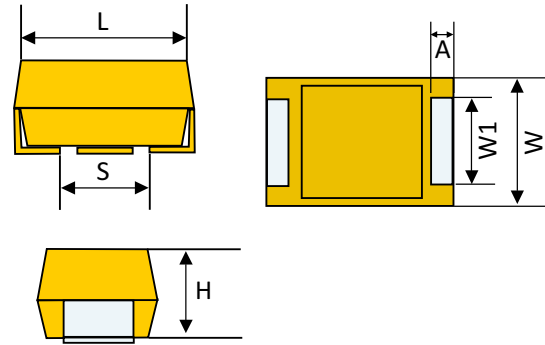


INTRODUCTION

Solid tantalum chip capacitors designed and manufactured with the demanding requirements of surface mount technology in mind. We offer five body sizes. They have lower ESR Compared with the dipped tantalum capacitors. The product is compatible with automatic pick and place equipment. Suitable for military equipment, computers, mobile phone and other electronic products. Meets the requirements of EIA 535BAAC, QC300801, and Q/YHC.45-01 standard.

DIMENSION(mm)



DIMENSIONS (mm)

Code	EIA Code	EIA Metric	L	W	H	W1	A	S Min.
S	0805	2012	2.00 ± 0.2 (0.078±0.008)	1.20 ± 0.2 (0.047±0.008)	1.20 ± 0.2 (0.047±0.008)	1.20 ± 0.2 (0.047±0.008)	0.50 ± 0.3 (0.020±0.012)	1.10 (0.043)
A	1206	3216	3.20 ± 0.2 (0.126±0.008)	1.60 ± 0.2 (0.063±0.008)	1.60 ± 0.2 (0.063±0.008)	1.20 ± 0.2 (0.047±0.008)	0.80 ± 0.3 (0.031±0.012)	1.10 (0.043)
B	1411	3528	3.50 ± 0.2 (0.138±0.008)	2.80 ± 0.2 (0.110±0.008)	1.90 ± 0.2 (0.075±0.008)	2.20 ± 0.2 (0.087±0.008)	0.80 ± 0.3 (0.031±0.012)	1.80 (0.071)
C	2412	6032	6.00 ± 0.3 (0.236±0.012)	3.20 ± 0.3 (0.126±0.012)	2.50 ± 0.3 (0.098±0.012)	2.20 ± 0.2 (0.087±0.008)	1.30 ± 0.3 (0.051±0.012)	2.80 (0.110)
D	2916	7343-31	7.30 ± 0.3 (0.287±0.012)	4.30 ± 0.3 (0.169±0.012)	2.80 ± 0.3 (0.110±0.012)	2.40 ± 0.2 (0.094±0.008)	1.30 ± 0.3 (0.051±0.012)	3.50 (0.138)
E	2916	7343-43	7.30 ± 0.3 (0.287±0.012)	4.30 ± 0.3 (0.0169±0.012)	4.00 ± 0.3 (0.157±0.012)	2.40 ± 0.2 (0.094±0.008)	1.30 ± 0.3 (0.051±0.012)	3.50 (0.138)
F	2924	7360-39	7.30 ± 0.3 (0.287±0.012)	6.00 ± 0.3 (0.236±0.012)	3.60 ± 0.3 (0.142±0.012)	2.40 ± 0.2 (0.094±0.008)	1.30 ± 0.3 (0.051±0.012)	3.50 (0.138)
V	2924	7360-44	7.30 ± 0.3 (0.287±0.012)	6.00 ± 0.3 (0.236±0.012)	4.10 ± 0.3 (0.142±0.012)	2.40 ± 0.2 (0.094±0.008)	1.30 ± 0.3 (0.051±0.012)	3.50 (0.138)

MAXIMUM RATING & ELECTRICAL CHARACTERISTICS

All technical data relate to an ambient temperature of 25°C.

Items	Performance									
Operating Voltage Range	-55°C ~ +125°C (above 85°C, use derated voltage)									
Capacitance Range	0.1 µF ~ 1000 µF									
Capacitance Tolerance	±20%, ±10% @ 120Hz									
Climatic Category	55 / 125 / 21									
Reliability	2% per 1,000hrs at 85°C with 0.1Ω/V series impedance 60% confidence level									
DC Leakage Current (20°C)	I < 0.01CV or 0.5µA (whichever is greater)									
Temperature Characteristics	Capacitance (µF)	Capacitance Change			DCL Max					
		-55°C	+85°C	+125°C	+85°C	+125°C				
	≤1.0									
	1.5 ~ 68	-10	+10	+12	10 lo		12 lo			
	100 ~ 470									
680 ~ 1000	-10	+12	+14							
Voltage Derating	Rated Voltage -55°C ~ +85°C	2.5Vdc	4Vdc	6.3Vdc	10Vdc	16Vdc	20Vdc	25Vdc	35Vdc	50Vdc
	Derated Voltage > 85°C	2.5	2.5	4	6.3	10	13	16	23	33
	Surge Voltage -55°C ~ +85°C	5	5	8	13	20	26	32	46	65
	Derated Surge Voltage > +85°C	3.4	3.4	5	9	12	16	20	26	38

■ CAPACITANCE, RATED VOLTAGE AND ESR (2.5V ~ 6.3V)

Capacitance		Rated Voltage DC (V _R) @ 85°C											
		2.5V (0E)				4V (0G)				6.3V (0J)			
μF	Code	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)
0.1	104												
0.15	154												
0.22	224												
0.33	334												
0.47	474												
0.68	684												
1	105												
1.5	155					S	0.5	6	30	S	0.5	6	25
						A	0.5			A	0.5	6	12
2.2	225					S	0.5	6	25	S	0.5	6	20
						A	0.5			A	0.5	6	8
3.3	335					S	0.5	6	20	S	0.5	6	12
						A	0.5	6	8	A	0.5	6	8
4.7	475					S	0.5	6	20	A	0.5	6	6
						A	0.5	6	8				
6.8	685					A	0.5	6	6	A	0.5	6	6
						B	0.5	6	6	B	0.5	6	3.5
10	106					A	0.5	6	6	A	0.6	6	4
						B	0.5	6	3.5	B	0.6	6	3.5
15	156					A	0.6	6	4	A	0.9	6	3.5
						B	0.6	6	3.5	B	0.9	6	3.5
						C	0.9	6	1.8	C	0.9	6	1.8
22	226					A	0.9	6	4	A	1.4	6	4
						B	0.9	6	3.5	B	1.4	6	3.5
						C	0.9	6	1.8	C	1.4	6	1.8
33	336	A	0.8	8	3	A	1.3	6	4	A	2.1	12	2.5
						B	1.3	6	3.5	B	2.1	6	2.5
						C	1.3	6	1.8	C	2.1	6	1.8
47	476	A	1.2	8	3	A	1.9	8	3	A	3	12	3.5
						B	1.9	6	2.5	B	3	6	2
						C	1.9	6	1.8	C	3	6	1.6
						D				D	3	6	0.8
68	686	A	1.7	10	1.5	A	2.7	12	3	B	4.3	8	0.9
						B	2.7	6	1.8	C	4.3	6	1.2
						C	2.7	6	1.6	D	4.3	6	0.8
						D	2.7	6	0.8				
100	107	B	2.5	12	1.4	B	4	8	1.8	B	6.3	15	3
						C	4	30	1.2	C	6.3	8	0.9
						D	4	8	0.9	D	6.3	8	0.8
120	127					D	5	9	1	D	8	9	0.9
150	157	B	3.8	16	1.6	B	6	10	1.5	B	9.5	12	1.2
						C	6	6	1.2	C	9.5	8	1.2
						D	6	6	1.2	D	9.5	8	0.9
						E				E	9.5	8	0.5
220	227	B	5.5	20	1.6	B	8.8	12	1.1	C	13.9	10	1.2
		C	5.5	8	0.9	C	8.8	8	1.2	D	13.9	8	0.9
		D				D	8.8	8	0.9	E	13.9	8	0.9
330	337	B	8.3	10	1.6	C	13.2	10	0.9	C	20.8	12	0.5
		C	8.3	10	0.9	D	13.2	8	0.9	D	20.8	8	0.9
		D	8.3	10	0.9	E	13.2	8	0.9	E	20.8	8	0.9
470	477	B	11.8	16	0.9	C	18.8	14	0.9	D	29.6	12	0.4
		C	11.8	8	0.9	D	18.8	8	0.9	E	29.6	10	0.4
						E	18.8	8	0.5	V	29.6	10	0.4
680	687	D	17	16	0.9	D	27.2	14	0.5	D	42.8	10	0.5
		E	17	10	0.5	E	27.2	14	0.5	E	42.8	10	0.5
						V	27.2	14	0.4	V	42.8	10	0.5
1000	108	D	25	16	0.5	V	40	14	0.4				
		E	25	14	0.5								

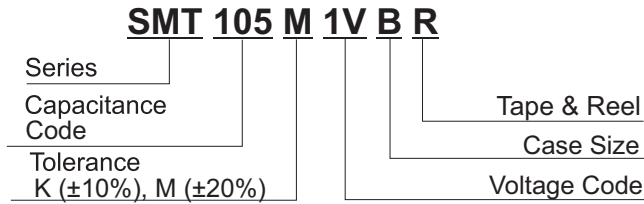
■ CAPACITANCE, RATED VOLTAGE AND ESR (10V ~ 20V)

Capacitance		Rated Voltage DC (V _R) @ 85°C											
		10V (1A)				16V (1C)				20V (1D)			
μF	Code	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)
0.1	104									S	0.5	6	25
0.15	154									S	0.5	6	25
0.22	224									S	0.5	6	25
0.33	334									S	0.5	6	25
0.47	474									S	0.5	6	25
0.68	684					S	0.5	6	25	S	0.5	6	25
						A	0.5	4	11	A	0.5	4	12
1	105					S	0.5	6	25	A	0.5	4	9
						A	0.5	4	11				
1.5	155	S	0.5	6	10	S	0.5	6	25	A	0.5	6	6.5
		A	0.5	6	8	A	0.5	6	8	B	0.5	4	5
2.2	225	S	0.5	6	7	A	0.5	6	6	A	0.5	6	7
		A	0.5	6	8	B	0.5	6	4.6	B	0.5	6	3.5
		B	0.5	6	3.5								
3.3	335	A	0.5	6	6	A	0.5	6	5	A	0.7	6	4.5
		B	0.5	6	5	B	0.5	6	3.5	B	0.7	6	3
										C	0.7	6	2.5
4.7	475	A	0.5	6	5	A	0.8	6	4	A	0.9	6	4
		B	0.5	6	3.5	B	0.8	6	3.5	B	0.9	6	3
										C	0.9	6	2.4
6.8	685	A	0.7	6	4	A	1.1	6	3.5	A	1.4	8	6
		B	0.7	6	3.5	B	1.1	6	2.5	B	1.4	6	2.5
						C	1.1	6	1.9	C	1.4	6	2
10	106	A	1	6	4	A	1.6	8	7	B	1.4	6	2.1
		B	1	6	3.5	B	1.6	6	2.8	C	1.4	6	1.8
		C	1	6	1.8	C	1.6	6	2	D	1.4	6	1.3
15	156	A	1.5	8	6	A	2.4	8	3.5	B	3	6	2
		B	1.5	6	2.8	B	2.4	6	2.5	C	3	6	1.7
		C	1.5	6	1.8	C	2.4	6	1.8	D	3	6	1
22	226	A	2.2	10	6	B	3.5	6	2.2	C	4.4	6	1.6
		B	2.2	6	2.4	C	3.5	6	1.6	D	4.4	6	0.9
		C	2.2	6	1.8	D	3.5	6	1.1				
33	336	A	3.3	15	6	B	5.3	8	2.1	C	6.6	6	1.5
		B	3.3	6	1.8	C	5.3	6	1.5	D	6.6	6	0.9
		C	3.3	6	1.6	D	5.3	6	0.9				
		D	3.3	6	0.8								
47	476	B	4.7	8	1	C	7.5	6	1.4	D	9.4	6	0.9
		C	4.7	6	1.2	D	7.5	6	0.9	E	9.4	6	0.9
		D	4.7	6	0.8								
68	686	B	6.8	10	3	C	10.9	8	1.3	D	13.6	8	0.9
		C	6.8	6	1.2	D	10.9	6	0.9	E	13.6	6	0.9
		D	6.8	6	0.8								
100	107	C	10	8	1.2	C	16	6	1.2	D	20	8	0.9
		D	10	6	0.9	D	16	8	0.9	E	20	8	0.5
						E	16	8	0.9				
120	127	D	13	9	0.8	D	20	9	1	D	25	9	1
150	157	C	15	10	0.9	D	24	12	0.9	E	30	10	0.5
		D	15	8	0.9	E	24	8	0.5	V	30	10	0.5
		E	15	8	0.9								
220	227	D	22	8	0.5	E	35.2	10	0.5				
		E	22	8	0.5								
330	337	D	33	10	0.5	E	52.8	10	0.5				
		E	33	10	0.5	V	52.8	10	0.5				
470	477	E	47	10	0.5								
		V	52.8	10	0.5								
680	687												
1000	108												

■ CAPACITANCE, RATED VOLTAGE AND ESR (25V ~ 50V)

Capacitance		Rated Voltage DC (V _R) @ 85°C											
		25V (1E)				35V (1V)				50V (1H)			
μF	Code	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)	Case Code	DCL Max (μA)	DF Max (%)	ESR Max (Ω)
0.1	104					A	0.5	4	24	A	0.5	4	22
0.15	154					A	0.5	4	21	A	0.5	4	15
						B				B	0.5	4	16
0.22	224					A	0.5	4	18	A	0.5	4	18
						B				B	0.5	4	14
0.33	334	A	0.5	4	15	A	0.5	4	15	A	0.5	4	12
						B				B	0.5	4	12
0.47	474	A	0.5	4	14	A	0.5	4	12	A	0.5	4	9.5
						B	0.5	4	10	B	0.5	4	9.5
						C				C	0.5	4	8
0.68	684	A	0.5	4	10	A	0.5	4	8	A	0.5	4	8
						B	0.5	4	8	B	0.5	4	8
						C				C	0.5	4	7
1	105	A	0.5	4	8	A	0.5	4	7.5	B	0.5	4	7
		B	0.5	4	5	B	0.5	4	6.5	C	0.5	4	5.5
1.5	155	A	0.5	6	7.5	A	0.5	6	7.5	C	0.8	6	4.5
		B	0.5	6	5	B	0.5	6	5.2	D	0.8	6	4
		C				C	0.5	6	4.5				
2.2	225	A	0.6	6	7	B	0.8	6	4.2	C	1.1	6	3
		B	0.6	6	4.5	C	0.8	6	3.5	D	1.1	6	2.5
		C	0.6	6	3.5								
3.3	335	A	0.8	6	4.5	B	1.2	6	3.5	C	1.7	6	2.5
		B	0.8	6	3.5	C	1.2	6	2.5	D	1.7	6	2
		C	0.8	6	2.5								
4.7	475	A	1.2	8	6	C	1.6	6	2.2	C	2.4	4	1.4
		B	1.2	6	2.8	D	1.6	6	1.5	D	2.4	6	1.4
		C	1.2	6	2.4					E	2.4	6	1
6.8	685	B	1.7	8	2.8	C	2.4	6	1.8	D	3.4	6	1
		C	1.7	6	2	D	2.4	6	1.3	E	3.4	6	1
		D	1.7	6	1.4								
10	106	B	2.5	6	3	C	3.5	6	1.6	D	5	6	0.8
		C	2.5	6	1.8	D	3.5	6	1	E	5	6	0.7
		D	2.5	6	1.2	E	3.5	6	0.9	V	5	6	0.7
15	156	C	3.8	6	1.6	D	5.3	6	0.9	E	7.5	6	0.7
		D	3.8	6	1	E	5.3	6	0.8	V	7.5	6	0.7
22	226	C	5.5	6	1.4	D	7.7	6	0.9				
		D	5.5	6	0.9	E	7.7	6	0.7				
33	336	D	8.3	6	0.9	E	11.6	6	0.6				
		E	8.3	6	0.9								
47	476	D	8.3	6	0.9	E	16.5	6	0.6				
		E	8.3	6	0.9	V	16.5	6	0.6				
68	686	E	17	6	0.9								
100	107	E	25	8	0.5								
120	127	E	32	9	0.6								
150	157												
220	227												
330	377												
470	477												
680	687												

■ PART NUMBER EXAMPLE

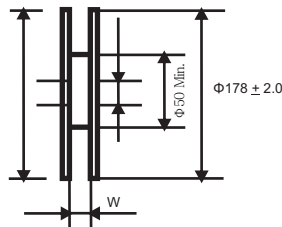
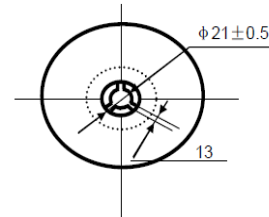
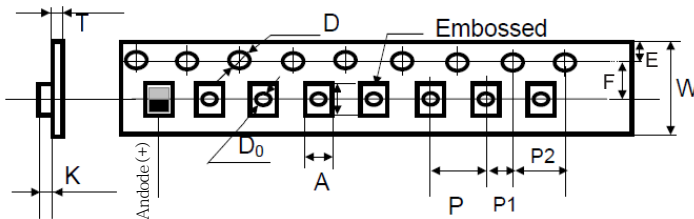


■ TAPING SPECIFICATIONS

Case Size	A ± 0.2	B ± 0.2	D ± 0.1	D ₀ min	E ± 0.2	F ± 0.2	K ± 0.2	P ± 0.1	P ₁ ± 0.1	P ₂ ± 0.1	T ± 0.3	W ± 0.2
A	1.9	3.5	1.5	1.0	1.75	3.5	1.9	4	2	4	0.2	8
B	3.1	3.8	1.5	1.0	1.75	3.5	2.1	4	2	4	0.3	8
C	3.6	6.4	1.5	1.5	1.75	3.5	3.0	8	2	4	0.3	12
D	4.7	7.7	1.5	1.5	1.75	3.5	3.3	8	2	4	0.3	12
E	4.6	7.6	1.5	1.5	1.75	3.5	3.6	8	2	4	0.3	12

■ TOLERANCE

K	M
10%	20%



■ TAPE AND REEL DIMENSIONS

Case Size	W	Qty / Reel
A	8.4 + 1.5	2000
B		
C	12.4 + 2.00	500
D		
E		

■ OLD CAPACITANCE CODES

CAP (μF)	OLD Code	NEW Code
0.1	0R1	104
0.15	R15	154
0.22	R22	224
0.33	R33	334
0.47	R47	474
0.68	R68	684
1.0	010	105
1.5	1R5	155
2.2	2R2	225
3.3	3R3	335
4.7	4R7	475
6.8	6R8	685

CAP (μF)	OLD Code	NEW Code
10	100	106
15	150	156
22	220	226
33	330	336
47	470	476
68	680	686
100	101	107
150	161	157
220	221	227
330	331	337
470	471	477
680	681	687

Note: Pt# Code changes effective 3/1/2013