

CHIP TYPE SERIES

TS13C7

FEATURES

- Load life of 3000~5000 hours with temperature up to 105°C
- Lead-free reflow soldering is available subject to customers' request.

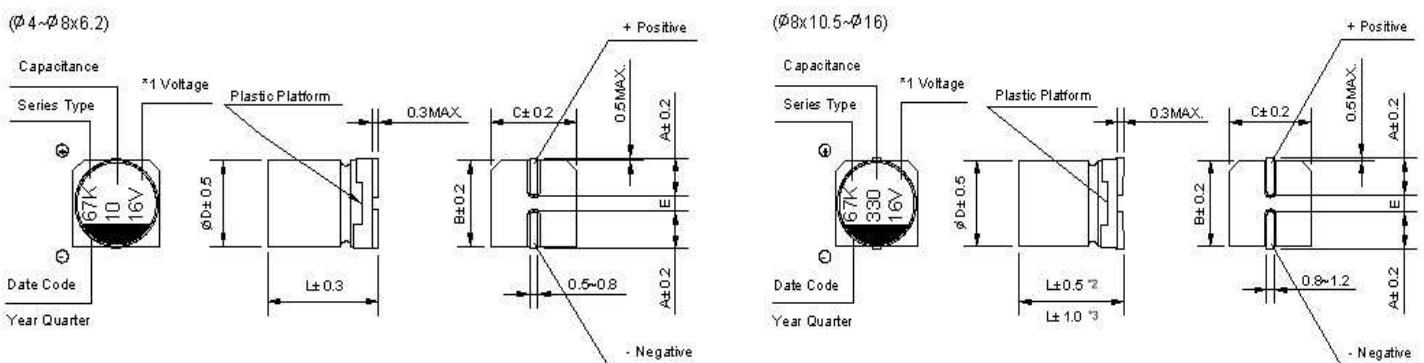
3000~5000 Hours Load Life



◆ Specifications

ITEMS		PERFORMANCE CHARACTERISTICS										
Operating Temperature Range	-55°C ~ +105°C											
Voltage Range	6.3~100V											
Capacitance Range	0.1~4700 μF											
Capacitance Tolerance	±20% at 120Hz, 20°C											
Leakage Current	For Ø4~Ø10, After 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3 μA, whichever is greater. For Ø12.5~Ø16, After 1 minutes' application of rated voltage, leakage current is not more than 0.03CV or 4 μA, whichever is greater.											
Tan δ	Measurement frequency : 120Hz, Temperature : 20°C											
	Rated voltage (V)	6.3	10	16	25	35	50	63	100			
	Tan δ (MAX)	Ø4~Ø10	0.28	0.24	0.20	0.16	0.13	0.12	0.12	0.12		
		Ø12.5~Ø16	0.38	0.34	0.30	0.26	0.22	0.18	0.18	0.18		
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	100
			Z-25°C / Z+20°C	4	3	2	2	2	2	2	2	2
		Ø12.5~Ø16	Z-40°C / Z+20°C	10	7	5	3	3	3	3	3	3
Z-25°C / Z+20°C			5	4	3	2	2	2	2	2	2	
Z-40°C / Z+20°C	12	10	8	5	4	3	3	3	3			
Load Life	After 5000 hours* (3000 hours for Ø4~Ø6.3 and Ø8*6.2) application of rated voltage at 105°C capacitors meet the characteristics requirements listed at right											
	Capacitance Change		Within ± 30% of initial value									
	Leakage Current		Initial specified value or less									
Self Life	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above.											
	Capacitance Change		Within ± 10% of initial value									
	Tan δ		Initial specified value or less									
Resistance to Soldering Heat	After reflow soldering according and restored at room temperature, they meet the characteristics requirements listed at right.											
	Capacitance Change		Within ± 10% of initial value									
	Leakage Current		Initial specified value or less									
Applicable Standards	JIS C-5141 and JIS C-5102											

◆ Chip type



*1 Voltage mark [6V] represents 6.3V for Ø4~Ø10; *2 [L±0.5] is applicable to Ø8×10.5~Ø10; *3 [L±1.0] is applicable to Ø12.5~Ø16.

Re: Date code and series type — 1st digit for Year; 2nd digit for Quarter, 4 quarter codes in one year are 1, 4, 7, 0;

3rd character for Series; KL Series = K.

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(mm)

D×L	Φ4×5.8	Φ5×5.8	Φ6.3×5.8	Φ6.3×7.7	Φ8×6.2	Φ8×10.5	Φ10×10.5	Φ10×13.5	Φ12.5×13.5/16	Φ16×16.5/21.5
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	5.5
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	17.0
E±0.2	1.0	1.3	2.2	2.2	2.2	3.1	4.4	4.4	4.4	6.7
L	5.8	5.8	5.8	7.7	6.2	10.5	10.5	13.5	13.5/16	16.5/21.5

◆ Case Size

WV		6.3		10		16		25	
Cap. (μF)		0J		1A		1C		1E	
10	100					4×5.8	18	5×5.8	27
22	220	4×5.8	22	5×5.8	30	5×5.8	30	6.3×5.8	44
33	330	5×5.8	35	5×5.8	36	6.3×5.8	48	6.3×5.8	50
47	470	5×5.8	38	6.3×5.8	50	6.3×5.8	50	6.3×7.7	63
								(8×6.2)	63
100	101	6.3×5.8	69	6.3×7.7	81	6.3×7.7	81	8×10.5	116
				(8×6.2)	-81	(8×6.2)	81		
150	151	6.3×7.7	85	8×10.5	125	8×10.5	125	10×10.5	320
		(8×6.2)	85						
220	221	6.3×7.7	120	8×10.5	141	10×10.5	216	10×10.5	320
		(8×6.2)	120						
330	331	8×10.5	290	10×10.5	290	10×10.5	290	10×10.5	320
470	471	10×10.5	320	10×10.5	320	10×10.5	320	12.5×13.5	400
								(10×13.5)	-350
680	681	10×10.5	320	10×10.5	320	10×13.5	420	12.5×13.5	415
1000	102	10×10.5	410	10×13.5	390	12.5×13.5	550	12.5×13.5	460
1500	152	10×13.5	450	12.5×13.5	480	12.5×13.5	650	12.5×16	700
2200	222	12.5×13.5	680	12.5×16	750	16×16.5	800		
				(12.5×13.5)	-510				
3300	332	12.5×16	850	16×16.5	800				
		(12.5×13.5)	800						
4700	472	16×21.5	1500	16×21.5	1100			Case Size	Ripple Current

Allowable Ripple (mA rms) at 105°C 120Hz

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WV		35		50		63		100	
Cap. (μF)		1V		1H		1J		2A	
0.1	0R1			4×5.8	1				
0.22	R22			4×5.8	2.6				
0.33	R33			4×5.8	3.2				
0.47	R47			4×5.8	5				
1	10			4×5.8	8				
2.2	2R2			4×5.8	12				
3.3	3R3			4×5.8	17			6.3×7.7	30
								(8×6.2)	30
4.7	4R7	4×5.8	16	5×5.8	22			8×10.5	50
10	100	5×5.8	27	6.3×5.8	32	6.3×7.7	45	8×10.5	55
						(8×6.2)	-45		
22	220	6.3×5.8	44	6.3×7.7	58	8×10.5	65	10×10.5	70
				(8×6.2)	58				
33	330	6.3×7.7	57	8×10.5	140	10×10.5	80	10×10.5	80
		(8×6.2)	-57						
47	470	8×10.5	92	10×10.5	310	10×10.5	90	12.5×13.5	250
								(10×13.5)	150
68	680							12.5×13.5	300
100	101	10×10.5	151	10×10.5	310	10×13.5	150	16×16.5	600
								(12.5×16)	420
								(12.5×13.5)	380
150	151	10×10.5	290	10×10.5	310				
220	221	10×10.5	375	12.5×13.5	340	12.5×13.5	470		
				(10×13.5)	320				
330	331	12.5×13.5	380	12.5×16	600	16×16.5	650		
		(10×13.5)	-375	(12.5×13.5)	-500	(12.5×16)	550		
470	471	12.5×13.5	520	16×16.5	700	16×21.5	850		
680	681	12.5×13.5	550						
1000	102	16×16.5	750	16×21.5	950				
		(12.5×16)	600						
2200	222	16×21.5	1350					Case Size	Ripple Current

Ripple Current (mA rms) at 105°C 120Hz

◆ Frequency coefficient of allowable ripple current

Frequency		50Hz	120Hz	300Hz	1kHz	10kHz~
Capacitance (μF)						
Φ4~Φ10		0.70	1.00	1.17	1.36	1.50
Φ12.5~Φ16	~68	0.75	1.00	1.35	1.57	2.00
	100~470	0.80	1.00	1.23	1.34	1.50
	680~3300	0.85	1.00	1.10	1.13	1.15

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