

CHIP TYPE SERIES

TS13C0

FEATURES

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

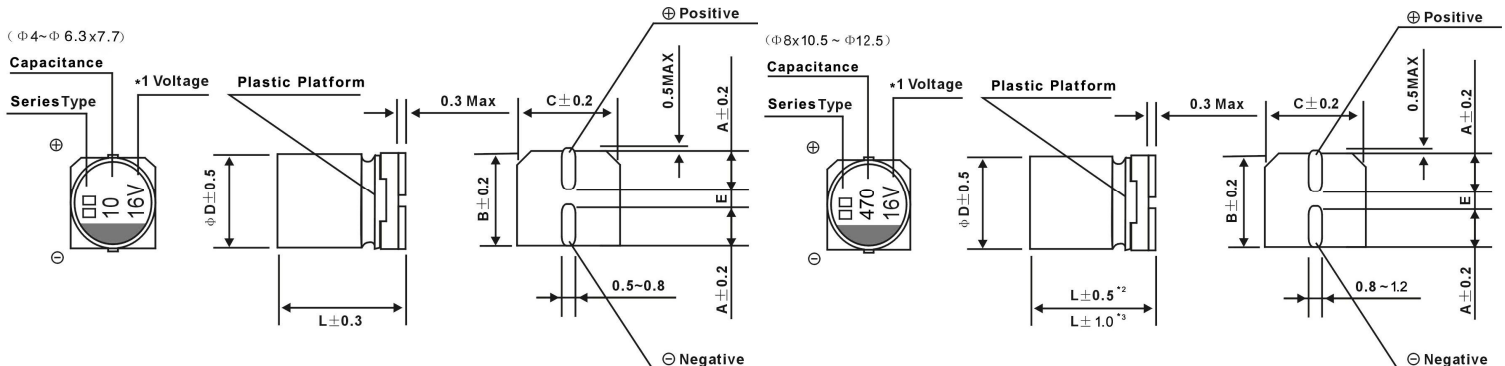


Standard Series

◆ Specifications

ITEMS		PERFORMANCE CHARACTERISTICS									
Operating Temperature Range	-40°C ~ +85°C										
Voltage Range	4~100V										
Capacitance Range	0.1~10000 μF										
Capacitance Tolerance	±20% at 120Hz, 20°C										
Leakage Current	Leakage current(φ 4~φ 10) ≤ 0.01CV or 3 μA., whichever is greater.(After 2 minutes' application of rated voltage) Leakage current(φ 12.5) ≤ 0.03CV or 4 μA., 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)	φ 4~φ 10	0.35	0.3	0.24	0.2	0.16	0.14	0.14	0.12	0.10
Stability at Low Temperature	Measurement frequency : 120Hz										
	Rated voltage (V)										
	Impedance ratio ZT / Z20 (MAX)	φ 4~φ 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
		φ 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 ± 20% of initial value (Within ± 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 ± 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]

*2 Applicable to φ8x10.5~φ10

*3 Applicable to φ12.5

∅DxL	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

◆ Standard size & Maximum permissible ripple current

WV		4		6.3		10		16		25	
Cap.(μF)		0G		0J		1A		1C		1E	
4.7	4R7	--	--	--	--	--	--	--	--	--	--
10	100	--	--	--	--	--	--	4x5.4	25	5x5.4 (4x5.4)	28 (20)
15	150	--	--	--	--	--	--	4x5.4	28	5x5.4	34
22	220	--	--	4x5.4	31	5x5.4 (4x5.4)	35 (28)	5x5.4 (4x5.4)	39 (28)	6.3x5.4 (5x5.4)	52 (35)
33	330	4x5.4	26	5x5.4 (4x5.4)	39 (31)	5x5.4 (4x5.4)	43 (32)	6.3x5.4 (5x5.4)	57 (40)	6.3x5.4 (5x5.4)	63 (42)
47	470	4x5.4	34	5x5.4 (4x5.4)	47 (36)	6.3x5.4 (5x5.4)	59 (43)	6.3x5.4 (5x5.4)	68 (44)	6.3x5.4	68
56	560	4x5.4	39	5x5.4	46	6.3x5.4	57	6.3x5.4	74	6.3x5.4	82
68	680	5x5.4	45	6.3x5.4 (5x5.4)	62 (52)	6.3x5.4	72	6.3x5.4	80	6.3x5.4	94
100	101	5x5.4	61	6.3x5.4 (5x5.4)	71 (55)	5x5.4 6.3x5.4	55 76	6.3x5.4	86	6.3x7.7	130
150	151	6.3x5.4	74	6.3x5.4	78	6.3x5.4	88	6.3x7.7	135	8x10.5 (6.3 x 7.7)	200 (130)
220	221	6.3x5.4	82	6.3x5.8	95	6.3x5.8 6.3x7.7	95 150	8x10.5 6.3x7.7	215 (150)	8x10.5	250
330	331	6.3x7.7	150	6.3x7.7	150	8x10.5	280	8x10.5	280	10x10.5 (8x10.5)	340 (310)
470	471	6.3x7.7	150	8x10.5 (6.3x7.7)	300 (150)	10x10.5 (8x10.5)	320 (300)	10x10.5 (8x10.5)	420 (330)	10x10.5	400
680	681	8x10.5	300	8x10.5	300	10x10.5	380	10x10.5	450	10x13.5	550
1000	102	8x10.5	330	10x10.5 (8x10.5)	430 (330)	10x10.5	450	12.5x13.5 (10x13.5) (10x10.5)	710 (550) (490)	12.5x13.5	820
1500	152	10x10.5	450	10x13.5 (10x10.5)	650 (450)	10x13.5	650	12.5x13.5	750	--	--
2200	222	10x13.5 (10x10.5)	620 (480)	12.5x13.5 (10x13.5)	890 (720)	12.5x13.5	960	--	--	--	--
3300	332	10x13.5	700	12.5x13.5	(900)	--	--	--	--	--	--
4700	472	12.5x13.5	850	--	--	--	--	--	--	--	--
6800	682	--	--	--	--	--	--	--	--	--	--
10000	103	--	--	--	--	--	--	--	--	Case Size	Ripple Current

WV		35		50		63		100	
Cap.(μ F)		1V		1H		1J		2A	
0.1	0R1	--	--	4x5.4	1.0	4x5.4	1.0	--	--
0.22	R22	--	--	4x5.4	2.3	4x5.4	2.3	--	--
0.33	R33	--	--	4x5.4	3.5	4x5.4	3.5	--	--
0.47	R47	--	--	4x5.4	5.0	4x5.4	5.0	--	--
1	010	--	--	4x5.4	10	4x5.4	10	4x5.4	10
1.5	1R5	--	--	4x5.4	12	4x5.4	12	6.3x5.4	15
2.2	2R2	--	--	4x5.4	15	4x5.4	15	6.3x5.4	20
3.3	3R3	--	--	4x5.4	18	5x5.4	20	6.3x7.7 (6.3x5.4)	45 (28)
4.7	4R7	--	--	5x5.4 (4x5.4)	23 (19)	6.3x5.4 (5x5.4)	30 (23)	6.3x7.7 (6.3x5.4)	50 (30)
10	100	5x5.4 (4x5.4)	30 (20)	6.3x5.4 (5x5.4)	34 (27)	6.3x7.7 (6.3x5.4)	55 (34)	8x10.5 (6.3x7.7)	110 (50)
22	220	6.3x5.4	54	6.3x5.4 (8x6.2)	60 (120)	8x10.5 (6.3x7.7)	140 (70)	10x10.5 (8x10.5)	180 (120)
33	330	6.3x5.4	60	6.3x7.7 (8x6.2)	85 (65)	8x10.5 (6.3x7.7)	160 (85)	10x10.5	190
47	470	6.3x5.4	70	10x10.5 (8x10.5) (6.3x7.7)	130 (110) (90)	10x10.5 (8x10.5)	230 (170)	--	--
56	560	6.3x7.7	80	6.3x7.7	110	10x10.5	250	--	--
68	680	6.3x7.7	110	8x10.5	170	10x10.5	260	--	--
100	101	8x10.5 (6.3x7.7)	175 (120)	10x10.5 (8x10.5)	240 (200)	12.5x13.5 (10x13.5) (10x10.5)	380 (290) (280)	12.5x13.5	440
150	151	8x10.5	220	10x10.5	240	10x13.5	310	--	--
220	221	10x10.5 (8x10.5)	310 (270)	10x13.5 (10x10.5)	400 (320)	12.5x13.5 (10x13.5)	580 (330)	--	--
330	331	10x10.5	350	12.5x13.5 (10x13.5)	600 (420)	--	--	--	--
470	471	12.5x13.5 (10x13.5) (10x10.5)	600 (530) (400)	--	--	--	--	--	--
680	681	12.5x13.5 (10x13.5)	750 (560)	--	--	--	--	Case size	Allowable ripple
1000	102	--	--	--	--	--	--	--	--
2200	222	--	--	--	--	--	--	--	--

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

◆ Frequency coefficient of allowable ripple current

Frequency		50Hz	120Hz	300Hz	1kHz	10kHz~
Coefficient	φ 4~ φ 10	0.1~68uF	0.70	1.00	1.17	1.50
		100~3300uF	0.85	1.00	1.08	1.30
	φ 12.5	~68 uF	0.75	1.00	1.35	2.00
		100~680 uF	0.80	1.00	1.23	1.5
		1000~10000 uF	0.85	1.00	1.1	1.13

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