ALUMINUM ELECTROLYTIC CAPACITORS

Suntan®

CHIP TYPE SERIES

TS13CA

FEATURES

- Extra low impedance with temperature range -55℃ to +105℃ and load life of 2000-5000 hour
- Impedance 5~25% less than TS13C5 series

◆ Specifications

ITEMS	PERFORMANCE CHARACTERISTICS
Operating Temperature Range	-55℃ ~ +105℃
Voltage Range	6.3~100V
Capacitance Range	3.3~6800 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 3μA, 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℃

Rated voltage (V)		6.3	10	16	25	35	50	63	80	100
Tan δ (MAX)	Ø4~Ø10	0.26	0.19	0.16	0.14	0.12	0.10	0.08	0.08	0.07
	Ø12.5~Ø16	0.26	0.22	0.18	0.16	0.14	0.10	0.08	0.08	0.07

Stability at Low Temperature — Measurement frequency : 120Hz

Rat d voltage (V)		6.3	10	16	25	35	50	63	80	100
Impedance ratio ZT / Z20 (MAX)	Z-25℃ / Z+20℃	2	2	2	2	2	2	2	2	2
	Z-40℃ / Z+20℃	3	3	3	3	3	3	3	3	3
	Z-55℃ / Z+20℃	4	4	4	3	3	3	3	3	3

Load Life

After 5000 hours' 2000 hours for Ø4~ Ø 6.3 and for Ø8*6.2 3000 hours for Ø 8*10.5~ Ø 10*13.5)application of rated voltage at 105℃ capacitors meet the characteristics requirements listed at right

Capacitance Change	Within ± 30% 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

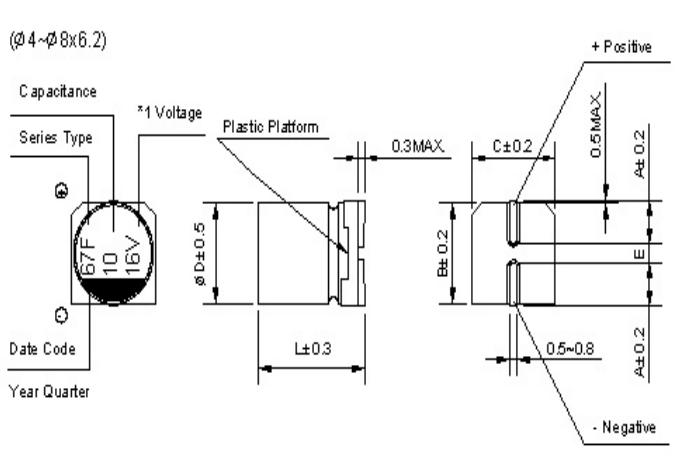
After reflow soldering according and restored at room temperature, they meet the characteristics requirements listed at right.

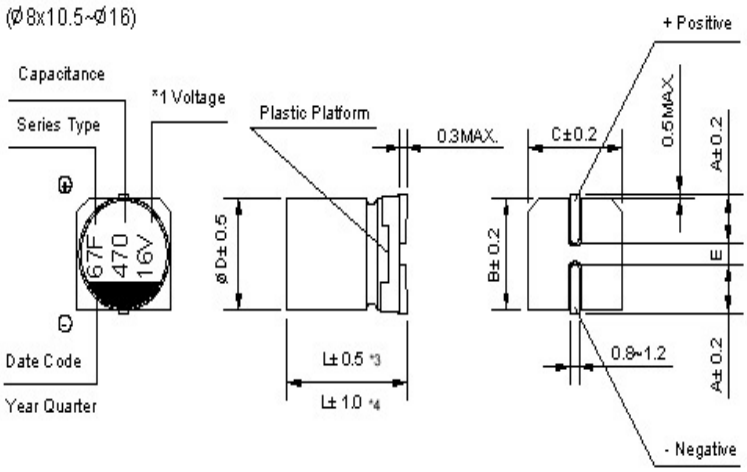
Capacitance Change	Within ± 10% of initial value
Tan δ	Initial specified value or less
Leakage Current	Initial specified value or less

Applicable Standards

JIS C-5141 and JIS C-5102

◆ Chip type





Voltage mark for 6.3V is [6]
Re: Date code and series type-
1st digit for ear;
2nd digit for Quarter, 4 quarter codes in one year are 1.4.7.0;
3rd character for Series, TS13CA series=F

ØDxL	4x5.8	5x5.8	6.3x5.8/7.7	8 x6.2	8x10.5	10x10.5/13.5	12.5 x13.5/16	16 x16.5/21.5
A	1.8	2.1	2.4	3.3	2.9	3.2	4.7	5.5
V	4.3	5.3	6.6	8.3	8.3	10.3	13	17
C	4.3	5.3	6.6	8.3	8.3	10.3	13	17
E	10	1.3	2.2	2.2	3.1	4.5	4.4	6.7
L	5.8	5.8	5.8/7.7	6.2	10.5	10.5/13.5	13.5	16.5/21.5

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◆ Standard size &Maximum permissible ripple current & Impedance

WV/V / Cap/ μF		6.3			10			16		
		0J			1A			1C		
10	100	--	--	--	--	--	--	4×5.8	1.35	90
15	150	--	--	--	--	--	--	4×5.8	1.35	90
22	220	4×5.8	1.35	90	4×5.8	1.35	90	5×5.8 (4×5.8)	0.7 (1.35)	160 (90)
33	330	5×5.8 (4×5.8)	0.7 (1.35)	160 (90)	5×5.8 (4×5.8)	0.7 (1.35)	160 (90)	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)
47	470	5×5.8 (4×5.8)	0.7 (1.35)	160 (90)	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)
56	560	5×5.8	0.7	160	6.3×5.8	0.36	240	6.3×5.8	0.36	240
68	680	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)	6.3×5.8	0.36	240	6.3×7.7 (6.3×5.8)	0.26 (0.36)	300 (240)
100	101	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)	6.3×7.7 (6.3×5.8)	0.26 (0.36)	300 (240)	6.3×7.7 (6.3×5.8)	0.26 (0.36)	300 (240)
150	151	6.3×5.8	0.36	240	6.3×7.7	0.26	300	6.3×7.7	0.26	300
220	221	6.3×7.7 (6.3×5.8) (8×6.2)	0.26 (0.36) (0.26)	300 (240) (300)	6.3×7.7 (8×6.2)	0.26 (0.26)	300 (300)	8×10.5 (6.3×7.7)	0.16 (0.26)	600 (300)
330	331	6.3×7.7 (8×6.2)	0.26 (0.26)	300 (300)	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)
470	471	8×10.5	0.16	600	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)
680	681	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×10.5	0.08	850	10×13.5 (10×10.5)	0.07 (0.08)	950 (850)
1000	102	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×13.5 (10×10.5)	0.07 (0.08)	950 (850)	16×16.5 (12.5×16) (12.5×13.5)	0.05 (0.055) (0.06)	1450 (1200) (1100)
1500	152	10×13.5 (10×10.5)	0.07 (0.08)	950 (850)	12.5×13.5	0.06	1100	16×16.5	0.05	1450
2200	222	12.5×13.5	0.06	1100	12.5×16	0.055	1200	16×21.5	0.035	1750
3300	332	12.5×16	0.055	1200	16×16.5	0.05	1450	16×21.5	0.035	1750
4700	472	16×16.5	0.05	1450	16×21.5	0.035	1750			Ripple
6800	682	16×21.5	0.035	1750	--	--	--	Case size	Impedance	Current

WV/V / Cap/ μF		25			35			50		
		1E			1V			1H		
4.7	4R7	--	--	--	4×5.8	1.35	90	5×5.8 (4×5.8)	1.52 (2.9)	85 (60)
10	100	4×5.8	1.35	90	5×5.8 (4×5.8)	0.7 (1.35)	160 (90)	6.3×5.8 (5×5.8)	0.88 (1.52)	165 (85)
15	150	5×5.8	0.7	160	5×5.8	0.7	160	6.3×5.8	0.88	165
22	220	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)	6.3×7.7 (6.3×5.8) (8×6.2)	0.68 (0.88) (0.68)	195 (165) (195)
33	330	6.3×5.8 (5×5.8)	0.36 (0.7)	240 (160)	6.3×5.8 (8×6.2)	0.36 (0.26)	240 (300)	6.3×7.7 (8×6.2)	0.68 (0.68)	195 (195)
47	470	6.3×7.7 (6.3×5.8) (8×6.2)	0.26 (0.36) (0.26)	300 (240) (300)	6.3×7.7 (6.3×5.8) (8×6.2)	0.26 (0.36) (0.26)	300 (240) (300)	6.3×7.7 (8×6.2)	0.68 (0.68)	195 (195)
56	560	6.3×7.7 (6.3×5.8)	0.26 (0.36)	300 (240)	6.3×7.7	0.26	300	8×10.5	0.34	350
68	680	6.3×7.7	0.26	300	6.3×7.7	0.26	300	8×10.5	0.34	350
100	101	6.3×7.7 (8×6.2)	0.26 (0.26)	300 (300)	8×10.5	0.16	600	10×10.5 (8×10.5)	0.18 (0.34)	670 (350)
150	151	8×10.5 (6.3×7.7)	0.16 (0.26)	600 (300)	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×10.5	0.18	670
220	221	8×10.5	0.16	600	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×13.5 (10×10.5)	0.14 (0.18)	780 (670)
330	331	10×10.5 (8×10.5)	0.08 (0.16)	850 (600)	10×10.5	0.08	850	12.5×13.5	0.12	900
470	471	10×13.5 (10×10.5)	0.07 (0.08)	950 (850)	12.5×13.5 (10×13.5)	0.06 (0.07)	1100 (950)	16×16.5 (12.5×16)	0.08 (0.1)	1250 (1050)
680	681	12.5×13.5	0.06	1100	12.5×16	0.055	1200	16×21.5	0.06	1450
1000	102	16×16.5 (12.5×16)	0.05 (0.055)	1450 (1200)	16×16.5	0.05	1450	--	--	--
1500	152	16×16.5	0.05	1450	16×21.5	0.035	1750	--	--	Ripple
2200	222	16×21.5	0.035	1750	--	--	--	Case size	Impedance	Current

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WV/V / Cap/ μF		63			80			100		
		1J			1K			2A		
3.3	3R3	--	--	--	5×5.8	5.0	25	--	--	--
4.7	4R7	5×5.8	3.0	50	6.3×5.8	3.0	40	--	--	--
10	100	6.3×7.7 (6.3×5.8)	1.2 (1.5)	120 (80)	6.3×7.7 (8×6.2)	2.4 (2.4)	60 (60)	8×10.5	1.3	130
22	220	8×10.5 (6.3×7.7) (8×6.2)	0.65 (1.2) (1.2)	250 (120) (120)	8×10.5	1.3	130	10×10.5 (8×10.5)	0.7 (1.3)	200 (130)
33	330	8×10.5	0.65	250	8×10.5	1.3	130	10×10.5	0.7	200
47	470	8×10.5	0.65	250	10×10.5	0.7	200	12.5×13.5 (10×13.5)	0.32 (0.6)	500 (250)
68	680	12.5×13.5 (8×10.5)	0.16 (0.65)	800 (250)	12.5×13.5	0.32	500	12.5×13.5	0.32	500
100	101	12.5×13.5 (10×10.5)	0.16 (0.35)	800 (400)	12.5×13.5	0.32	500	16×16.5 (12.5×16)	0.17 (0.26)	795 (550)
150	151	12.5×13.5 (10×13.5)	0.16 (0.25)	800 (650)	12.5×13.5	0.32	500	--	--	--
220	221	12.5×13.5 (10×13.5)	0.16 (0.25)	800 (650)	12.5×16	0.26	550	16×21.5	0.15	920
330	331	16×16.5	0.082	1400	16×16.5	0.17	795	--	--	Ripple Current
470	471	16×21.5	0.08	1700	16×21.5	0.15	920	Case size	Impedance	

Max. Impedance (Ω) at 20℃ 100kHz, Allowable Ripple current (mA) at 105℃ 100KHz

◆ Frequency coefficient Factor of Rated Ripple current

Frequency / Capacitance (uF)		50Hz	120Hz	300Hz	1kHz	10kHz~
Ø4~Ø10	4.7~68	0.35	0.50	0.64	0.83	1.00
	100~1500	0.40	0.55	0.70	0.85	1.00
Ø12.5~Ø16	~68	0.40	0.55	0.70	0.85	1.00
	100~680	0.45	0.65	0.80	0.90	1.00
	1000~6800	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.