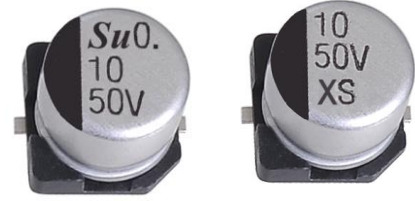


CHIP TYPE SERIES

TS13C0

FEATURES

- Designed for surface mounting on high density circuit board.
- Emboss carrier tape packing system is available for automatic insertion.

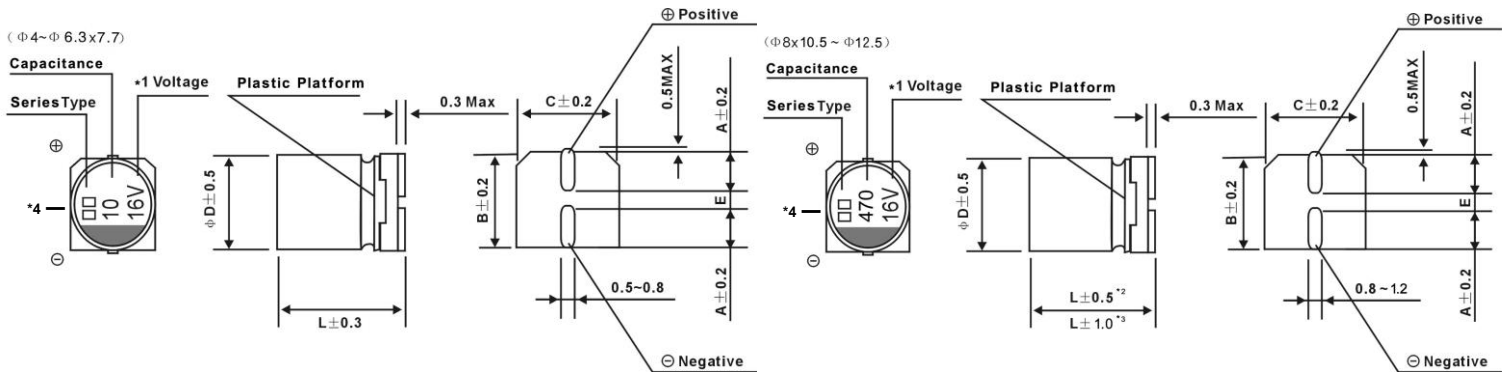


Standard Series

◆ Specifications

ITEMS		PERFORMANCE CHARACTERISTICS									
Operating Temperature Range	-40°C ~ +85°C										
Voltage Range	4~100V										
Capacitance Range	0.1~10000 μ F										
Capacitance Tolerance	$\pm 20\%$ at 120Hz, 20°C										
Leakage Current	Leakage current ($\phi 4\sim\phi 10$) $\leq 0.01CV$ or $3\mu A$, whichever is greater. (After 2 minutes' application of rated voltage) Leakage current ($\phi 12.5$) $\leq 0.03CV$ or $4\mu A$, whichever is greater. (After 1 minutes' application of rated voltage)										
Tan δ	Measurement frequency : 120Hz, Temperature : 20°C										
	Rated voltage (V)	4	6.3	10	16	25	35	50	63	100	
Tan δ (MAX)	$\phi 4\sim\phi 10$	$\phi 4\sim\phi 10$	0.35	0.3	0.24	0.2	0.16	0.14	0.14	0.12	0.10
		$\phi 12.5$	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.10
Stability at Low Temperature	Measurement frequency : 120Hz										
	Rated voltage (V)				4	6.3	10	16	25	35	50~100
	Impedance ratio ZT / Z20 (MAX)	$\phi 4\sim\phi 10$	Z-25°C / Z+20°C	7	4	3	2	2	2	2	2
			Z-40°C / Z+20°C	15	8	6	4	4	3	3	3
Impedance ratio ZT / Z20 (MAX)	$\phi 12.5$	Z-25°C / Z+20°C	7	5	4	3	2	2	2	2	
		Z-40°C / Z+20°C	17	12	10	8	5	4	3	3	
Load Life	After 2000 hours' application of rated voltage at 85°C, capacitors meet the characteristics requirements listed at right	Capacitance Change	Within $\pm 20\%$ of initial value (Within $\pm 30\%$ of initial value for 4V)								
		Tan δ	200% or less of initial specified value								
		Leakage Current	Initial specified value or less								
Self Life	After leaving capacitors under no load at 85°C for 1000 hours, they meet the specified value for load life characteristics listed above.										
Resistance to Soldering Heat	After reflow soldering and restored at room temperature, they meet the characteristics requirements listed at right.	Capacitance Change	Within $\pm 10\%$ of initial value								
		Tan δ	Initial specified value or less								
		Leakage Current	Initial specified value or less								
Applicable Standards	JIS C-5141 and JIS C-5102.										

◆ Drawing (Unit: mm)



*1 Voltage mark for 6.3V is [6V] or [6.3V]

*2 Applicable to $\phi 8 \times 10.5 \sim \phi 10$

*3 Applicable to $\phi 12.5$

*4 Markings: Su0, S0, CS, XS

$\phi D \times L$	4x5.4	5x5.4	6.3x5.4	6.3x7.7	8x10.5	10x10.5/13.5	12.5x13.5
A	1.8	2.1	2.4	2.4	2.9	3.2	4.7
B	4.3	5.3	6.6	6.6	8.3	10.3	13.0
C	4.3	5.3	6.6	6.6	8.3	10.3	13.0
E ± 0.2	1.0	1.3	2.2	2.2	3.1	4.4	4.4
L	5.4	5.4	5.4	7.7	10.5	10.5/13.5	13.5

(mm)

CHIP TYPE SERIES

TS13C0

◆ Standard size & Maximum permissible ripple current

Cap.(μF)	WV	4		6.3		10		16		25	
		0G		0J		1A		1C		1E	
4.7	4R7	--	--	--	--	--	--	--	--	4x5.4	13
10	100	--	--	--	--	--	--	4x5.4	18	4x5.4 5x5.4	14 20
15	150	--	--	--	--	--	--	4x5.4	25	5x5.4	27
22	220	--	--	4x5.4	20	4x5.4 5x5.4	20 25	4x5.4 5x5.4	20 27	5x5.4 6.3x5.4	25 36
33	330	4x5.4	18	4x5.4 5x5.4	22 27	4x5.4 5x5.4	22 30	5x5.4 6.3x5.4	28 31	5x5.4 6.3x5.4	29 44
47	470	4x5.4	24	4x5.4 5x5.4	23 30	4x5.4 5x5.4 6.3x5.4	25 30 49	5x5.4 6.3x5.4	30 48	6.3x5.4 8x6.5	48 80
56	560	4x5.4	27	5x5.4	32	6.3x5.4	40	6.3x5.4	52	6.3x5.4	48
68	680	5x5.4	31	5x5.4 6.3x5.4	41 43	6.3x5.4	50	6.3x5.4	56	6.3x5.4	50
100	101	5x5.4 6.3x5.4	43 50	5x5.4 6.3x5.4	40 50	5x5.4 6.3x5.4	40 53	6.3x5.4 8x6.5	60 100	6.3x5.4 6.3x7.7	80 91
150	151	6.3x5.4	52	6.3x5.4	55	6.3x5.4	62	6.3x7.7 8x6.5	80 120	6.3x7.7 8x10.5	100 140
220	221	6.3x5.4	57	6.3x5.4 6.3x7.7	67 105	6.3x5.4 6.3x7.7 8x6.5	67 88 105	6.3x7.7 8x6.5 8x10.5	86 105 150	8x10.5 10x7.7	175 160
330	331	6.3x7.7	100	6.3x7.7 8x6.5	105 105	6.3x7.7 8x10.5	135 195	8x10.5 10x7.7	195 175	8x10.5 10x10.5	220 220
470	471	6.3x7.7 8x6.5	105 105	6.3x7.7 8x10.5	120 230	6.3x7.7 8x10.5 10x10.5	120 210 232	8x10.5 10x10.5	270 280	10x10.5	280
680	681	8x10.5	210	8x10.5	230	8x10.5 10x10.5	230 270	10x10.5	315	10x10.5	245
1000	102	8x10.5 10x7.7	230 230	8x10.5 10x7.7 10x10.5	290 230 315	8x10.5 10x10.5	290 315	10x10.5 12.5x13.5	315 700	12.5x13.5	700
1500	152	10x10.5	315	10x10.5	410	10x10.5 12.5x13.5	335 458	12.5x13.5	580	--	--
2200	222	10x10.5	340	12.5x13.5	650	12.5x13.5	910	--	--	Case Size	Ripple Current

Cap.(μF)	WV	35		50		63		100	
		1V		1H		1J		2A	
0.1	0R1	--	--	4x5.4	2	4x5.4	2	--	--
0.22	R22	--	--	4x5.4	4	4x5.4	4	--	--
0.33	R33	--	--	4x5.4	4	4x5.4	4	--	--
0.47	R47	--	--	4x5.4	5	4x5.4	5	--	--
1	010	--	--	4x5.4	8	4x5.4	8	4x5.4	8
1.5	1R5	--	--	4x5.4	9	4x5.4	9	6.3x5.4	12
2.2	2R2	--	--	4x5.4	11	4x5.4	11	5x5.4 6.3x5.4	12 14
3.3	3R3	4x5.4	13	4x5.4	12	5x5.4 6.3x5.4	12 30	6.3x5.4 6.3x7.7 8x6.5	23 32 30
4.7	4R7	4x5.4	15	4x5.4 5x5.4	14 19	5x5.4 6.3x5.4	18 23	5x5.4 6.3x5.4 6.3x7.7	15 21 35
10	100	4x5.4 5x5.4	18 25	5x5.4 6.3x5.4	20 28	6.3x5.4 6.3x7.7 8x6.5	24 39 25	6.3x5.4 6.3x7.7 8x10.5	25 35 77
22	220	5x5.4 6.3x5.4	34 29	6.3x5.4 6.3x7.7 8x6.5	42 51 70	6.3x7.7 8x6.5 8x10.5	48 55 98	8x10.5 10x10.5	84 126
33	330	6.3x5.4 8x6.5	46 85	6.3x5.4 6.3x7.7 8x6.5	60 60 70	6.3x7.7 8x10.5	49 112	10x10.5	133
47	470	6.3x5.4 6.3x7.7 8x6.5	55 78 85	6.3x7.7 8x6.5 8x10.5 10x10.5	63 85 119 170	8x10.5 10x10.5	119 160	10x10.5	140
56	560	6.3x7.7	65	6.3x7.7	90	10x10.5	210	--	--
68	680	6.3x7.7 8x6.5	69 90	8x6.5 8x10.5	70 110	10x10.5	140	--	--
100	101	6.3x7.7 8x10.5 10x7.7	80 80 160	8x10.5 10x10.5 10x7.7	145 175 160	10x10.5 12.5x13.5	196 495	12.5x13.5	405
150	151	8x10.5	175	10x10.5	200	--	--	--	--
220	221	8x10.5 10x10.5	185 250	10x10.5	220	12.5x13.5	560	--	--
330	331	10x10.5	300	12.5x13.5	630	--	--	--	--
470	471	10x10.5	310	--	--	--	--	--	--
680	681	12.5x13.5	600	--	--	--	--	Case size	Allowable ripple

Allowable Ripple (mA ms) at 85°C 120Hz

◆ Frequency coefficient of allowable ripple current

Coefficient	Frequency	50Hz	120Hz	300Hz	1kHz	10kHz~
		φ 4~ φ 10	0.1~68μF	0.70	1.00	1.17
100~3300μF	0.85		1.00	1.08	1.2	1.30
~68 μF	0.75		1.00	1.35	1.57	2.00
100~680 μF	0.80		1.00	1.23	1.34	1.5
φ 12.5	1000~10000 μF	0.85	1.00	1.1	1.13	1.15

Note: Specifications are subject to change without notice. For more detail and update, please visit our website.