	6.3	150	C	9.45	12	1.5
4	150	D	6.0	8	1.0	6.3	220	E	13.8	12	0.7
4	150	C	6.0	10	1.5	6.3	220	D	13.8	12	1.0
4	220	E	8.8	10	0.7	6.3	220	C	13.8	14	1.4
4	220	D	8.8	10	1.0	6.3	330	E	20.7	14	0.9
4	220	C	8.8	12	1.5	6.3	330	D	20.7	14	0.9
4	330	E	13.2	12	0.7	6.3	470	E	29.6	14	0.7
4	330	D	13.2	14	0.9	10 V (6.3 V 125°C)					
4	470	E	18.8	12	0.7	10	1.0	A	0.5	4	10
4	470	D	18.8	14	0.7	10	1.5	A	0.5	6	8.0
4	680	E	27.2	14	0.7	10	2.2	A	0.5	6	8.0
6.3 V (4 V 125°C)						10	3.3	B	0.5	6	5.5
6.3	1.5	A	0.5	6	8.0	10	3.3	A	0.5	6	9.0
6.3	2.2	A	0.5	6	8.0	10	4.7	B	0.5	6	4.5
6.3	3.3	A	0.5	6	8.0	10	4.7	A	0.5	6	8.0
6.3	4.7	B	0.5	6	5.5	10	6.8	B	0.68	6	3.5
6.3	4.7	A	0.5	6	8.0	10	6.8	A	0.68	6	8.0
6.3	6.8	B	0.5	6	4.5	10	10	B	1.0	8	6.0

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Table 3 Electrical Features

额定电压 $U_r(V)$ Rated Voltage	标称电容量 Nominal Capacitance $C_n(\mu F)$	壳号 Case Size	漏电流 DCL(μA) Max.	损耗角正切 $tg\delta(\%)$ Max	等效串联电阻 ESR.	额定电压 $U_r(V)$ Rated Voltage	标称电容量 Nominal Capacitance $C_n(\mu F)$	壳号 Case Size	漏电流 DCL(μA) Max.	损耗角正切 $tg\delta(\%)$ Max	等效串联电阻 ESR.
10	10	A	1.0	8	8.0	16	22	C	3.52	6	3.0
10	15	C	1.5	6	2.5	16	22	B	3.52	8	3.5
10	15	B	1.5	6	5.0	16	33	D	5.28	6	0.9
10	15	A	1.5	8	6.0	16	33	C	5.28	6	2.5
10	22	C	2.2	6	1.6	16	47	E	7.54	6	0.8
10	22	B	2.2	8	5.0	16	47	D	7.54	6	1.5
10	22	A	2.2	12	7.0	16	47	C	7.54	8	2.0
10	33	C	3.3	6	2.5	16	68	E	10.8	6	0.8
10	33	B	3.3	8	4.0	16	68	D	10.8	6	1.5
10	47	D	4.7	6	0.9	16	68	C	10.8	8	2.0
10	47	C	4.7	8	2.0	16	100	E	16	8	0.8
10	47	B	4.7	12	2.8	16	100	D	16	8	1.2
10	68	D	6.8	6	1.5	16	150	E	24	8	1.0
10	68	C	6.8	8	2.0	16	220	E	35.2	12	1.2
10	100	E	10	8	0.8	20 V (13 V 125°C)					
10	100	D	10	8	1.2	20	0.47	A	0.5	4	12
10	100	C	10	10	1.7	20	0.68	A	0.5	4	12
10	150	E	15	10	0.8	20	1.0	A	0.5	4	10
10	150	D	15	10	1.0	20	1.5	B	0.5	6	4.5
10	220	E	22	12	1.0	20	1.5	A	0.5	6	7.5
10	220	D	22	12	1.0	20	2.2	B	0.5	6	5.0
10	330	E	33	14	0.9	20	2.2	A	0.5	6	8
16 V (10 V 125°C)						20	3.3	B	0.66	6	4.0
16	0.68	A	0.5	4	12	20	3.3	A	0.66	6	5.5
16	1	A	0.5	4	10	20	4.7	B	0.94	6	3.0
16	1.5	A	0.5	6	8.0	20	4.7	A	0.94	6	5.0
16	2.2	B	0.5	6	5.5	20	6.8	C	1.36	6	2.4
16	2.2	A	0.5	6	12	20	6.8	B	1.36	6	6.0
16	3.3	B	0.52	6	5.5	20	10	C	2.0	6	4.0
16	3.3	A	0.52	6	9.0	20	10	B	2.0	6	6.0
16	4.7	B	0.75	6	4.0	20	15	D	3.0	6	1.1
16	4.7	A	0.75	6	8.0	20	15	C	3.0	6	4.0
16	6.8	C	1.08	6	3.5	20	15	B	3.0	8	6.0
16	6.8	B	1.08	6	6.0	20	22	D	4.4	6	0.9
16	6.8	A	1.08	6	9.0	20	22	C	4.4	6	3.0
16	10	C	1.6	6	2.5	20	33	D	6.6	6	1.5
16	10	B	1.6	6	6.0	20	33	C	6.6	6	2.4
16	10	A	1.6	8	7.0	20	47	E	9.4	6	0.8
16	15	C	2.4	6	1.8	20	47	D	9.4	8	1.5
16	15	B	2.4	6	5.0	20	68	E	13.6	6	0.8
16	22	D	3.52	6	1.1	20	68	D	13.6	8	1.5

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额定电压 U_r (V) Rated Voltage	标称容量 Nominal Capacitance C_n (μ F)	壳号 Case Size	漏电流 DCL(μ A) Max.	损耗角正切 $\text{tg}\delta$ (%) Max	等效串联电阻 ESR.	额定电压 U_r (V) Rated Voltage	标称容量 Nominal Capacitance C_n (μ F)	壳号 Case Size	漏电流 DCL(μ A) Max.	损耗角正切 $\text{tg}\delta$ (%) Max	等效串联电阻 ESR.
20	100	E	20	8	1.0	35	1.0	B	0.5	4	6.5
20	150	E	30	10	0.5	35	1.0	A	0.5	4	16
25 V (16 V 125°C)						35	1.5	C	0.52	6	4.5
25	0.33	A	0.5	4	15	35	1.5	B	0.52	6	12
25	0.47	A	0.5	4	14	35	2.2	C	0.77	6	3.5
25	0.68	B	0.5	4	7.5	35	2.2	B	0.77	6	8.0
25	0.68	A	0.5	4	16	35	3.3	C	1.15	6	3.0
25	1.0	B	0.5	4	6.5	35	3.3	B	1.15	6	4.0
25	1.0	A	0.5	4	16	35	4.7	D	1.64	6	1.5
25	1.5	B	0.5	6	6.5	35	4.7	C	1.64	6	5.0
25	1.5	A	0.5	6	16	35	4.7	B	1.64	8	7.0
25	2.2	B	0.55	6	5.0	35	6.8	D	2.38	6	1.3
25	2.2	A	0.55	6	8.0	35	6.8	C	2.38	6	3.0
25	3.3	C	0.82	6	4.0	35	10	D	3.5	6	1.1
25	3.3	B	0.82	6	7.0	35	10	C	3.5	6	1.6
25	4.7	C	1.17	6	2.5	35	15	E	5.25	6	1.1
25	4.7	B	1.17	6	6.0	35	15	D	5.25	6	2.0
25	6.8	C	1.7	6	3.0	35	22	E	7.7	6	1.0
25	6.8	B	1.7	6	6.0	35	22	D	7.7	6	1.8
25	10	D	2.5	6	1.2	35	33	E	11.55	6	1.2
25	10	C	2.5	6	4.0	40 V (25 V 125°C)					
25	10	B	2.5	8	6.0	40	0.1	A	0.50	4	23
25	15	D	3.75	6	1.0	40	0.15	A	0.50	4	19
25	15	C	3.75	6	4.0	40	0.22	A	0.50	4	16
25	22	D	5.5	6	1.8	40	0.33	B	0.50	4	14
25	22	C	5.5	6	4.0	40	0.33	A	0.50	4	16
25	33	E	8.25	6	0.9	40	0.47	B	0.50	4	12
25	33	D	8.25	8	1.5	40	0.47	A	0.50	4	10
25	47	E	11.7	6	1.2	40	0.68	C	0.50	4	7.5
25	47	D	11.7	8	1.5	40	0.68	B	0.50	4	15
25	68	E	17	8	1.2	40	0.68	A	0.50	4	20
25	100	E	25	10	0.9	40	1.0	C	0.50	4	6
35 V (20 V 125°C)						40	1.0	B	0.50	4	10
35	0.1	A	0.5	4	24	40	1.5	C	0.60	6	5
35	0.15	A	0.5	4	21	40	1.5	B	0.60	6	6
35	0.22	A	0.5	4	18	40	2.2	D	0.88	6	3
35	0.33	A	0.5	4	15	40	2.2	C	0.88	6	6
35	0.47	B	0.5	4	10	40	3.3	D	1.32	6	2.4
35	0.47	A	0.5	4	18	40	3.3	C	1.32	6	5
35	0.68	B	0.5	4	8	40	4.7	D	1.88	6	2
35	0.68	A	0.5	4	17	40	4.7	C	1.88	6	4

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40	6.8	E	2.72	6	1.2	50	0.47	A	0.5	4	20
40	6.8	D	2.72	6	1.5	50	0.68	C	0.5	4	7.0
40	10	E	4.00	6	1.2	50	0.68	B	0.5	4	15
40	10	D	4.00	6	1.5	50	1.0	C	0.5	4	6.0
40	15	E	6.00	6	1.2	50	1.0	B	0.5	4	10
40	22	E	8.80	6	1.2	50	1.5	D	0.75	6	4.0
50 V (32 V 125°C)											
50	0.1	A	0.5	4	22	50	1.5	C	0.75	6	8.0
50	0.15	B	0.5	4	17	50	2.2	D	1.1	6	2.5
50	0.15	A	0.5	4	28	50	2.2	C	1.1	6	7.0
50	0.22	B	0.5	4	14	50	3.3	D	1.65	6	2.0
50	0.22	A	0.5	4	18	50	3.3	C	1.65	6	5.0
50	0.33	B	0.5	4	12	50	4.7	D	2.35	6	1.5
50	0.33	A	0.5	4	20	50	6.8	E	3.4	6	1.5
50	0.47	C	0.5	4	8.0	50	6.8	D	3.4	6	2.0
50	0.47	B	0.5	4	16	50	10	E	5.0	6	1.8
						50	15	E	7.5	8	1.5

- 注：1. 禁止使用万用表测量钽电容器（极易造成不可逆损伤而导致产品报废）。
 2. 电容量、损耗角正切的测试频率为100Hz， $U_r = 2.2 \cdot U_{\text{标}}$ ， $U_r = 1.0 \cdot U_{\text{标}}$ （有效值）；测量方式采用串联等效电路。
 3. 测量125°C漏电流时，请施加类别电压；漏电流参数为5分钟读数。
 4. 特殊尺寸要求产品可以同我公司协商生产。

- P.S.: 1 Please do not use multimeter through the measuring procedures.
 2 Capacitance and DF measured at :100Hz, $U_r = 2.2 \cdot U_{\text{标}}$, $U_r = 1.0 \cdot U_{\text{标}}$, Frequency=100Hz.
 Test only applied in series equivalent circuit.
 3 Voltage derating is applied at +125°C. (The DCL parameter should be read after 5minutes when it connected to the circuit).
 4 Special size and demand could consult with us.