ALUMINUM ELECTROLYTIC CAPACITORS

Suntan®

CHIP TYPE SERIES

TS13C4

FEATURES

- Low impedance with temperature range -55℃ +105℃ and load life of 1000-2000 hours.
- Lead-free reflow soldering is available subject to customers' request.

Low Impedance Series

◆ Specifications

ITEMS	PERFORMANCE CHARACTERISTICS
Operating Temperature Range	-55℃ ~ +105℃
Voltage Range	6.3~50V
Capacitance Range	1~6800 μF
Capacitance Tolerance	±20% at 120Hz, 20℃
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 0.01CV or 4 μA, whichever is greater.
Tan δ	Measurement frequency : 120Hz, Temperature : 20℃

Rated voltage (V)		6.3	10	16	25	35	50
Tan δ (MAX)	Ø4~Ø10	0.22	0.19	0.16	0.14	0.12	0.12
	Ø12.5~Ø16	0.26	0.22	0.18	0.16	0.14	0.12

Stability at Low Temperature — Measurement frequency : 120Hz

Rated voltage (V)			6.3	10	16	25	35	50
Impedance ratio ZT / Z20 (MAX)	Ø4~Ø10	Z-25℃ / Z+20℃	2	2	2	2	2	2
		Z-40℃ / Z+20℃	5	4	4	3	3	3
	Ø12.5~Ø16	Z-25℃ / Z+20℃	3	2	2	2	2	2
		Z-40℃ / Z+20℃	10	8	6	4	3	3

Load Life — After 2000 hours'(1000 hours for Ø4~Ø6.3*5.4)application of rated voltage at 105℃ capacitors meet the characteristics requirements listed at right

Capacitance Change	Within ± 20% of initial value
Tan δ	200% or less of initial specified value
Leakage Current	Initial specified value or less

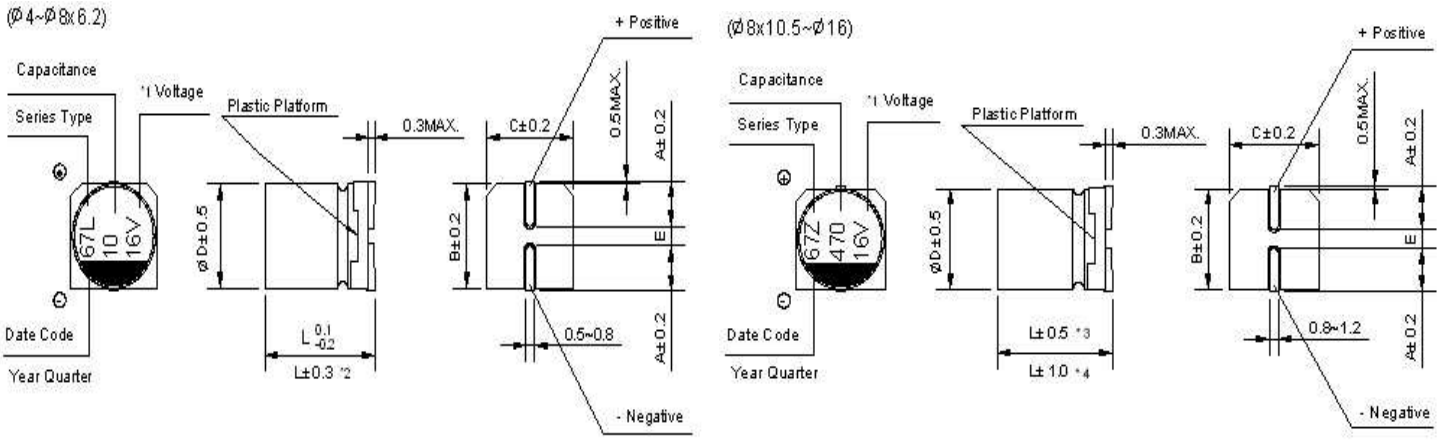
Self Life — After leaving capacitors under no load at 105℃ for 1000 hours, they meet the specified value for load life characteristics listed above.

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

◆ Chip type



*1 Voltage mark [6V] represents 6.3V for Φ4～Φ10; *2 [L±0.3] is applicable to Φ6.3×7.7 and Φ8×6.2;
*3 [L±0.5] is applicable to Φ8×10.5～Φ10; *4 [L±1.0] is applicable to Φ12.5～Φ16.
Re: Date code and series type — 1st digit for Year; 2nd digit for Quarter, 4 quarter codes in one year are 1, 4, 7, O;
3rd character for Series; LZ Series = L.

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(mm)

ØDxL	4x5.4	5x5.4	6.3x5.4/7.7	8X6.2	8X10.5	10X105/13.5	12.5X13.5/16	16X16.5/21.5
A	1.8	2.1	2.4	3.3	2.9	3.2	4.7	5.5
B	4.3	5.3	6.6	8.3	8.3	10.3	13.0	17.0
C	4.3	5.3	6.6	8.3	8.3	10.3	13.0	17.0
E±0.2	1.0	1.3	2.2	2.2	3.1	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	16.5/21.5

◆ Standard ratings & Maximum permissible ripple current & Impedance

WV/V / Cap/ μF		6.3			10			16		
		0J			1A			1C		
10	100	--	--	--	--	--	--	4×5.4	3.0	60
15	150	--	--	--	--	--	--	5×5.4 4×5.4	1.8 3.0	95 60
22	220	4×5.4	3.0	60	5×5.4 4×5.4	1.8 3.0	95 60	5×5.4 4×5.4	1.8 3.0	95 60
33	330	5×5.4 4×5.4	1.8 3.0	95 60	5×5.4 4×5.4	1.8 3.0	95 60	6.3×5.4 5×5.4	1.0 1.8	140 95
47	470	5×5.4 4×5.4	1.8 3.0	95 60	6.3×5.4 5×5.4	1.0 1.8	140 95	6.3×5.4 5×5.4	1.0 1.8	140 95
68	680	6.3×5.4 5×5.4	1.0 1.8	140 95	6.3×5.4	1.0	140	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230
100	101	6.3×5.4 5×5.4	1.0 1.8	140 95	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230
150	151	6.3×7.7 6.3×5.4	0.6 1.0	230 140	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230	6.3×7.7	0.6	230
220	221	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230	6.3×7.7 8×6.2	0.6 0.6	230 230	8×10.5 6.3×7.7 8×6.2	0.3 0.6 0.6	450 230 230
330	331	6.3×7.7 8×6.2	0.6 0.6	230 230	8×10.5 10×10.5	0.3 0.15	450 670	8×10.5 10×10.5	0.3 0.15	450 670
470	471	8×10.5	0.3	450	8×10.5 10×10.5	0.3 0.15	450 670	10×10.5 8×10.5	0.15 0.3	670 450
680	681	8×10.5	0.3	450	10×10.5	0.15	670	10×10.5	0.15	670
1000	102	10×10.5 8×10.5	0.15 0.3	670 450	10×10.5	0.15	670	10×13.5 10×10.5	0.13 0.15	750 670
1500	152	10×13.5 10×10.5	0.13 0.15	750 670	12.5×13.5 10×13.5	0.11 0.13	820 750	12.5×13.5	0.11	820
2200	222	12.5×13.5 10×13.5	0.11 0.13	820 750	12.5×16	0.09	950	16×16.5 12.5×16	0.08 0.09	1260 950
3300	332	12.5×16 12.5×13.5	0.09 0.11	950 820	16×16.5	0.08	1260	16×16.5 16×21.5	0.08 0.06	1260 1630
4700	472	16×16.5 16×21.5	0.08 0.08	1260 1630	16×16.5	0.08 0.06	1260 1630	16×21.5	0.06	1630
6800	682	16×21.5	0.06	1630	16×21.5	0.06	1630	--	--	--

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WV/V / Cap/ μF		25			35			50		
		0J			1A			1C		
1	010	--	--	--	4×5.4	3.0	60	4×5.4	5.0	30
1.5	1R5	--	--	--	4×5.4	3.0	60	4×5.4	5.0	30
2.2	2R2	--	--	--	4×5.4	3.0	60	4×5.4	5.0	30
3.3	3R3	--	--	--	4×5.4	3.0	60	4×5.4	5.0	30
4.7	4R7	4×5.4	3.0	60	4×5.4	3.0	60	5×5.4 4×5.4	3.0 5.0	50 30
6.8	6R8	4×5.4	3.0	60	5×5.4	1.8	95	6.3×5.4		
10	100	5×5.4 4×5.4	1.8 3.0	95 60	5×5.4 4×5.4	1.8 3.0	95 60	6.3×5.4	2.0	70
15	150	6.3×5.4	1.8	95	5×5.4	1.8	95	6.3×5.4	2.0	70
22	220	6.3×5.4 5×5.4	1.0 1.8	140 95	6.3×5.4 5×5.4	1.0 1.8	140 95	6.3×7.7 6.3×5.4 8×6.2	1.0 2.0 1.0	120 70 120
33	330	6.3×5.4 5×5.4	1.0 1.8	140 95	6.3×5.4 8×6.2	1.0 0.6	140 230	6.3×7.7 8×6.2	1.0 1.0	120 120
47	470	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230	6.3×7.7 6.3×5.4 8×6.2	0.6 1.0 0.6	230 140 230	8×10.5 6.3×7.7 8×6.2	0.6 1.0 1.0	300 120 120
68	680	6.3×7.7	0.6	230	6.3×7.7	0.6	230	8×10.5	0.6	300
100	101	6.3×7.7 8×6.2	0.6 0.6	230 230	8×10.5	0.3	450	8×10.5 10×10.5	0.6 0.3	300 500
150	151	8×10.5 6.3×7.7	0.3 0.6	450 230	8×10.5	0.3	450	10×10.5	0.3	500
220	221	8×10.5	0.3	450	10×10.5 8×10.5	0.15 0.3	670 450	10×10.5 10×13.5	0.3 0.25	500 580
330	331	10×10.5 8×10.5	0.15 0.3	670 450	10×10.5	0.15	670	16×16.5 12.5×13.5 10×13.5	0.12 0.2 0.25	1060 650 580
470	471	10×10.5	0.15	670	12.5×13.5 10×13.5 10×10.5	0.11 0.13 0.15	820 750 670	16×16.5 12.5×16	0.12 0.15	1060 700
680	681	10×13.5	0.13	750	12.5×13.5 10×13.5	0.11 0.13	820 750	16×16.5	0.12	1060
1000	102	16×16.5 12.5×13.5	0.08 0.11	1260 820	16×16.5 12.5×16	0.08 0.09	1260 950	16×21.5	0.1	1250
1500	152	12.5×16	0.09	950	16×16.5	0.08	1260			
2200	222	16×16.5 16×21.5	0.08 0.06	1260 1630	16×21.5	0.06	1630	Case size	Impedance	Allowable ripple
3300	332	16×21.5	0.06	1630						

Maximum Impedance (Ω) at 20℃ 100kHz, Allowable Ripple (mA rms) at 105℃ 100kHz

◆ Frequency coefficient of allowable ripple current

Capacitance (μF) \ Frequency		50Hz	120Hz	300Hz	1kHz	10kHz~
Φ4～Φ10	1～68	0.35	0.50	0.64	0.83	1.00
	100～2200	0.40	0.55	0.70	0.85	1.00
Φ12.5～Φ16	～680	0.45	0.65	0.80	0.90	1.00
	1000～4700	0.65	0.85	0.95	1.00	1.00

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