ALUMINUM ELECTROLYTIC CAPACITORS

Suntan®

CHIP TYPE SERIES

TS13C1

FEATURES

- Temperature up to +105℃ with load life of 1000~2000 hours.
- Lead-free reflow soldering is available subject to customers' request.

Wide Temperature Series

◆ Specifications

ITEMS	PERFORMANCE CHARACTERISTICS
Operating Temperature Range	-55℃ ~ +105℃
Voltage Range	4~100V
Capacitance Range	0.1~10000 μF
Capacitance Tolerance	±20% at 120Hz, 20℃
Leakage Current	Leakage current(φ4~ φ10)≤0.01CV or 3 μA,, whichever is greater.(After 2 minutes' application of rated voltage) Leakage current(φ12.5~ φ16)≤0.03CV or 4 μA,, whichever is greater.(After 1 minutes' application of rated voltage)
Tan δ	Measurement frequency : 120Hz, Temperature : 20℃

Rated voltage (V)		4	6.3	10	16	25	35	50	63	100
Tan δ (MAX)	φ4~ φ10	0.35	0.3	0.24	0.2	0.16	0.14	0.14	0.12	0.12
	φ12.5~ φ16	0.42	0.38	0.34	0.30	0.26	0.22	0.18	0.14	0.12

Stability at Low Temperature

Measurement frequency : 120Hz

Rated voltage (V)			4	6.3	10	16	25	35	50~100
Impedance ratio ZT / Z20 (MAX)	φ4~ φ10	Z-25℃ / Z+20℃	7	4	3	2	2	2	3
		Z-40℃ / Z+20℃	15	8	6	4	4	3	4
	φ12.5~ φ16	Z-25℃ / Z+20℃	7	5	4	3	2	2	2
		Z-40℃ / Z+20℃	17	12	10	8	5	4	3

Load Life

After 2000 hours' (1000hours' for φ4~ φ6.3x5.8) application of rated voltage at 105℃, capacitors meet the characteristics requirements listed at right

Capacitance Change	Within ± 20% of initial value for capacitors of 10V or more Within ± 30% of initial value for capacitors of 4V & 6.3V
Leakage Current	Initial specified value or less
Tan δ	200% or less of initial specified value

Self Life

After leaving capacitors under no load at 105℃ for 1000 hours, they meet the specified value for load life characteristics listed above.

Resistance to Soldering Heat

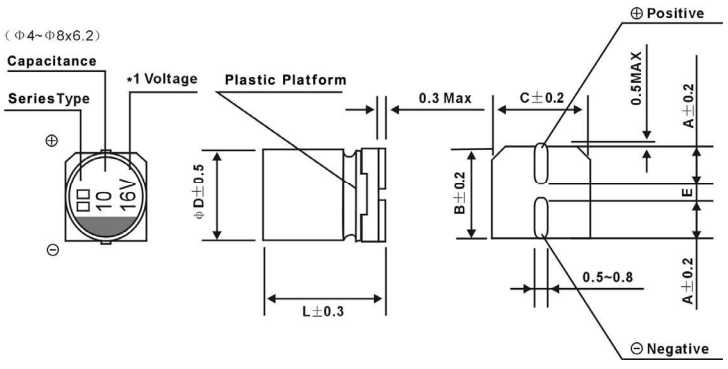
After reflow soldering according and restored at room temperature, they meet the characteristics requirements listed at right.

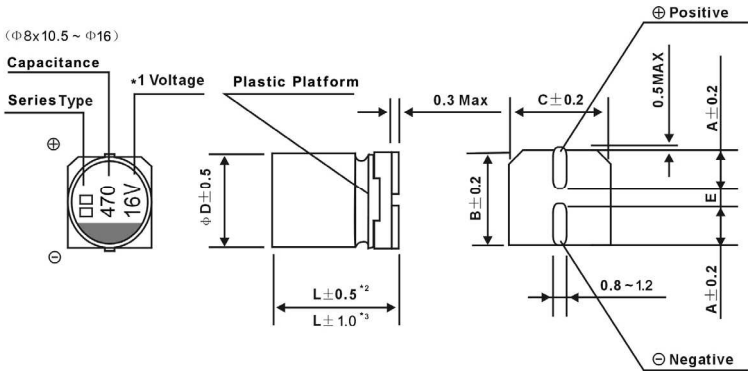
Capacitance Change	Within ± 10% of initial value
Tan δ	Initial specified value or less
Leakage Current	Initial specified value or less

Applicable Standards

JIS C-5141 and JIS C-5102.

◆ Drawing (Unit: mm)





*1 Voltage mark for 6.3V is [6V]
*2 Applicable toΦ8x10.5~Φ10
*3 Applicable toΦ12.5~Φ16

(mm)

ØDxL	4x5.4	5x5.4	6.3x5.4	6.3x7.7	8x6.2	8x10.5	10x10.5	10x135	12.5x13.5	12.5x16	16x16.5/21.5
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	4.7	5.5
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
E±0.2	1.0	1.3	2.2	2.2	2.2	3.1	4.5	4.4	4.4	4.4	6.7
L	5.4	5.4	5.4	7.7	6.2	10.5	10.5	13.5	13.5	16.0	16.5/21.5

ALUMINUM ELECTROLYTIC CAPACITORS

Suntan®

TS13C1

◆ Case Size

WV/V / Cap/μF		4		6.3		10		16		25		35		50	
		0G		0J		1A		1C		1E		1V		1H	
0.1	0R1	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	0.7
0.22	R22	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	1.6
0.33	R33	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	2.5
0.47	R47	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	3.5
1	010	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	7
2.2	2R2	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	11
3.3	3R3	--	--	--	--	--	--	--	--	--	--	--	--	4×5.4	13
4.7	4R7	--	--	--	--	--	--	--	--	--	--	--	--	5×5.4 (4×5.4)	16 (13)
10	100	--	--	--	--	--	--	4×5.4	18	5×5.4 (4×5.4)	20 (14)	5×5.4 (4×5.4)	21 (14)	6.3×5.4	24
22	220	--	--	4×5.4	22	5×5.4 (4×5.4)	25 (20)	5×5.4 (4×5.4)	27 (20)	6.3×5.4 (5×5.4)	36 (25)	6.3×5.4	38	6.3×7.7 (6.3×5.4) (8 x 6.2)	51 (42) (70)
33	330	5×5.4 (4×5.4)	30 (18)	5×5.4 (4×5.4)	27 (22)	5×5.4 (4×5.4)	30 (22)	6.3×5.4 (5×5.4)	40 (28)	6.3×5.4 (5×5.4)	44 (29)	6.3×5.4 (8 x 6.2)	42 (84)	6.3×7.7	60
47	470	5×5.4 (4×5.4)	36 (24)	5×5.4 (4×5.4)	33 (25)	6.3×5.4 (5×5.4)	41 (30)	6.3×5.4 (5×5.4)	48 (31)	6.3×5.4 (8 x 6.2)	48 (91)	6.3×7.7 (6.3×5.8)	70 (50)	8×10.5 (6.3×7.7)	120 (63)
100	101	6.3×5.4 (5×5.4)	60 (43)	6.3×5.4 (5×5.4)	50 (39)	6.3×5.4 (8×6.2)	53 (110)	6.3×5.4 (8 x 6.2)	60 (120)	6.3×7.7	91	8×10.5 (6.3×7.7)	120 (84)	10×10.5 (8×10.5)	170 (140)
150	151	6.3×5.4	52	6.3×5.4	55	6.3×5.4	62	6.3×7.7	95	8×10.5 (6.3×7.7)	140 (100)	8×10.5	155	10×10.5	170
220	221	6.3×5.4	57	6.3×7.7 (6.3×5.8)	105 (67)	6.3x5.8 6.3×7.7 (8×6.2)	67 105 (105)	8×10.5 (6.3×7.7) (8 x 6.2)	150 (105) (85)	8×10.5	175	10×10.5 (8×10.5)	220 (190)	10 x 13.5 (10×10.5)	280 (220)
330	331	6.3×7.7	100	6.3×7.7	105	8×10.5	196	8×10.5	195	10×10.5 (8×10.5)	240 (220)	10×10.5	245	16x16.5 (12.5x13.5) (10x13.5)	600 (420) (295)
470	471	6.3×7.7	105	8×10.5 (6.3×7.7)	210 (120)	10×10.5 (8×10.5)	260 (210)	10×10.5 (8×10.5)	295 (230)	10×10.5	280	12.5x13.5 (10x13.5) (10×10.5)	520 (375) (280)	16x16.5 (12.5x16)	700 (520)
680	681	8×10.5	210	8×10.5	210	10×10.5	270	10×10.5	315	10 x 13.5	400	12.5x13.5 (10x13.5)	530 (395)	16x16.5	750
1000	102	8×10.5	230	10×10.5 (8×10.5)	300 (230)	10×10.5	315	12.5x13.5 (10x13.5) (10×10.5)	500 (390) (340)	12.5x13.5	580	16x16.5 (12.5x16)	750 (600)	16x21.5	1000
1500	152	10×10.5	315	10 x 13.5 (10×10.5)	450 (315)	10×13.5	460	12.5x13.5	550	12.5x16	850	--	--	--	--
2200	222	10 x 13.5 (10×10.5)	440 (340)	12.5x13.5 (10x13.5)	620 (500)	12.5x13.5	680	16x16.5 (12.5x16)	950 (750)	16x16.5 16x21.5	1050 1250	16x21.5	1300	--	--
3300	333	10 x 13.5	490	12.5x16 (12.5x13.5)	700 (660)	16x16.5	1000	16x16.5 16x21.5	1000 1200	16x21.5	1400	--	--	--	--
4700	472	12.5x13.5	600	16x16.5 16x21.5	1000 1200	16x21.5	1300	16x21.5	1350	--	--	--	--	--	--
6800	682	16x16.5 (12.5x16)	950 (650)	16x21.5	1250	--	--	--	--	--	--	--	--	--	--
10000	103	16x21.5	250	--	--	--	--	--	---	--	--	--	--	--	--

TS13C1

◆ Case Size

WV/V / Cap/ μF		63		100	
		1J		2A	
0.1	0R1	4×5.4	0.7	--	--
0.22	R22	4×5.4	1.6	--	--
0.33	R33	4×5.4	2.5	--	--
0.47	R47	4×5.4	3.5	--	--
1	010	4×5.4	7	4×5.4	7
2.2	2R2	4×5.4	11	6.3×5.4	14
3.3	3R3	5×5.4	13	6.3×7.7 (6.3×5.4) (8×6.2)	32 (20) (30)
4.7	4R7	5×5.4	16	6.3×7.7 (6.3×5.4)	35 (21)
10	100	6.3×7.7 (6.3×5.4) (8 x 6.2)	39 (24) (25)	8×10.5 (6.3×7.7)	77 (35)
22	220	8×10.5 (6.3×7.7)	98 (49)	10×10.5 (8×10.5)	126 (84)
33	330	8×10.5	112	10×10.5	133
47	470	10×10.5 (8×10.5)	160 (119)	12.5×13.5 (10×13.5) (10×10.5)	250 (160) (140)
68	680	--	--	12.5×13.5 (10×13.5)	300 (180)
100	101	12.5x13.5 (10.5x13.5) (10×10.5)	270 (210) (196)	16x16.5 (12.5x13.5)	450 (380)
150	151	10 x 13.5	225		
220	221	16x16.5 (12.5x13.5) (10x13.5)	560 (470) (235)	16x16.5 16x21.5	550 750
330	331	16x16.5 (12.5x16)	700 (510)	16x21.6	800
470	471	16x16.5 16x21.5	750 900		
680	681	16x21.5	950	Case size	Allowable ripple

Allowable Ripple (mA rms) at 105℃ 120Hz

◆ Frequency coefficient of allowable ripple current

Frequency			50Hz	120Hz	300Hz	1kHz	10kHz~
Coefficient	φ4~φ10	**0.1~68uF**	0.70	1.00	1.17	1.36	1.50
		100~3300uF	0.85	1.00	1.08	1.20	1.30
	φ12.5~φ16	~68 uF	0.75	1.00	1.35	1.57	2.00
		100~680 uF	0.80	1.00	1.23	1.34	1.50
		1000~10000 uF	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.