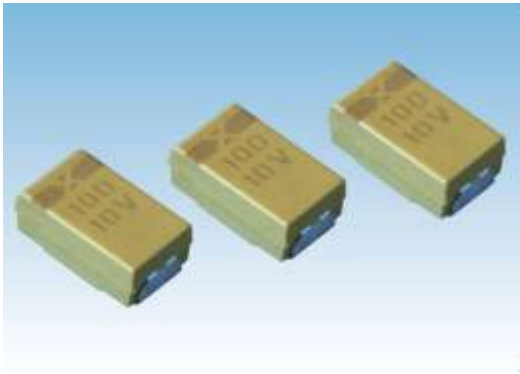


CA45A Series SMD Solid Tantalum Chip Capacitors



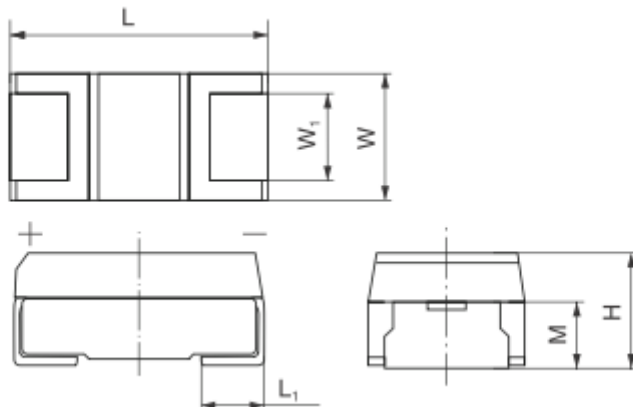
FEATURES

- New monolithic structure, has high reliability.
- Small size, capacitors, fixed, chip.
- Leadless Surface Mount.
- Supplied in tape on reel.

APPLICATIONS

- use in avionics and industrial applications, tested to CECC Specification 30801-005 and 30801-011 (CTC4).

SHAPE AND DIMENSIONS



Part Number	EIA	Dimensions (mm)					
		L	W	H	L1	W1	M
P	2012-12	2.0±0.2	1.25±0.2	1.2±0.2	0.5±0.1	0.9±0.1	0.7±0.1
A	3216-18	3.2±0.2	1.6±0.2	1.6±0.2	0.65±0.2	1.2±0.2	1.0±0.2
B	3528-21	3.5±0.2	2.8±0.2	1.9±0.2	0.7±0.2	2.0±0.2	1.2±0.2
C	6032-28	5.8±0.3	3.2±0.3	2.5±0.3	1.35±0.2	2.2±0.2	1.45±0.2
E(D)	7343-31	7.3±0.3	4.3±0.3	2.8±0.3	1.35±0.2	3.0±0.2	1.6±0.2
H(E、X)	7343-43	7.3±0.3	4.3±0.3	4.1±0.3	1.35±0.2	3.0±0.2	1.6±0.2
F	7360-38	7.3±0.3	6.0±0.3	3.5±0.3	1.3±0.2	4.0±0.2	1.9±0.2

PRODUCT IDENTIFICATION

CA45A -B -4V -220uF -K

① ② ③ ④ ⑤

- ① Type.
- ② Product Code: Length 长 (L) ×Width 宽 (W)
- ③ Rate Voltage: 6R3: 6.3V; 10v: 50V; 101: 100V
- ④ Normal Capacitance
- ⑤ Tolerance: K ±10%; M ±20%

● Technical Specifications

- Temperature Range: -55°C-+125°C.
- Capacitance Range: 0.10 μF to 100 μF.
- Capacitance Tolerance: ±10%; ±20%
- Rate Voltage, rated capacitance,



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Rate Voltage and Rate Capacitance

Rate Voltage	2		4		6.3		10		16		20		25		35	
Code	e		G		J		A		C		D		E		V	
Rate Capacitance	0.1	0.15	0.22	0.33	0.47	0.68	1.0	1.5	2.2	3.3	4.7	6.8	10	15	22	33
Code	104	154	224	334	474	684	105	155	225	335	475	685	106	156	226	336

SPECIFICATIONS

Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss pin tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
Rate Voltage 2V (Category Voltage 1.3V)										
15	P	8.0	0.5	5	6.3	±10	±15	9	6	9
22	P	6.0	0.5	5	6.3	±10	±15	9	6	9
33	P	4.0	0.7	6.6	8.2	±15	±20	25	18	25
Rate Voltage 4V (Category Voltage 2.5V)										
3.3	A	8.0	0.5	5	6.3	±10	±12	8	6	8
3.3	P	20.0	0.5	5	6.3	±10	±15	9	6	9
4.7	A	6.0	0.5	5	6.3	±10	±12	8	6	8
4.7	P	12.0	0.5	5	6.3	±10	±15	9	6	9
6.8	A	6.0	0.5	5	6.3	±10	±12	8	6	8
6.8	P	10.0	0.5	5	6.3	±10	±15	9	6	9
10	B	3.5	0.5	5	6.3	±10	±12	8	6	8
10	A	6.0	0.5	5	6.3	±10	±12	8	6	8
10	P	8.0	0.5	5	6.3	±10	±15	9	6	9



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Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
15	B	3.5	0.6	6.0	7.5	±10	±12	8	6	8
15	A	4.0	0.6	6.0	7.5	±10	±12	8	6	8
15	P	8.0	0.6	6.0	7.5	±10	±15	9	6	9
22	C	1.8	0.9	8.8	11	±10	±12	8	6	8
22	B	3.5	0.9	8.8	11	±10	±12	8	6	8
22	A	4.0	0.9	8.8	11	±10	±15	8	6	8
22	P	4.0	0.9	8.8	11	±15	±20	25	18	25
33	C	1.8	1.3	13.	16.5	±10	±12	8	6	8
33	B	2.5	1.3	2	16.5	±10	±12	8	6	8
33	A	4.0	1.3	13.	16.5	±10	±15	9	6	8
33	P	4.0	1.3	2	16.5	±10	±15	25	18	25
47	C	1.0	1.9	18.	23.5	±10	±12	8	6	8
47	B	3.0	1.9	8	23.5	±10	±15	9	6	8
47	A	2.5	1.9	18.	23.5	±10	±15	15	10	12
68	E	0.8	2.7	27.	34	±10	±12	8	6	8
68	C	1.2	2.7	2	34	±10	±12	8	6	8
68	B	3.5	2.7	27.	34	±10	±15	8	6	8
68	A	4.0	2.7	2	34	±10	±15	22	15	18
100	E	0.7	4	40	50	±10	±12	10	8	10
100	C	1.0	4	40	50	±10	±12	10	8	10
100	B	0.9	4	40	50	±10	±15	15	10	12
100	A	4.0	4	40	50	±10	±15	30	20	24
150	F	0.5	6	60	75	±10	±12	12	10	12
150	E	0.5	6	60	75	±10	±12	10	8	10
150	C	1.0	6	60	75	±10	±15	10	8	10
150	B	2.0	6	60	75	±12	±15	15	12	15
220	F	0.4	13.2	132	165	±12	±18	15	12	15
220	E	0.5	13.2	132	165	±10	±12	12	10	12
220	C	0.5	13.2	132	165	±10	±12	12	10	12
220	B	0.9	13.2	132	165	±10	±15	15	10	12
330	F	0.4	13.2	132	165	±12	±18	15	12	15
330	H	0.5	13.2	132	165	±10	±12	12	10	12
330	E	0.5	13.2	132	165	±10	±12	12	10	12
330	C	0.9	13.2	132	165	±10	±15	15	10	12
470	F	0.3	18.8	188	235	±12	±18	15	12	15
470	H	0.5	18.8	188	235	±10	±12	12	10	12
470	E	0.5	18.8	188	235	±10	±15	12	10	12



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Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss pin tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
680	F	0.2	27.2	272	340	±15	±20	20	14	20
680	E	0.5	27.2	272	340	±10	±15	15	12	15
680	H	0.5	27.2	272	340	±10	±15	21	14	17
1000	F	0.15	40	400	500	±15	±20	20	14	20
1000	H	0.5	40	400	500	±10	±12	21	14	17
Rate Voltage 6.3(6)V (Category Voltage 4V)										
2.2	A	8.0	0.5	5	6.3	±10	±12	8	6	8
2.2	P	20.0	0.5	5	6.3	±10	±15	9	6	9
3.3	A	8.0	0.5	5	6.3	±10	±12	8	6	8
3.3	P	12.0	0.5	5	6.3	±10	±15	9	6	9
4.7	A	6.0	0.5	5	6.3	±10	±12	8	6	8
4.7	P	10.0	0.5	5	6.3	±10	±15	9	6	9
6.8	B	3.5	0.5	5	6.3	±10	±12	8	6	8
6.8	A	6.0	0.5	5	6.3	±10	±12	8	6	8
6.8	P	8.0	0.5	5	6.3	±10	±15	9	6	9
10	B	3.5	0.6	6.3	7.9	±10	±12	8	6	8
10	A	4.0	0.6	6.3	7.9	±10	±12	8	6	8
10	P	6.0	0.6	6.3	7.9	±10	±15	9	6	9
15	C	1.8	0.9	9.4	11.8	±10	±12	8	6	8
15	B	3.5	0.9	9.4	11.8	±10	±12	8	6	8
15	A	3.5	0.9	9.4	11.8	±10	±15	8	6	8
22	C	1.8	1.4	13.	17.3	±10	±12	8	6	8
22	B	3.5	1.4	9	17.3	±10	±12	8	6	8
22	A	4.0	1.4	13.	17.3	±10	±15	8	6	8
33	C	1.8	2.1	20.	26	±10	±12	8	6	8
33	B	2.5	2.1	8	26	±10	±15	8	6	8
33	A	2.5	2.1	20.	26	±10	±15	15	10	12
47	E	0.8	3	29.	37	±10	±12	8	6	8
47	C	1.0	3	6	37	±10	±12	8	6	8
47	B	2.0	3	29.	37	±10	±15	8	6	8
47	A	3.5	3	6	37	±10	±15	18	12	15
68	E	0.8	4.3	42.	53.5	±10	±12	8	6	8
68	C	1.2	4.3	8	53.5	±10	±12	8	6	8
68	B	0.9	4.3	42.	53.5	±10	±15	12	8	10
68	A	4.0	4.3	8	53.5	±15	±20	45	30	36



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Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss pin tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
100	F	0.5	6.3	63	78	±10	±12	12	10	12
100	E	0.7	6.3	63	78.7	±10	±12	10	8	10
100	C	0.9	6.3	63	78.7	±10	±15	10	8	10
100	B	3.0	6.3	63	78.7	±10	±15	22	15	18
150	F	0.4	9.5	95	118	±10	±12	12	10	12
150	E	0.5	9.5	94.5	118	±10	±12	10	8	10
150	C	1.0	9.5	94.5	118	±10	±15	10	8	10
150	B	3.0	9.5	94.5	118	±15	±20	22	15	18
220	F	0.4	13.9	139	173	±10	±12	12	10	12
220	H	0.5	13.9	139	173	±10	±12	10	8	10
220	E	0.5	13.9	139	173	±10	±12	10	8	10
220	C	1.2	13.9	139	173	±10	±15	15	10	12
330	F	0.3	20.8	208	260	±12	±18	15	12	15
330	H	0.4	20.8	208	260	±10	±12	12	10	12
330	E	0.4	20.8	208	260	±10	±15	12	10	12
470	F	0.3	29.6	296	370	±12	±18	15	12	15
470	H	0.4	29.6	296	370	±10	±15	12	10	12
470	E	0.4	29.6	296	370	±10	±15	18	12	15
680	F	0.2	27.2	272	340	±15	±20	20	14	20
680	E	0.5	27.2	272	340	±10	±15	15	12	15
Rate Voltage 10V (Category Voltage 6.3V)										
1.5	A	8.0	0.5	5	6.3	±10	±12	8	6	8
1.5	P	20.0	0.5	5	6.3	±10	±15	9	6	9
2.2	B	3.5	0.5	5	6.3	±10	±12	8	6	8
2.2	A	8.0	0.5	5	6.3	±10	±12	8	6	8
2.2	P	12.0	0.5	5	6.3	±10	±15	9	6	9
3.3	B	3.5	0.5	5	6.3	±10	±12	8	6	8
3.3	A	6.0	0.5	5	6.3	±10	±12	8	6	8
3.3	P	10.0	0.5	5	6.3	±10	±15	9	6	9
4.7	C	2.0	0.5	5	6.3	±10	±12	8	6	8
4.7	B	3.5	0.5	5	6.3	±10	±12	8	6	8
4.7	A	5.0	0.5	5	6.3	±10	±12	8	6	8
4.7	P	8.0	0.5	5	6.3	±10	±15	9	6	9
6.8	B	3.5	0.7	6.8	8.5	±10	±12	8	6	8
6.8	A	4.0	0.7	6.8	8.5	±10	±15	8	6	8
6.8	P	6.0	0.7	6.8	8.5	±12	±18	9	6	9



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Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
10	C	1.8	1	10	12.5	±10	±12	8	6	8
10	B	3.5	1	10	12.5	±10	±12	8	6	8
10	A	4.0	1	10	12.5	±10	±15	8	6	8
10	P	6.0	1	10	12.5	±12	±18	22	18	22
15	C	1.8	1.5	15	18.7	±10	±12	8	6	8
15	B	2.8	1.5	15	18.7	±10	±12	8	6	8
15	A	6.0	1.5	15	18.7	±10	±15	12	8	10
22	C	1.8	2.2	22	27.5	±10	±12	8	6	8
22	B	2.4	2.2	22	27.5	±10	±15	8	6	8
22	A	6.0	2.2	22	27.5	±10	±15	15	10	12
33	E	0.8	3.3	33	41.2	±10	±12	8	6	8
33	C	1.6	3.3	33	41.2	±10	±12	8	6	8
33	B	1.8	3.3	33	41.2	±10	±15	8	6	8
47	E	0.8	4.7	47	59.7	±10	±12	8	6	8
47	C	1.0	4.7	47	59.7	±10	±12	8	6	8
47	B	1.0	4.7	47	59.7	±10	±15	12	8	10
68	F	0.5	6.8	68	85	±10	±12	12	10	12
68	E	0.8	6.8	68	85	±10	±12	8	6	8
68	C	1.2	6.8	68	85	±10	±15	8	6	8
68	B	3.0	6.8	68	85	±10	±15	15	10	12
100	F	0.4	10	100	125	±10	±12	12	10	12
100	E	0.7	10	100	125	±10	±12	10	8	10
100	C	1.2	10	100	125	±10	±15	10	8	10
100	B	3.0	10	100	125	±10	±15	22	18	22
150	F	0.4	15	150	187	±10	±12	12	10	12
150	H	0.5	15	150	187	±10	±12	10	8	10
150	E	0.5	15	150	187	±10	±15	10	8	10
150	C	0.9	15	150	187	±10	±15	15	10	12
220	F	0.3	22	150	187	±10	±12	12	10	12
220	H	0.5	22	150	187	±10	±12	10	8	10
220	E	0.5	22	150	187	±10	±15	10	8	10
330	F	0.3	33	330	412	±12	±18	15	12	15
330	H	0.5	33	330	412	±10	±15	12	10	12
330	E	0.5	33	330	412	±10	±15	15	10	12
470	F	0.2	47	470	588	±15	±20	20	14	20
470	H	0.2	47	470	587	±10	±15	15	10	12



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Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss pin tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
Rate Voltage 16V(15V) (Category Voltage 10V)										
0.68	P	18.0	0.5	5	6.3	±10	±15	6	4	6
1.0	A	10.0	0.5	5	6.3	±10	±12	6	4	6
1.0	P	14.0	0.5	5	6.3	±10	±15			
1.5	A	8.0	0.5	5	6.3	±10	±12	8	6	8
1.5	P	12.0	0.5	5	6.3	±10	±15	9	6	9
2.2	A	6.0	0.5	5	6.3	±10	±12	8	6	8
2.2	P	10.0	0.5	5	6.3	±10	±15	9	6	9
3.3	B	3.5	0.5	5	6.3	±10	±12	8	6	8
3.3	A	5.0	0.5	5	6.3	±10	±12	8	6	8
3.3	P	8.0	0.5	5.2	6.6	±10	±15	9	6	9
4.7	C	2.4	0.8	7.5	9.4	±10	±12	8	6	8
4.7	B	3.5	0.8	7.5	9.4	±10	±12	8	6	8
4.7	A	4.0	0.8	7.5	9.4	±10	±15	8	6	8
6.8	C	1.9	1.1	10.9	13.6	±10	±12	8	6	8
6.8	B	2.5	1.1	10.9	13.6	±10	±12	8	6	8
6.8	A	3.5	1.1	10.9	13.6	±10	±15	8	6	8
10	C	1.8	1.6	16	20	±10	±12	8	6	8
10	B	2.8	1.6	16	20	±10	±15	8	6	8
10	A	7.0	1.6	16	20	±10	±15	12	8	10
15	C	1.8	2.4	24	30	±10	±12	8	6	8
15	B	2.5	2.4	24	30	±10	±15	8	6	8
15	A	8.0	2.4	24	30	±12	±18	18	12	15
22	E	0.8	3.5	35.2	44	±10	±12	8	6	8
22	C	1.6	3.5	35.2	44	±10	±12	8	6	8
22	B	2.2	3.5	35.2	44	±10	±15	9	6	8
22	A	8.0	3.5	35	44	±12	±18	18	12	15
33	E	0.8	5.3	52.8	66	±10	±12	8	6	8
33	C	1.2	5.3	52.8	66	±10	±15	8	6	8
33	B	2.1	5.3	52.8	66	±12	±18	12	8	10
47	F	0.5	7.5	75	93	±10	±12	12	10	12
47	E	0.8	7.5	75.2	94	±10	±12	8	6	8
47	C	1.0	7.5	75.2	94	±10	±15	9	6	8
47	B	3.0	7.5	75.2	94	±15	±18	18	12	15



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Rate Capacitance uF	Shell Code	Equivalent series resistance MAX 100KHz 25°C	DC leakage current MAX uA			Capacitance Range %		Loss pin tangent Max %		
			+25°C	+85°C	+125°C	-55°C +85°C	+125°C	-55°C	+25°C	+85°C +125°C
68	F	0.4	10.9	109	136	±10	±12	12	10	12
68	E	0.7	10.9	109	136	±10	±12	8	6	8
68	C	1.2	10.9	109	136	±10	±15	12	8	10
100	F	0.4	16	160	200	±10	±12	12	10	12
100	H	0.7	16	160	200	±10	±12	10	8	10
100	E	1.7	16	160	200	±10	±15	10	8	10
100	C	1.5	16	160	200	±15	±18	15	10	12
150	F	0.3	24	240	300	±10	±12	12	10	12
150	H	0.5	24	240	300	±10	±15	10	8	10
150	E	0.7	24	240	300	±10	±15	15	10	12
220	F	0.3	35.2	352	440	±10	±15	16	10	16
220	H	0.5	35.2	352	440	±10	±15	15	10	12
330	F	0.2	52.8	528	660	±15	±20	20	12	20
330	H	0.5	52.8	528	660	±15	±20	15	12	15



Specifications subject to change without notice. Please check our website for latest information.

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