

TS SERIES

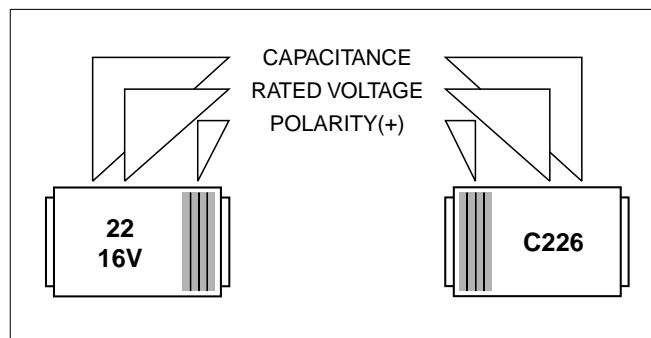
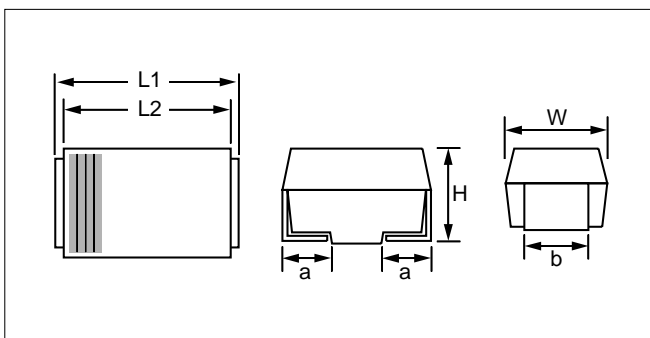
TANTALUM CAPACITOR



FEATURES

- Capacitance : 0.1 μ F to 220 μ F
- 100% Surge current test on each size (A, B2, C, D)
- Capacitance tolerance : $\pm 10\%$ (K), $\pm 20\%$ (M)
- Standard Range Values
- Voltage : 4VDC to 50VDC

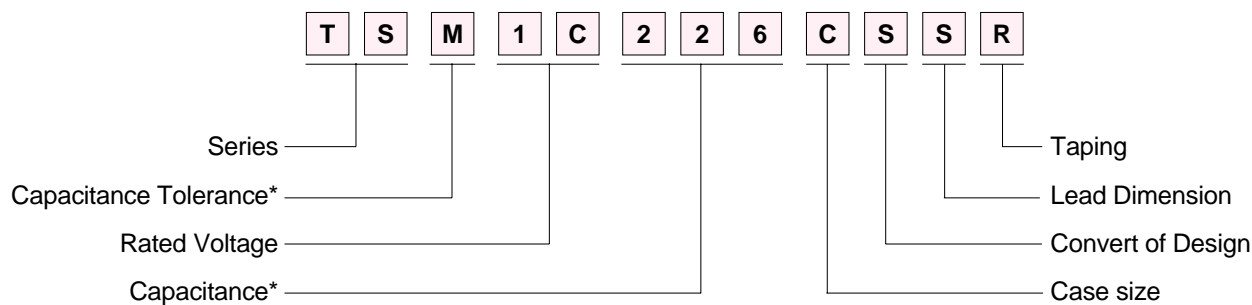
CASE DIMENSIONS AND MARKINGS



(unit : mm)

Size	Code	L1	L2	W	H	a	b
A	A	3.2 +0.2 -0.1	2.9 \pm 0.1	1.6 \pm 0.2	1.6 \pm 0.2	0.8 \pm 0.3	1.2 \pm 0.2
B2	T	3.5 \pm 0.3	3.2 \pm 0.1	2.8 \pm 0.3	1.9 \pm 0.3	0.8 \pm 0.3	2.2 \pm 0.2
C	C	6.0 \pm 0.3	5.8 \pm 0.1	3.2 \pm 0.3	2.5 \pm 0.3	1.3 \pm 0.3	2.2 \pm 0.2
D	D	7.3 \pm 0.3	7.1 \pm 0.1	4.3 \pm 0.3	2.8 \pm 0.3	1.3 \pm 0.3	2.4 \pm 0.2

ORDERING INFORMATION



Capacitance* : First two digits represent significant figures.
Third digit specifies number of zeros to follow.

Capacitance Tolerance* : M - $\pm 20\%$
K - $\pm 10\%$

SPECIFICATIONS

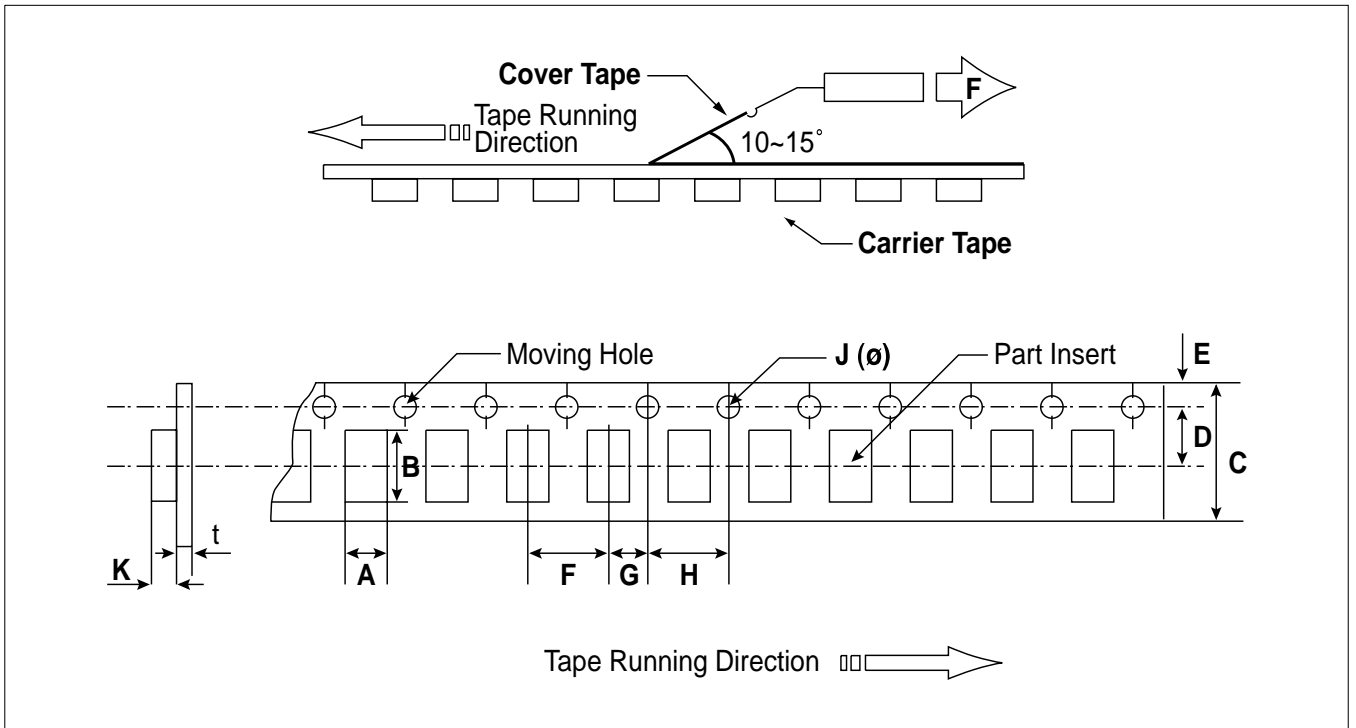
Capacitance	Range	0.1 μ F to 220 μ F							
	Tolerance	\pm 20%(M), \pm 10%(K)							
Dissipation Factor (tan δ)	$C \leq 1.0\mu\text{F}$	D.F \leq 4.0%							
	$1.5\mu\text{F} \leq C \leq 6.8\mu\text{F}$	D.F \leq 6.0%							
	$10\mu\text{F} \leq C \leq 68\mu\text{F}$	D.F \leq 8.0%							
	$C \geq 100\mu\text{F}$	D.F \leq 10.0%							
Leakage Current		between 0.01CV and 0.5 μ A, whichever is higher							
Rated Voltage (V _R)		4.0	6.3	10.0	16.0	20.0	25.0	35.0	50.0
Operating Voltage (V _o)	T \leq 85°C	4.0	6.3	10.0	16.0	20.0	25.0	35.0	50.0
	85 < T \leq 125°C	2.5	4.0	6.3	10.0	13.0	16.0	22.0	32.0
Surge Voltage (V _s)	T \leq 85°C	5.2	8.0	13.0	20.0	25.0	32.0	44.0	63.0
	85 < T \leq 125°C	3.2	5.0	8.0	13.0	16.0	20.0	28.0	40.0
Operating Temperature		-55°C to 125°C							

CAPACITANCE AND VOLTAGE RANGE

Cap(μ F)		W.V		4	6.3	10	16	20	25	35	50
		104	154								
0.10	104									A	A
0.15	154									A	B2
0.22	224									A	B2
0.33	334								A	A	B2
0.47	474							A	A	A, B2	C
0.68	684						A	A	A, B2	A, B2	C
1.0	105					A	A	A, B2	A, B2	A, B2	C
1.5	155					A	A, B2	A, B2	A, B2	B2, C	D
2.2	225					A	A, B2	A, B2	B2, C	B2, C	D
3.3	335					A	A, B2	A, B2, C	B2, C	B2, C	D
4.7	475					A, B2	A, B2, C	B2, C	B2, C	C, D	D
6.8	685					A, B2	A, B2, C	B2, C	C, D	C, D	D
10	106					A, B2	A, B2, C	B2, C, D	C, D	D	
15	156					A, B2, C	A, B2, C	B2, C	B2, C, D	C, D	D
22	226					A, B2, C	B2, C	B2, C, D	C, D	C, D	D
33	336					B2, C	B2, C, D	C, D	C, D	D	
47	476					B2, C, D	B2, C, D	C, D	D	D	
68	686					C, D	C, D	C, D	D	D	
100	107					C, D	C, D	D			
150	157					D	D	D			
220	227					D	D				

TAPE AND REEL DIMENSIONS

- Tape : Semitransparent emboss tape
- Cover tape : Attached for heating press polyester or adhesive cover tape
- The tension of removing cover tape
 - Heating press : $F = 50 \pm 20g$
 - Adhesive : $F = 30 \pm 15g$



• TS Series Carrier Tape Dimensions

(unit : mm)

Classification	Size A	Size B2	Size C	Size D
A	1.90±0.1	3.2±0.1	3.69±0.1	4.80±0.1
B	3.50±0.1	3.83±0.1	6.49±0.1	7.79±0.1
C	8.0±0.3	8.0±0.3	12.0±0.3	12.0±0.3
D	3.5±0.05	3.5±0.05	5.50±0.05	5.50±0.05
E	1.75±0.1	1.75±0.1	1.75±0.1	1.75±0.1
F	4.0±0.1	4.0±0.1	8.0±0.1	8.0±0.1
G	2.0±0.05			
H	4.0±0.1			
J	1.5+0.1, -0.0			
t	0.23±0.02	0.23±0.02	0.28±0.02	0.28±0.02
K	1.92±0.1	2.17±0.1	2.75±0.2	3.0±0.2
Packing Quantity	2,000pcs/Reel	2,000pcs/Reel	500pcs/Reel	500pcs/Reel
Inner Box	5 Reels (10kp)	5 Reels (10kp)	4 Reels (2kp)	4 Reels (2kp)
Outer Box	10 Inner Boxes(100kp)	10 Inner Boxes(100kp)	10 Inner Boxes(20kp)	10 Inner Boxes(20kp)

TS SERIES RATINGS & PART NUMBER REFERENCE ①

Rated Voltage(V)	Cap (μF)	tan δ (%)	D.C.L (μA)	Size	Part No.	Rated Voltage(V)	Cap (μF)	tan δ (%)	D.C.L (μA)	Size	Part No.
4	2.2	6.0	0.50	A	TSM0G225ASSR	10	1.0	4.0	0.50	A	TSM1A105ASSR
4	3.3	6.0	0.50	A	TSM0G335ASSR	10	1.5	6.0	0.50	A	TSM1A155ASSR
4	4.7	6.0	0.50	A	TSM0G475ASSR	10	2.2	6.0	0.50	A	TSM1A225ASSR
4	4.7	6.0	0.50	B2	TSM0G475TSSR	10	2.2	6.0	0.50	B2	TSM1A225TSSR
4	6.8	6.0	0.50	A	TSM0G685ASSR	10	3.3	6.0	0.50	A	TSM1A335ASSR
4	6.8	6.0	0.50	B2	TSM0G685TSSR	10	3.3	6.0	0.50	B2	TSM1A335TSSR
4	10	8.0	0.50	A	TSM0G106ASSR	10	4.7	6.0	0.50	A	TSM1A475ASSR
4	10	8.0	0.50	B2	TSM0G106TSSR	10	4.7	6.0	0.50	B2	TSM1A475TSSR
4	15	8.0	0.60	A	TSM0G156ASSR	10	6.8	6.0	0.68	A	TSM1A685ASSR
4	15	8.0	0.60	B2	TSM0G156TSSR	10	6.8	6.0	0.68	B2	TSM1A685TSSR
4	15	8.0	0.60	C	TSM0G156CSSR	10	6.8	6.0	0.68	C	TSM1A685CSSR
4	22	8.0	0.88	A	TSM0G226ASSR	10	10	8.0	1.00	A	TSM1A106ASSR
4	22	8.0	0.88	B2	TSM0G226TSSR	10	10	8.0	1.00	B2	TSM1A106TSSR
4	22	8.0	0.88	C	TSM0G226CSSR	10	10	8.0	1.00	C	TSM1A106CSSR
4	33	8.0	1.32	B2	TSM0G336TSS	10	15	8.0	1.50	B2	TSM1A156TSSR
4	33	8.0	1.32	C	TSM0G336CSSR	10	15	8.0	1.50	C	TSM1A156CSSR
4	47	8.0	1.88	B2	TSM0G476TSSR	10	22	8.0	2.20	B2	TSM1A226TSSR
4	47	8.0	1.88	C	TSM0G476CSSR	10	22	8.0	2.20	C	TSM1A226CSSR
4	47	8.0	1.88	D	TSM0G476DSSR	10	22	8.0	2.20	D	TSM1A226DSSR
4	68	8.0	2.72	C	TSM0G686CSSR	10	33	8.0	3.30	C	TSM1A336CSSR
4	68	8.0	2.72	D	TSM0G686DSSR	10	33	8.0	3.30	D	TSM1A336DSSR
4	100	10.0	4.00	C	TSM0G107CSSR	10	47	8.0	4.70	C	TSM1A476CSSR
4	100	10.0	4.00	D	TSM0G107DSSR	10	47	8.0	4.70	D	TSM1A476DSSR
4	150	10.0	6.00	D	TSM0G157DSSR	10	68	8.0	6.80	C	TSM1A686CSSR
4	220	10.0	8.80	D	TSM0G227DSSR	10	68	8.0	6.80	D	TSM1A686DSSR
6.3	2.2	6.0	0.50	A	TSM0J225ASSR	10	100	10.0	10.00	D	TSM1A107DSSR
6.3	3.3	6.0	0.50	A	TSM0J335ASSR	10	150	10.0	15.00	D	TSM1A157DSSR
6.3	3.3	6.0	0.50	B2	TSM0J335TSSR	16	0.68	4.0	0.50	A	TSM1C684ASSR
6.3	4.7	6.0	0.50	A	TSM0J475ASSR	16	1.0	4.0	0.50	A	TSM1C105ASSR
6.3	4.7	6.0	0.50	B2	TSM0J475TSSR	16	1.5	6.0	0.50	A	TSM1C155ASSR
6.3	6.8	6.0	0.50	A	TSM0J685ASSR	16	1.5	6.0	0.50	B2	TSM1C155TSSR
6.3	6.8	6.0	0.50	B2	TSM0J685TSSR	16	2.2	6.0	0.50	A	TSM1C225ASSR
6.3	10	8.0	0.63	A	TSM0J106ASSR	16	2.2	6.0	0.50	B2	TSM1C225TSSR
6.3	10	8.0	0.63	B2	TSM0J106TSSR	16	3.3	6.0	0.53	A	TSM1C335ASSR
6.3	10	8.0	0.63	C	TSM0J106CSSR	16	3.3	6.0	0.53	B2	TSM1C335TSSR
6.3	15	8.0	0.95	A	TSM0J156ASSR	16	4.7	6.0	0.75	A	TSM1C475ASSR
6.3	15	8.0	0.95	B2	TSM0J156TSSR	16	4.7	6.0	0.75	B2	TSM1C475TSSR
6.3	15	8.0	0.95	C	TSM0J156CSSR	16	4.7	6.0	0.75	C	TSM1C475CSSR
6.3	22	8.0	1.39	B2	TSM0J226TSSR	16	6.8	6.0	1.09	B2	TSM1C685TSSR
6.3	22	8.0	1.39	C	TSM0J226CSSR	16	6.8	6.0	1.09	C	TSM1C685CSSR
6.3	33	8.0	2.08	B2	TSM0J336TSSR	16	10	8.0	1.60	B2	TSM1C106TSSR
6.3	33	8.0	2.08	C	TSM0J336CSSR	16	10	8.0	1.60	C	TSM1C106CSSR
6.3	33	8.0	2.08	D	TSM0J336DSSR	16	15	8.0	2.40	B2	TSM1C156TSSR
6.3	47	8.0	2.96	B2	TSM0J476TSSR	16	15	8.0	2.40	C	TSM1C156CSSR
6.3	47	8.0	2.96	C	TSM0J476CSSR	16	15	8.0	2.40	D	TSM1C156DSSR
6.3	47	8.0	2.96	D	TSM0J476DSSR	16	22	8.0	3.52	C	TSM1C226CSSR
6.3	68	8.0	4.28	C	TSM0J686CSSR	16	22	8.0	3.52	D	TSM1C226DSSR
6.3	68	8.0	4.28	D	TSM0J686DSSR	16	33	8.0	5.28	C	TSM1C336CSSR
6.3	100	10.0	6.30	C	TSM0J107CSSR	16	33	8.0	5.28	D	TSM1C336DSSR
6.3	100	10.0	6.30	D	TSM0J107DSSR	16	47	8.0	7.52	D	TSM1C476DSSR
6.3	150	10.0	9.45	D	TSM0J157DSSR	16	68	8.0	10.88	D	TSM1C686DSSR
6.3	220	10.0	13.86	D	TSM0J227DSSR						

TS SERIES

TANTALUM CAPACITOR

TS SERIES RATINGS & PART NUMBER REFERENCE ②

Rated Voltage(V)	Cap (μF)	tan δ (%)	D.C.L (μA)	Size	Part No.	Rated Voltage(V)	Cap (μF)	tan δ (%)	D.C.L (μA)	Size	Part No.
20	0.47	4.0	0.50	A	TSM1D474ASSR	35	0.68	4.0	0.50	B2	TSM1V684TSSR
20	0.68	4.0	0.50	A	TSM1D684ASSR	35	1	4.0	0.50	A	TSM1V105ASSR
20	1	4.0	0.50	A	TSM1D105ASSR	35	1	4.0	0.50	B2	TSM1V105TSSR
20	1	4.0	0.50	B2	TSM1D105TSSR	35	1.5	6.0	0.53	B2	TSM1V155TSSR
20	1.5	6.0	0.50	A	TSM1D155ASSR	35	1.5	6.0	0.53	C	TSM1V155CSSR
20	1.5	6.0	0.50	B2	TSM1D155TSSR	35	2.2	6.0	0.77	B2	TSM1V225TSSR
20	2.2	6.0	0.50	A	TSM1D225ASSR	35	2.2	6.0	0.77	C	TSM1V225CSSR
20	2.2	6.0	0.50	B2	TSM1D225TSSR	35	3.3	6.0	1.16	B2	TSM1V335TSSR
20	3.3	6.0	0.66	A	TSM1D335ASSR	35	3.3	6.0	1.16	C	TSM1V335CSSR
20	3.3	6.0	0.66	B2	TSM1D335TSSR	35	4.7	6.0	1.65	C	TSM1V475CSSR
20	3.3	6.0	0.66	C	TSM1D335CSSR	35	4.7	6.0	1.65	D	TSM1V475DSSR
20	4.7	6.0	0.94	B2	TSM1D475TSSR	35	6.8	6.0	2.38	C	TSM1V685CSSR
20	4.7	6.0	0.94	C	TSM1D475CSSR	35	6.8	6.0	2.38	D	TSM1V685DSSR
20	6.8	6.0	1.36	B2	TSM1D685TSSR	35	10	8.0	3.50	D	TSM1V106DSSR
20	6.8	6.0	1.36	C	TSM1D685CSSR	35	15	8.0	5.25	D	TSM1V156DSSR
20	10	8.0	2.00	B2	TSM1D106TSSR	50	0.1	4.0	0.50	A	TSM1H104ASSR
20	10	8.0	2.00	C	TSM1D106CSSR	50	0.15	4.0	0.50	B2	TSM1H154TSSR
20	10	8.0	2.00	D	TSM1D106DSSR	50	0.22	4.0	0.50	B2	TSM1H224TSSR
20	15	8.0	3.00	C	TSM1D156CSSR	50	0.33	4.0	0.50	B2	TSM1H334TSSR
20	15	8.0	3.00	D	TSM1D156DSSR	50	0.47	4.0	0.50	C	TSM1H474CSSR
20	22	8.0	4.40	C	TSM1D226CSSR	50	0.68	4.0	0.50	C	TSM1H684CSSR
20	22	8.0	4.40	D	TSM1D226DSSR	50	1	4.0	0.50	C	TSM1H105CSSR
20	33	8.0	6.60	D	TSM1D336DSSR	50	1.5	6.0	0.75	D	TSM1H155DSSR
20	47	8.0	9.40	D	TSM1D476DSSR	50	2.2	6.0	1.10	D	TSM1H225DSSR
25	0.33	4.0	0.50	A	TSM1E334ASSR	50	3.3	6.0	1.65	D	TSM1H335DSSR
25	0.47	4.0	0.50	A	TSM1E474ASSR	50	4.7	6.0	2.35	D	TSM1H475DSSR
25	0.68	4.0	0.50	A	TSM1E684ASSR	50	6.8	6.0	3.40	D	TSM1H685DSSR
25	0.68	4.0	0.50	B2	TSM1E684TSSR						
25	1	4.0	0.50	A	TSM1E105ASSR						
25	1	4.0	0.50	B2	TSM1E105TSSR						
25	1.5	6.0	0.50	A	TSM1E155ASSR						
25	1.5	6.0	0.50	B2	TSM1E155TSSR						
25	2.2	6.0	0.55	B2	TSM1E225TSSR						
25	2.2	6.0	0.55	C	TSM1E225CSSR						
25	3.3	6.0	0.83	B2	TSM1E335TSSR						
25	3.3	6.0	0.83	C	TSM1E335CSSR						
25	4.7	6.0	1.18	B2	TSM1E475TSSR						
25	4.7	6.0	1.18	C	TSM1E475CSSR						
25	6.8	6.0	1.70	C	TSM1E685CSSR						
25	6.8	6.0	1.70	D	TSM1E685DSSR						
25	10	8.0	2.50	C	TSM1E106CSSR						
25	10	8.0	2.50	D	TSM1E106DSSR						
25	15	8.0	3.75	C	TSM1E156CSSR						
25	15	8.0	3.75	D	TSM1E156DSSR						
25	22	8.0	5.50	D	TSM1E226DSSR						
35	0.1	4.0	0.50	A	TSM1V104ASSR						
35	0.15	4.0	0.50	A	TSM1V154ASSR						
35	0.22	4.0	0.50	A	TSM1V224ASSR						
35	0.33	4.0	0.50	A	TSM1V334ASSR						
35	0.47	4.0	0.50	A	TSM1V474ASSR						
35	0.47	4.0	0.50	B2	TSM1V474TSSR						
35	0.68	4.0	0.50	A	TSM1V684ASSR						