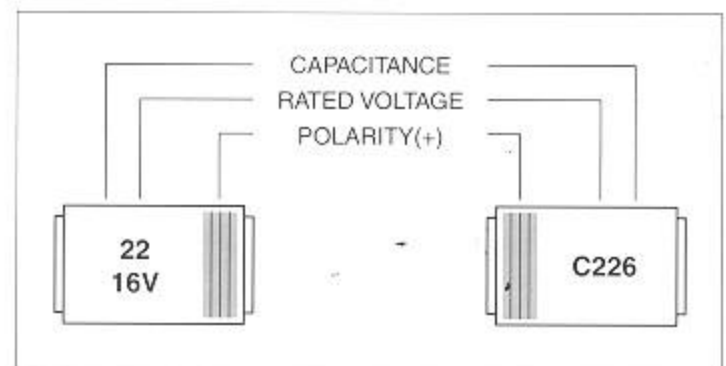
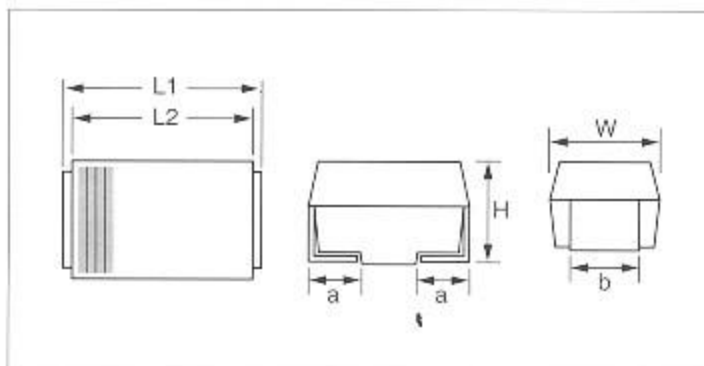


## FEATURES

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

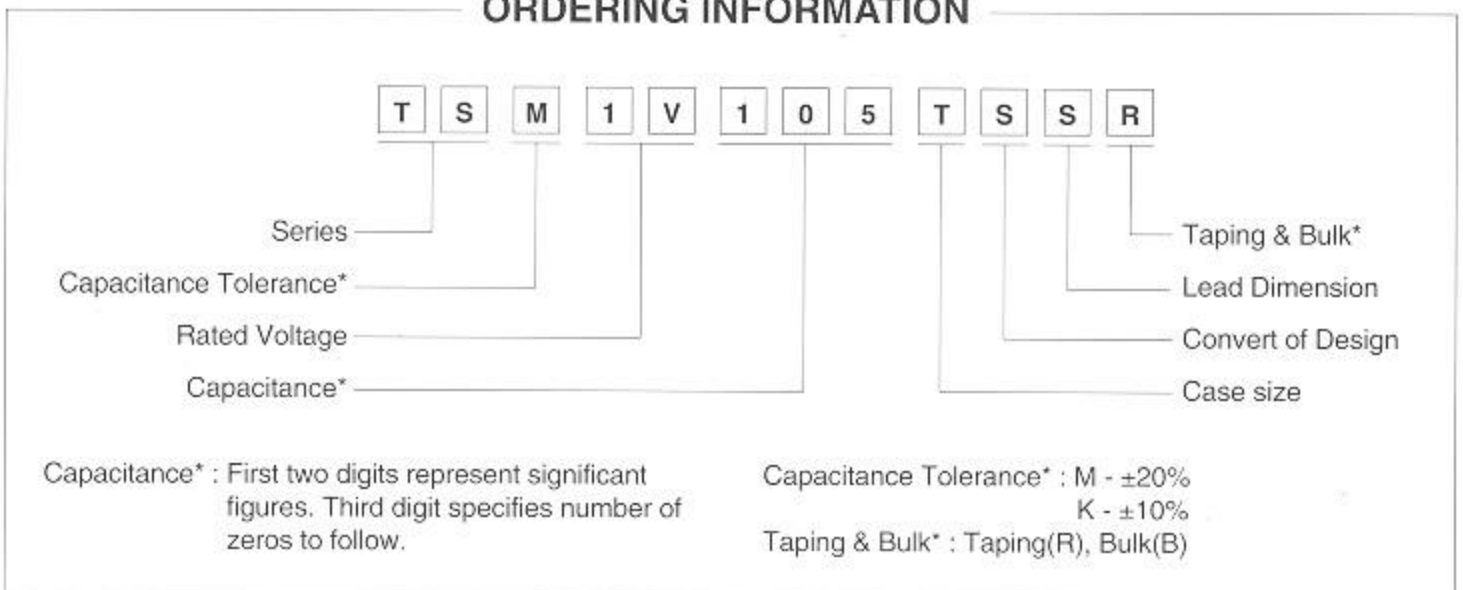
## CASE DIMENSIONS AND MARKINGS



Size	Code	L1	L2	W	H	a	b
A	A	3.2 <sup>+0.2</sup> <sub>-0.1</sub>	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

(unit : mm)

## ORDERING INFORMATION



## SPECIFICATIONS

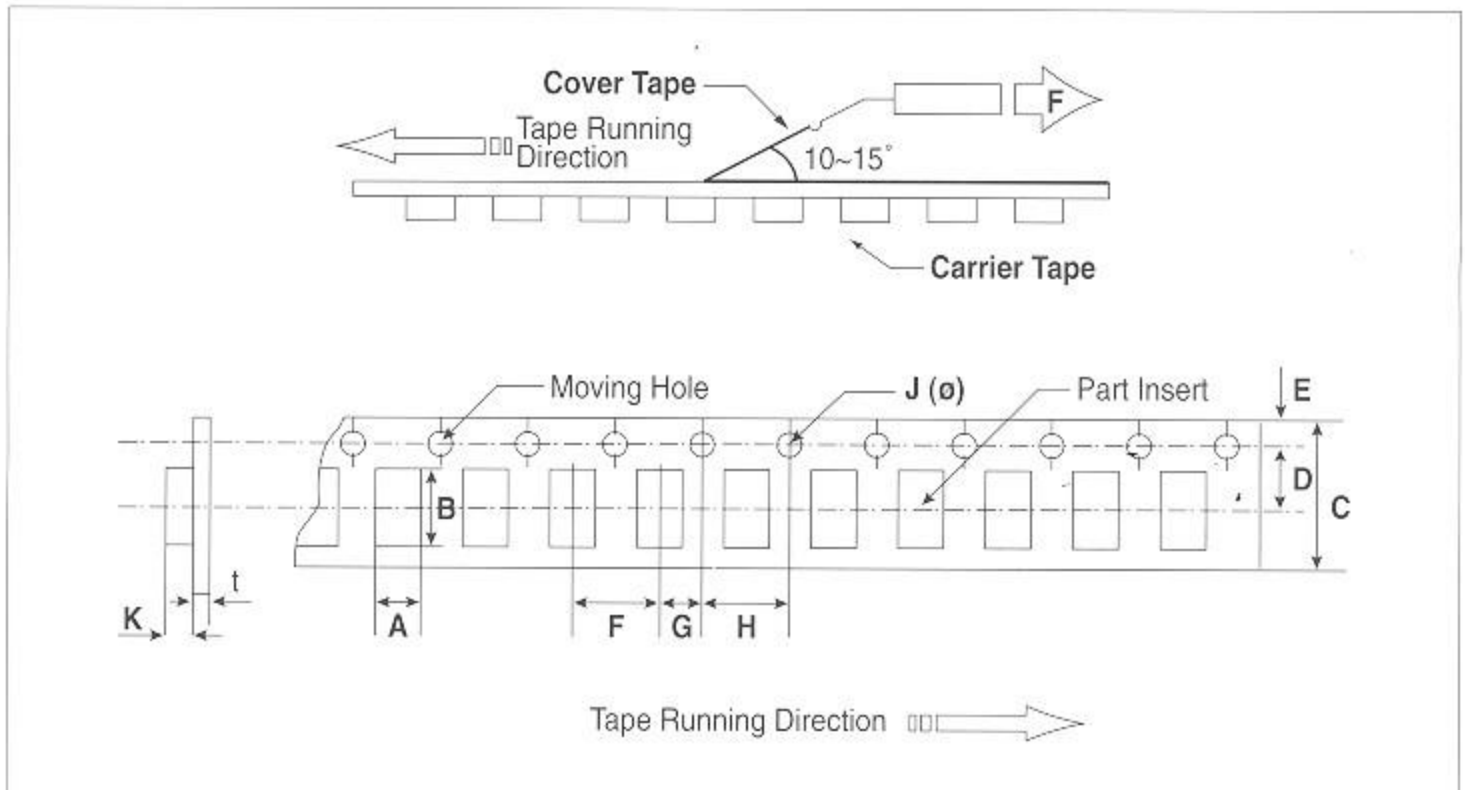
Capacitance	Range	0.1 $\mu$ F to 220 $\mu$ F							
	Tolerance	$\pm 20\%$ (M), $\pm 10\%$ (K)							
Dissipation Factor ( $\tan \delta$ )	$C \leq 1.0\mu\text{F}$	D.F $\leq 4.0\%$							
	$1.5\mu\text{F} \leq C \leq 6.8\mu\text{F}$	D.F $\leq 6.0\%$							
	$10\mu\text{F} \leq C \leq 68\mu\text{F}$	D.F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

## CAPACITANCE AND VOLTAGE RANGE

W.V Cap( $\mu$ F)		4	6.3	10	16	20	25	35	50
		0.10	104						
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	A, B2	A, B2	A, B2	B2, C	B2, C	D
3.3	335	A	A, B2	A, B2	A, B2	A, B2, C	B2, C	B2, C	D
4.7	475	A, B2	A, B2	A, B2	A, B2, C	B2, C	B2, C	C, D	D
6.8	685	A, B2	A, B2	A, B2, C	B2, C	B2, C	C, D	C, D	D
10	106	A, B2	A, B2, C	A, B2, C	B2, C	B2, C, D	C, D	D	
15	156	A, B2, C	B2, C	B2, C	B2, C, D	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				
100	107	C, D	C, D	D					
150	157	D	D	D					
220	227	D	D						

## TAPE AND REEL DIMENSIONS

- Carrier tape : Semitransparent plastic emboss type
- Cover tape : Hot-press polyester type or adhesive type
- The tension of removing cover tape
  - Hot-press type :  $F = 50 \pm 20g$
  - Adhesive type :  $F = 30 \pm 15g$

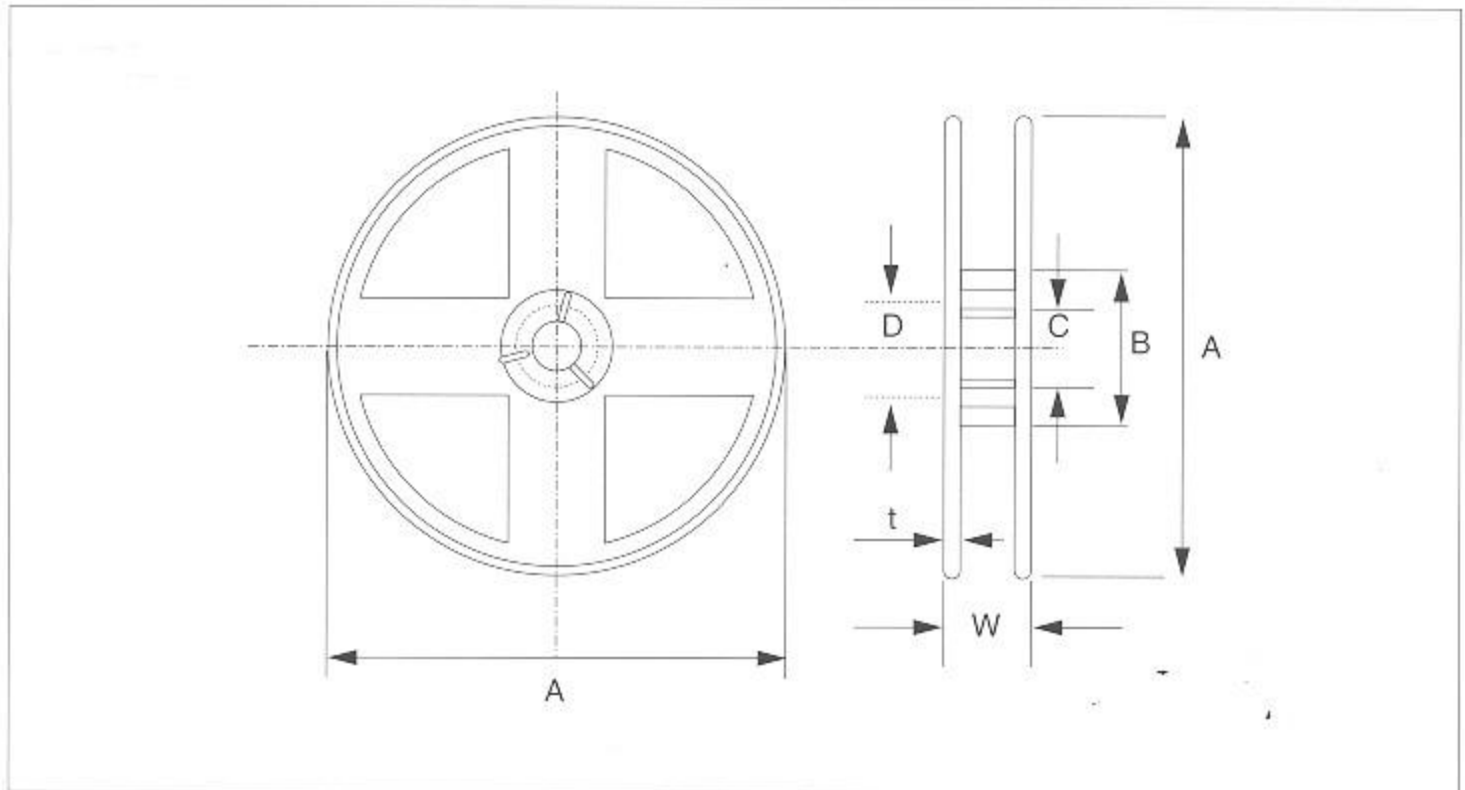


### • TS Series Tape Dimensions

(unit : mm)

Classification	Size A	Size B2	Size C	Size D
A	$1.90 \pm 0.1$	$3.2 \pm 0.1$	$3.69 \pm 0.1$	$4.80 \pm 0.1$
B	$3.50 \pm 0.1$	$3.83 \pm 0.1$	$6.49 \pm 0.1$	$7.79 \pm 0.1$
C	$8.0 \pm 0.3$	$8.0 \pm 0.3$	$12.0 \pm 0.3$	$12.0 \pm 0.3$
D	$3.5 \pm 0.05$	$3.5 \pm 0.05$	$5.50 \pm 0.05$	$5.50 \pm 0.05$
E	$1.75 \pm 0.1$	$1.75 \pm 0.1$	$1.75 \pm 0.1$	$1.75 \pm 0.1$
F	$4.0 \pm 0.1$	$4.0 \pm 0.1$	$8.0 \pm 0.1$	$8.0 \pm 0.1$
G	$2.0 \pm 0.05$			
H	$4.0 \pm 0.1$			
J	$1.5 + 0.1, -0.0$			
t	$0.25 \pm 0.02$	$0.25 \pm 0.02$	$0.25 \pm 0.02$	$0.25 \pm 0.02$
K	$1.92 \pm 0.1$	$2.17 \pm 0.1$	$2.75 \pm 0.2$	$3.0 \pm 0.2$

## REEL DIMENSIONS



(unit : mm)

Tape Width	A	B	C	D	W	t
8.0	178±2.0	min ø60	13.0±0.5	21.0±0.8	10.0±1.5	2.0±0.5
12.0	178±2.0	min ø60	13.0±0.5	21.0±0.8	14.0±1.5	2.0±0.5

### • Quantity per Reel

Series	Size	Reel	Inner Box	Outer Box
TS	A	2,000pcs	5 REEL (10KP)	50 REEL (100KP)
	B2	2,000pcs	5 REEL (10KP)	50 REEL (100KP)
TL	C	500pcs	4 REEL (2KP)	40 REEL (20KP)
TE	D	500pcs	4 REEL (2KP)	40 REEL (20KP)
TH	E	400pcs	4 REEL (1.6KP)	40 REEL (16KP)
TP	P	3,000pcs	5 REEL (15KP)	50 REEL (150KP)
TJ	J	4,000pcs	5 REEL (20KP)	50 REEL (200KP)
TU	UA	3,000pcs	5 REEL (15KP)	50 REEL (150KP)
	UB	3,000pcs	5 REEL (15KP)	50 REEL (150KP)
	UC	1,000pcs	5 REEL (5KP)	50 REEL (50KP)

## 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	TSM0G336TSSR	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 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	0.1	4.0	0.50	A	TSM1V104ASSR
20	0.68	4.0	0.50	A	TSM1D684ASSR	35	0.15	4.0	0.50	A	TSM1V154ASSR
20	1	4.0	0.50	A	TSM1D105ASSR	35	0.22	4.0	0.50	A	TSM1V224ASSR
20	1	4.0	0.50	B2	TSM1D105TSSR	35	0.33	4.0	0.50	A	TSM1V334ASSR
20	1.5	6.0	0.50	A	TSM1D155ASSR	35	0.47	4.0	0.50	A	TSM1V474ASSR
20	1.5	6.0	0.50	B2	TSM1D155TSSR	35	0.47	4.0	0.50	B2	TSM1V474TSSR
20	2.2	6.0	0.50	A	TSM1D225ASSR	35	0.68	4.0	0.50	A	TSM1V684ASSR
20	2.2	6.0	0.50	B2	TSM1D225TSSR	35	0.68	4.0	0.50	B2	TSM1V684TSSR
20	3.3	6.0	0.66	A	TSM1D335ASSR	35	1	4.0	0.50	A	TSM1V105ASSR
20	3.3	6.0	0.66	B2	TSM1D335TSSR	35	1	4.0	0.50	B2	TSM1V105TSSR
20	3.3	6.0	0.66	C	TSM1D335CSSR	35	1.5	6.0	0.53	B2	TSM1V155TSSR
20	4.7	6.0	0.94	B2	TSM1D475TSSR	35	1.5	6.0	0.53	C	TSM1V155CSSR
20	4.7	6.0	0.94	C	TSM1D475CSSR	35	2.2	6.0	0.77	B2	TSM1V225TSSR
20	6.8	6.0	1.36	B2	TSM1D685TSSR	35	2.2	6.0	0.77	C	TSM1V225CSSR
20	6.8	6.0	1.36	C	TSM1D685CSSR	35	3.3	6.0	1.16	B2	TSM1V335TSSR
20	10	8.0	2.00	B2	TSM1D106TSSR	35	3.3	6.0	1.16	C	TSM1V335CSSR
20	10	8.0	2.00	C	TSM1D106CSSR	35	4.7	6.0	1.65	C	TSM1V475CSSR
20	10	8.0	2.00	D	TSM1D106DSSR	35	4.7	6.0	1.65	D	TSM1V475DSSR
20	15	8.0	3.00	C	TSM1D156CSSR	35	6.8	6.0	2.38	C	TSM1V685CSSR
20	15	8.0	3.00	D	TSM1D156DSSR	35	6.8	6.0	2.38	D	TSM1V685DSSR
20	22	8.0	4.40	C	TSM1D226CSSR	35	10	8.0	3.50	D	TSM1V106DSSR
20	22	8.0	4.40	D	TSM1D226DSSR	35	15	8.0	5.25	D	TSM1V156DSSR
20	33	8.0	6.60	D	TSM1D336DSSR	50	0.1	4.0	0.50	A	TSM1H104ASSR
20	47	8.0	9.40	D	TSM1D476DSSR	50	0.15	4.0	0.50	B2	TSM1H154TSSR
25	0.33	4.0	0.50	A	TSM1E334ASSR	50	0.22	4.0	0.50	B2	TSM1H224TSSR
25	0.47	4.0	0.50	A	TSM1E474ASSR	50	0.33	4.0	0.50	B2	TSM1H334TSSR
25	0.68	4.0	0.50	A	TSM1E684ASSR	50	0.47	4.0	0.50	C	TSM1H474CSSR
25	0.68	4.0	0.50	B2	TSM1E684TSSR	50	0.68	4.0	0.50	C	TSM1H684CSSR
25	1	4.0	0.50	A	TSM1E105ASSR	50	1	4.0	0.50	C	TSM1H105CSSR
25	1	4.0	0.50	B2	TSM1E105TSSR	50	1.5	6.0	0.75	D	TSM1H155DSSR
25	1.5	6.0	0.50	A	TSM1E155ASSR	50	2.2	6.0	1.10	D	TSM1H225DSSR
25	1.5	6.0	0.50	B2	TSM1E155TSSR	50	3.3	6.0	1.65	D	TSM1H335DSSR
25	2.2	6.0	0.55	B2	TSM1E225TSSR	50	4.7	6.0	2.35	D	TSM1H475DSSR
25	2.2	6.0	0.55	C	TSM1E225CSSR	50	6.8	6.0	3.40	D	TSM1H685DSSR
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	1	4.0	0.50	B2	TSM1V105TSSR						
35	1.5	6.0	0.53	B2	TSM1V155TSSR						
35	1.5	6.0	0.53	C	TSM1V155CSSR						
35	2.2	6.0	0.77	B2	TSM1V225TSSR						
35	2.2	6.0	0.77	C	TSM1V225CSSR						
35	3.3	6.0	1.16	B2	TSM1V335TSSR						
35	3.3	6.0	1.16	C	TSM1V335CSSR						