

CHIP TYPE SERIES

TS13C4

FEATURES

- Low impedance, Endurance : 105°C 2000H.
- Designed for reflow soldering.
- Designed for surface mounting on high-density PCB.



Fig 1



Fig 2



Fig 3

Note: Fig 1 & 2: Diameter 4~10mm

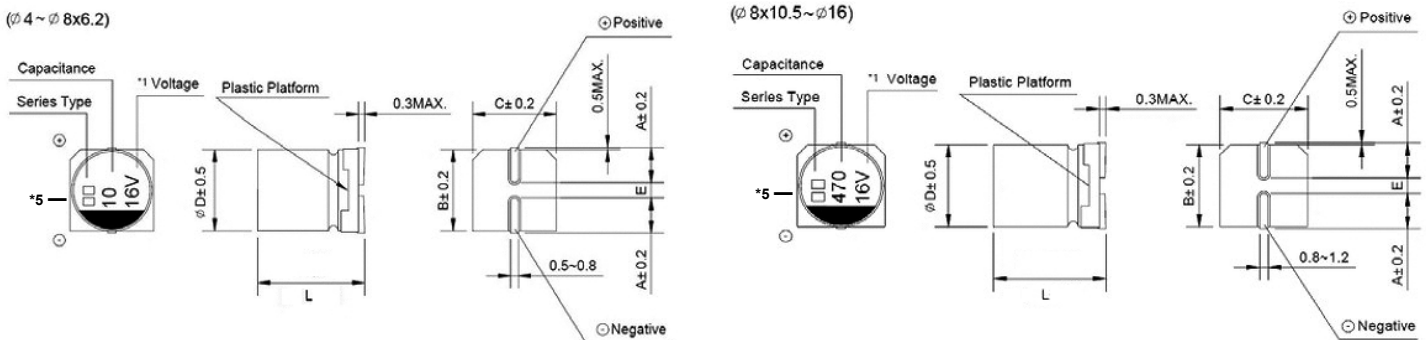
Fig 3 : Diameter: ≥12.5mm

Low Impedance

◆ Specifications

ITEMS		PERFORMANCE CHARACTERISTICS											
Operating Temperature Range	-55°C ~ +105°C												
Voltage Range	6.3~100V.DC												
Capacitance Range	1~4700μF												
Capacitance Tolerance	±20% at 120Hz, 20°C												
Leakage Current	I ≤ 0.01 CV or 3 μA whichever is greater (after 2 minutes)												
Dissipation Factor (Tan δ)	Measurement frequency : 120Hz, Temperature : 20°C												
	Rated voltage (V)	6.3	10	16	25	35	50	63	80	100			
	Tan δ (MAX)	Ø4-Ø10	0.28	0.22	0.20	0.16	0.14	0.12	0.12	0.12	0.12		
Stability at Low Temperature	Measurement frequency : 120Hz												
	Impedance ratio ZT / Z20 (MAX)	Ø4-Ø10	Rated voltage (V)		6.3	10	16	25	35	50	63	80	100
			Z(-25°C) / Z(20°C)	4	4	3	3	2	2	2	2	2	
	Ø12.5~Ø16	Z(-25°C) / Z(20°C)	10	7	5	5	4	4	3	4	4		
		Z(-25°C) / Z(20°C)	4	3	3	3	2	2	2	2	2		
Load Life	After applying rated working voltage for 2000 hours at +105°C ± 2°C, and then being stabilized at +20°C, capacitors shall meet the following limits.												
	Capacitance Change	Within ± 25% of initial value											
	Dissipation Factor	Less than 250% of the initial value											
Self Life	After storage for 1000 h at +105°C ± 2°C with no voltage applied and then being stabilized at +20°C, capacitors shall meet the limits specified in endurance.												
	Capacitance Change	Within ± 10% of initial value											
	Dissipation Factor	Within the initial limit											
Resistance to Soldering Heat	After reflow soldering and then being stabilized at +20°C, capacitors shall meet the following limits.												
	Capacitance Change	Within the initial limit											
	Leakage Current	Within the initial limit											

◆ DRAWING (Unit:mm)



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

*5 Markings: Su4, S4, LZ

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◆ DIMENSIONS(Unit:mm)

ØDxL	4x5.4	5x5.4	6.3x5.4/7.7	8x6.5/10.5	10x7.7/10.5/13.5	12.5x13.5
A	2.0	2.2	2.6	3.0	3.3	4.9
B	4.3	5.3	6.6	8.4	10.4	13.0
C	4.3	5.3	6.6	8.4	10.4	13.0
E±0.2	1.0	1.4	1.9	2.2 / 3.1	4.7	4.7
L	5.4±0.6	5.4±0.6	5.4/7.7±0.6	10.5±0.6	10.5/13.5±1.0	13.5±1.0

◆ DIMENSIONS&MAXIMUM PERMISSIBLE RIPPLE CURRENT&IMPEDANCE

WV/V		6.3			10			16		
Cap/µF		0J			1A			1C		
10	100							4x5.4	3.00	60
22	220	4×5.4	3.00	60	4×5.4	3.00	60	4x5.4 (5x5.4)	3.00 (1.80)	60 (95)
33	330	4×5.4	3.00	60	4×5.4	3.00	60	5x5.4 (6.3x5.4)	1.80 (1.00)	95 (140)
47	470	5×5.4	1.80	95	5×5.4 (6.3x5.4)	1.80 (1.00)	95 (140)	5x5.4 (6.3x5.4)	1.80 (1.00)	95 (140)
68	680							8x6.5	0.60	230
100	101	5×5.4 (6.3x5.4)	1.80 (1.00)	100 (140)	5×5.4 (6.3x5.4)	1.80 (1.00)	100 (140)	6.3x5.4 (6.3x7.7) (8x6.5)	1.00 (0.60) (0.60)	140 (230) (230)
150	151				6.3×5.4	1.00	140	6.3x7.7 (8x10.5)	0.60 (0.45)	230 (450)
220	221	6.3×5.4 (6.3×7.7)	1.00 (0.60)	140 (230)	6.3×5.4 (6.3×7.7) (8x10.5)	1.00 (0.60) (0.45)	140 (230) (450)	6.3x7.7 (8x6.5) (8x10.5)	0.60 (0.60) (0.45)	230 (230) (450)
330	331	6.3×7.7 (8x10.5)	0.60 (0.45)	230 (450)	8×10.5	0.45	450	8x10.5 (10x7.7)	0.45 (0.45)	450 (450)
470	471	6.3×7.7 (8x10.5)	0.60 (0.45)	230 (450)	8×10.5	0.45	450	8x10.5 (10x10.5)	0.45 (0.25)	450 (670)
680	681							10x10.5	0.25	670
820	821	8×10.5 (10x10.5)	0.40 (0.25)	450 (670)						
1000	102	10×10.5	0.25	670	10×10.5	0.25	670	10x10.5 (10x13.5)	0.25 (0.15)	670 (750)
1500	152	10×10.5	0.25	670				12.5x13.5	0.12	820
2200	222	12.5×13.5	0.12	820	12.5×13.5	0.12	820	Case Size ØD×L(mm)	Impedance (Ω) at 20°C 100kHz	Ripple Current (mA rms) at 105°C 100kHz

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◆ DIMENSIONS&MAXIMUM PERMISSIBLE RIPPLE CURRENT&IMPEDANCE

WV/V		25			35			50		
Cap/μF		1E			1V			1H		
1	010							4×5.4	5.00	30
2.2	2R2							4×5.4	5.00	30
3.3	3R3							4×5.4	5.00	30
4.7	4R7	4×5.4	3.00	60	4×5.4	3.00	60	4×5.4 (5×5.4)	5.00 (3.00)	30 (50)
10	100	4×5.4 (5×5.4)	3.00 (1.80)	60 (95)	4×5.4 (5×5.4)	3.00 (1.80)	60 (95)	5×5.4 (6.3×5.4)	3.00 (2.00)	50 (70)
22	220	5×5.4 (6.3×5.4)	1.80 (1.00)	95 (140)	5×5.4 (6.3×5.4)	1.80 (1.00)	95 (140)	6.3×5.4 (6.3×7.7) (8×6.5)	2.00 (1.00) (1.00)	70 (120) (120)
33	330	5×5.4 (6.3×5.4)	1.80 (1.00)	95 (140)	6.3×5.4 (8×6.5)	1.00 (0.60)	140 (230)	6.3×7.7 (8×10.5)	1.00 (0.80)	120 (280)
47	470	6.3×5.4	1.00	140	6.3×5.4 (6.3×7.7) (8×6.5) (8×10.5)	1.00 (0.60) (0.60) (0.45)	140 (230) (230) (450)	6.3×7.7 (8×6.5) (8×10.5)	1.00 (1.00) (0.80)	120 (120) (300)
100	101	6.3×7.7 (8×10.5)	0.60 (0.45)	230 (450)	6.3×7.7 (8×6.5) (8×10.5)	0.60 (0.60) (0.45)	230 (230) (450)	8×10.5 (10×7.7) (10×10.5)	0.80 (0.80) (0.45)	300 (300) (450)
150	151	8×10.5	0.45	450	8×10.5 (10×7.7)	0.45 (0.45)	450 (450)	10×10.5	0.45	450
220	221	8×10.5 (10×7.7) (10×10.5)	0.45 (0.45) (0.25)	450 (450) (670)	8×10.5 (10×10.5)	0.40 (0.25)	450 (670)	10×10.5 (10×13.5)	0.45 (0.35)	500 (550)
330	331	8×10.5 (10×10.5)	0.40 (0.25)	450 (670)	10×10.5	0.25	670	12.5×13.5	0.25	650
470	471	10×10.5	0.25	670	10×13.5	0.15	750			
680	681	10×13.5	0.15	750	12.5×13.5	0.12	820			
1000	102	12.5×13.5	0.11	820				Case Size ØD×L(mm)	Impedance (Ω) at 20°C 100kHz	Ripple Current (mA rms) at 105°C 100kHz

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◆ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE

WV/V		63			80			100		
Cap/μF		1J			1K			2A		
4.7	4R7	5×5.4	5.00	50				5×5.4 (6.3×5.4)	5.00 (5.00)	25 (40)
10	100	6.3×5.4	3.00	80	6.3×7.7	3.00	60	6.3×7.7 (8×6.5)	3.00 (3.00)	60 (60)
22	220	6.3×7.7	2.50	100	8×10.5	2.00	130	8×10.5 (10×10.5)	2.00 (1.50)	130 (180)
33	330	8×10.5	2.00	250	10×10.5	1.50	180	10×10.5 (10×13.5)	1.50 (1.20)	180 (210)
47	470	8×10.5 (10×7.7) (10×10.5)	2.00 (2.00) (1.50)	250 (250) (300)	8×10.5 (10×10.5) (10×13.5)	2.00 (1.50) (1.20)	130 (180) (240)	10×10.5 (10×13.5) (12.5×13.5)	1.50 (1.20) (0.85)	180 (240) (500)
100	101	10×10.5 (10×13.5) (12.5×13.5)	1.50 (1.00) (0.85)	300 (400) (500)	10×10.5 (10×13.5) (12.5×13.5)	1.50 (1.20) (0.85)	180 (240) (500)	12.5×13.5	0.85	500
150	151				12.5×13.5	0.85	500			
220	221	12.5×13.5	0.65	550				Case Size ØD×L(mm)	Impedance (Ω) at 20°C 100kHz	Ripple Current (mA rms) at 105°C 100kHz

◆ Frequency coefficient of allowable ripple current

Frequency: F(Hz)	50Hz	120Hz	1kHz	10kHz ≤
Capacitance: C (uF)				
Full Capacitance	0.60	0.70	0.85	1.00

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