ALUMINUM ELECTROLYTIC CAPACITORS

Suntan®

CHIP TYPE SERIES

TS13C8

FEATURES

- High temperature up to +125℃
- Load life from 1000 hours to 5000 hours

High Reliability 125℃ and 5000 hours

Suitable for Automotive Equipment

◆ Specifications

ITEMS	PERFORMANCE CHARACTERISTICS
Operating Temperature Range	-40℃ ~ +125℃
Voltage Range	10~450V
Capacitance Range	3.3~2200 μF
Capacitance Tolerance	±20% at 120Hz, 20℃
Leakage Current	For 10V~100V, After 2 minutes' application of rated voltage, leakage current is not more than 0.03CV or 4 μA, whichever is greater. For 160~450V, After 1 minutes' application of rated voltage, leakage current is not more than 0.04CV or 100 μA
Tan δ	Measurement frequency : 120Hz, Temperature : 20℃

Rated voltage (V)		10	16	25	35	50	63	100	160~250	400,450
Tan δ (MAX)	Ø6.3~Ø10	0.24	0.20	0.16	0.14	0.14	0.18	0.18	-	-
	Ø12.5~Ø16	0.22	0.18	0.16	0.14	0.12	0.14	0.10	0.20	0.24

Stability at Low Temperature — Measurement frequency : 120Hz

Rated voltage (V)			10	16	25	35	50	63	100	160~250	400,450
Impedance ratio ZT / Z20 (MAX)	Ø6.3~Ø10	Z-25℃ / Z+20℃	4	3	2	2	2	2	2	-	-
		Z-40℃ / Z+20℃	10	8	6	4	4	4	4	-	-
	Ø12.5~Ø16	Z-25℃ / Z+20℃	4	3	2	2	2	2	2	3	6
		Z-40℃ / Z+20℃	8	6	4	3	3	3	3	6	10

Load Life

After 5000 hours' application of rated voltage for Ø12.5~16(10~100V),and 2000 hours for Ø8*10.5~Ø10(10~100V), and 1000 hours for Ø8*6.2~ Ø6.3,as well 2000 hours application of rated voltage for Ø12.5~Ø16(160~450V) at 125℃ capacitors meet the characteristics requirements listed at right

Capacitance Change	Within ± 30% of initial value
Leakage Current	Initial specified value or less
Tan δ	300% 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

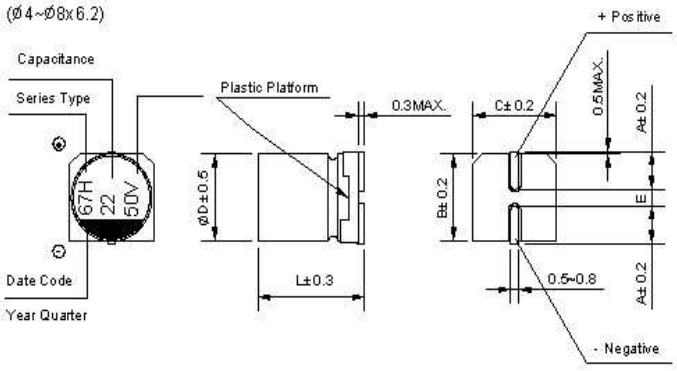
After reflow soldering according and restored at room temperature, they meet the characteristics requirements listed at right.

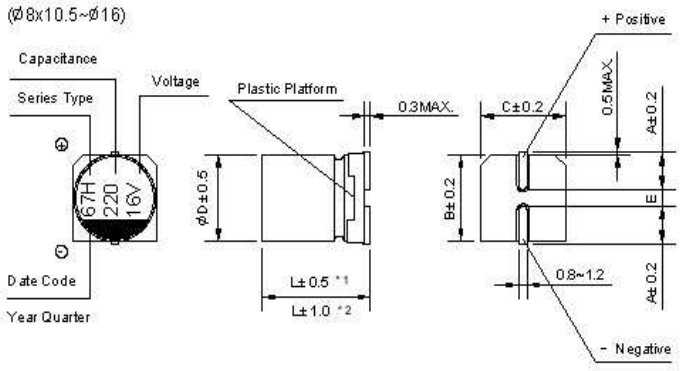
Capacitance Change	Within ± 10% of initial value
Tan δ	Initial specified value or less
Leakage Current	Initial specified value or less

Applicable Standards

JIS C-5141 and JIS C-5102

◆ Chip type





*1 [L±0.5] is applicable to Φ8×10.5～Φ10; *2 [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; KH Series = H.

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(mm)

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

◆ Standard size & Maximum permissible ripple current

WV / Cap. (μF)		10				16				25			
		1 A				1C				1E			
33	330									6.3×5.8	3.3	66	45
47	470					6.3×5.8	3.3	66	43	6.3×7.7 (8×6.2)	2.3 (2.3)	46 (46)	68 (68)
100	101	6.3×7.7 (8×6.2)	2.3 (2.3)	46 (46)	72 (72)	8x10.5	1.0	20	115	8×10.5	1.0	20	126
220	221	8×10.5	1.0	20	136	10×10.5	0.7	13.4	175	10×10.5	0.7	13.4	211
330	331	10×10.5	0.7	13.4	188	10×13.5	0.5	9.5	280	12.5×13.5 (10.5×13.5)	0.14 (0.5)	2.1 (9.5)	750 (270)
470	471	10×13.5	0.5	9.5	300	12.5×13.5	0.14	2.1	750	12.5×13.5	0.14	2.1	750
680	681					16×16.5 (12.5×13.5)	0.10 (0.14)	1.5 (2.1)	1000 (750)	16×16.5	0.10	1.5	1000
1000	102	12.5×16 (12.5×13.5)	0.11 (0.14)	1.5 (2.1)	900 (750)	16×21.5	0.10	1.5	1200	Case Size	ESR(Ω) 20℃	ESR(Ω) -40℃	Ripple Current
2200	222	16×16.5 16×21.5	0.10 0.10	1.5 1.5	1000 1200	16×21.5	0.10	1.5	1200				

◆ Standard size & Maximum permissible ripple current

WV / Cap. (μF)		35				50			
		1 V				1H			
10	100	6.3×5.8	3.3	66	38	6.3×7.7 (6.3×5.8)	2.3 (3.3)	46 (66)	50 (38)
22	220	6.3×5.8	3.3	66	39	6.3×7.7 (8×6.2)	2.3 (2.3)	46 (46)	50 (50)
33	330	6.3×7.7 (8×6.2)	2.3 (2.3)	46 (46)	62 (62)	8×10.5	1.0	20	83
47	470	8×10.5	1.0	20	92	10×10.5	0.7	13.4	111
100	101	10×10.5	0.7	13.4	151	12.5×13.5	0.23	3.5	550
220	221	12.5×13.5 (10×13.5)	0.14 (0.5)	2.1 (9.5)	750 (260)	16×16.5 (12.5×13.5)	0.15 (0.23)	2.3 (3.5)	850 (550)
330	331	12.5×13.5	0.14	2.1	750	16×16.5 (12.5×16)	0.15 (0.18)	2.3 (2.7)	850 (700)
470	471	16×16.5 (12.5×16)	0.10 (0.11)	1.5 (1.5)	1000 (900)	16×21.5	0.15	2.3	920
680	681	16×21.5	0.10	1.5	1200	Case Size	ESR(Ω) 20℃	ESR(Ω) -40℃	Ripple Current

Ripple Current (mA rms) at 125℃ 100kHz

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◆ Standard size & Maximum permissible ripple current

WV / Cap. (μF)		63				100			
		1 J				2A			
10	100	6.3×7.7 (8×6.2)	2.3 (2.3)	115 (115)	42 (42)	8×10.5	1.00	50	53
22	220	8×10.5	1.0	50	56	10×10.5	0.70	35	63
33	330	10×10.5	0.7	35	77	10×13.5	0.45	22.5	130
47	470	10×13.5	0.45	22.5	150	12.5×13.5	0.33	16.5	450
68	680					12.5×16	0.26	13	550
100	101	12.5×13.5	0.25	12.5	500	16×16.5	0.24	12	650
220	221	12.5×16	0.20	10	600	Case Size	ESR(Ω) 20℃	ESR(Ω) -40℃	Ripple Current
330	331	16×16.5	0.18	9	820				
470	471	16×21.5	0.11	5.5	1100				

◆ Standard size & Maximum permissible ripple current

WV / Cap. (μF)		160		200		250		400		450	
		2C		2D		2E		2G		2W	
3.3	3R3									12.5×16	65
4.7	4R7							12.5×13.5	70	16×16.5	85
6.8	6R8							16×16.5	100		
10	100	12.5×13.5	100	12.5×13.5	100	12.5×16	110				
22	220	16×16.5	180	16×16.5	180						
33	330	16×21.5	245	250						Case Size	Ripple Current

Ripple Current (mA rms) at 125℃ 120Hz

◆ Frequency coefficient of allowable ripple current(10～100V)

Frequency / Capacitance (μF)	50Hz	120Hz	1kHz	10kHz	100kHz~
10～100	0.35	0.40	0.75	0.90	1.00
220～470	0.35	0.50	0.85	0.94	1.00
680～2200	0.40	0.60	0.85	0.95	1.00

◆Frequency Correction Factor of Rated Ripple Current(160～450V)

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz	100kHz~
Coefficient	0.75	1.00	1.25	1.50	1.75	1.80

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