



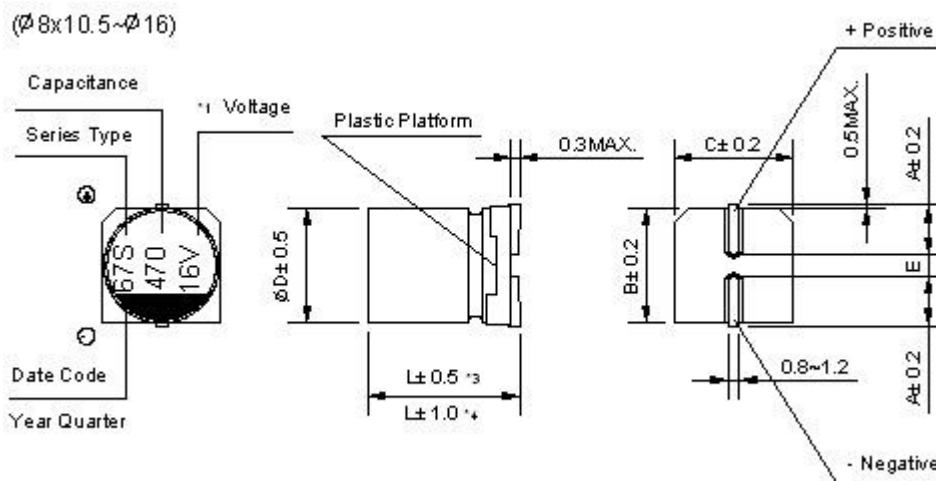
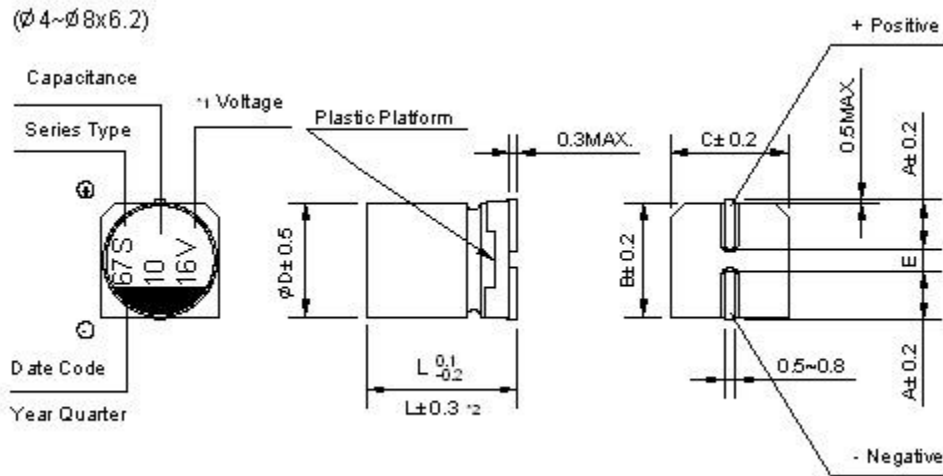
## SS Standard

- Designed for surface mounting on density circuit board.
- Emboss carrier tape packing system is available for automatic insertion.

### ◆ Specifications

Items	Performance Characteristics											
Operating Temperature Range	-40~+85℃											
Voltage Range	4~100V											
Capacitance Range	0.1~6800 μ F											
Capacitance Tolerance	±20% at 120 Hz, 20℃											
Leakage Current	For Φ4~Φ10, after 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater. For Φ12.5~Φ16, after 1 minute's 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.DC)											
	Tan δ	4	6.3	10	16	25	35	50	63	100		
	Φ4~Φ10	0.35	0.26	0.20	0.16	0.14	0.12	0.12	0.10	0.10		
	Φ12.5~Φ16	0.42	0.38	0.34	0.30	0.26	0.2	0.1	0.1	0.1	0	
Stability at Low Temperature	Measurement frequency: 120Hz											
	Rated voltage (V.DC)											
	Impedance ratio ZT/Z20 (max)	Φ4~Φ10	Z(-25℃)/Z(20℃)	7	4	3	2	2	2	2	2	2
			Z(-40℃)/Z(20℃)	15	8	6	4	4	3	3	3	3
	Φ12.5~Φ16	Z(-25℃)/Z(20℃)	7	5	4	3	2	2	2	2	2	
		Z(-40℃)/Z(20℃)	17	12	10	8	5	4	3	3	3	
Load Life	After 2000 hours' application of rated voltage at 85℃, capacitors meet the characteristics requirements listed at right.		Capacitance Change	Within ±20% of the initial value (Within ±30% of the initial value for 4V)								
			Tan δ	200% or less of the initial specified value								
			Leakage Current	Initial specified value or less								
Shelf Life	After leaving capacitors under no load at 85℃ for 1000 hours, they meet the specified value for load life characteristics listed above.											
Resistance to Soldering Heat	After reflow soldering and restored at room temperature, they meet the characteristics requirements listed at right.		Capacitance Change	Within ±10% of the 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											

## ◆ Dimensions & Marking



\*1 Voltage mark [6V] represents 6.3V for  $\Phi 4 \sim \Phi 10$ ;

\*2 [ $L \pm 0.3$ ] is applicable to  $\Phi 6.3 \times 7.7$  and  $\Phi 8 \times 6.2$ ;

\*3 [ $L \pm 0.5$ ] is applicable to  $\Phi 8 \times 10.5 \sim \Phi 10$ ;

\*4 [ $L \pm 1.0$ ] is applicable to  $\Phi 12.5 \sim \Phi 16$ .

Re: Date code and series type — 1<sup>st</sup> digit for Year; 2<sup>nd</sup> digit for Quarter, 4 quarter codes in one year are 1, 4, 7, 0; 3<sup>rd</sup> character for Series; SS Series = S.

(mm)

D×L	$\Phi 4 \times 5.4$	$\Phi 5 \times 5.4$	$\Phi 6.3 \times 5.4$	$\Phi 6.3 \times 7.7$	$\Phi 8 \times 6.2$	$\Phi 8 \times 10.5$	$\Phi 10 \times 10.5$	$\Phi 10 \times 13.5$	$\Phi 12.5 \times 13.5$	$\Phi 12.5 \times 16$	$\Phi 16 \times 16.5$
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	12.8	12.8	16.3
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	12.8	12.8	16.3
E ± 0.2	1.0	1.3	2.2	2.2	2.2	3.1	4.4	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

◆ Standard size & Maximum permissible ripple current

Cap.( $\mu$ F) \diagdown WV		4		6.3		10		16		25	
		0G		0J		1A		1C		1E	
4.7	4R7									4x5.4	19
10	100							4x5.4	25	5x5.4 (4x5.4)	28 (20)
15	150							4x5.4	28	5x5.4	34
22	220			4x5.4	31	5x5.4 (4x5.4)	35 (28)	5x5.4 (4x5.4)	39 (28)	6.3x5.4 (5x5.4)	52 (35)
33	330	4x5.4	26	5x5.4 (4x5.4)	39 (31)	5x5.4 (4x5.4)	43 (32)	6.3x5.4 (5x5.4)	57 (40)	6.3x5.4 (5x5.4)	63 (42)
47	470	4x5.4	34	5x5.4 (4x5.4)	47 (36)	6.3x5.4 (5x5.4)	59 (43)	6.3x5.4 (5x5.4)	68 (44)	6.3x5.4	68
56	560	4x5.4	39	5x5.4	46	6.3x5.4	57	6.3x5.4	74	6.3x5.4	82
68	680	5x5.4	45	6.3x5.4 (5x5.4)	62 (52)	6.3x5.4	72	6.3x5.4	80	6.3x5.4	94
100	101	5x5.4	61	6.3x5.4 (5x5.4)	71 (55)	6.3x5.4	76	6.3x5.4 (8x6.2)	86 (200)	6.3x7.7 (8x6.2)	130 (91)
150	151	6.3x5.4	74	6.3x5.4	78	6.3x5.4	88	6.3x7.7	135	8x10.5 (6.3x7.7)	200 (130)
220	221	6.3x5.4	82	6.3x5.4	95	6.3x7.7 (8x6.2)	150 (250)	8x10.5 (6.3x7.7) (8x6.2)	215 (150) (135)	8x10.5	250
330	331	6.3x7.7	150	6.3x7.7 (8x6.2)	150 (300)	8x10.5	280	8x10.5	280	10x10.5 (8x10.5)	340 (310)
470	471	6.3x7.7	150	8x10.5 (6.3x7.7)	300 (150)	10x10.5 (8x10.5)	320 (300)	10x10.5 (8x10.5)	420 (330)	10x10.5	400
680	681	8x10.5	300	8x10.5	300	10x10.5	380	10x10.5	450	10x13.5	550
1000	102	8x10.5	330	10x10.5 (8x10.5)	430 (330)	10x10.5	450	12.5x13.5 (10x13.5) (10x10.5)	710 (550) (490)	12.5x13.5	820
1500	152	10x10.5	450	10x13.5 (10x10.5)	650 (450)	10x13.5	650	12.5x13.5	750	12.5x16	1000
2200	222	10x13.5 (10x10.5)	620 (480)	12.5x13.5 (10x13.5)	890 (720)	12.5x13.5	960	16x16.5 (12.5x16)	1150 (1000)	16x16.5	1250
3300	332	10x13.5	700	12.5x16 (12.5x13.5)	1000 (900)	16x16.5 (12.5x16)	1300 (1050)	16x16.5	1350		
4700	472	12.5x13.5	850	16x16.5	1400	16x16.5	1450				
6800	682	16x16.5 (12.5x16)	1350 (900)							Case Size	Ripple Current

Ripple Current (mA rms) at 85°C 120Hz

◆ Standard size & Maximum permissible ripple current

WV Cap.( $\mu$ F)		35		50		63		100	
		1V		1H		1J		2A	
0.1	0R1			4x5.4	1.0	4x5.4	1.0		
0.22	R22			4x5.4	2.3	4x5.4	2.3		
0.33	R33			4x5.4	3.5	4x5.4	3.5		
0.47	R47			4x5.4	5.0	4x5.4	5.0		
1	010			4x5.4	10	4x5.4	10	4x5.4	10
1.5	1R5			4x5.4	12	4x5.4	12	6.3x5.4	15
2.2	2R2			4x5.4	15	4x5.4	15	6.3x5.4	20
3.3	3R3	4x5.4	18	4x5.4	18	5x5.4	20	6.3x7.7 (6.3x5.4) (8x6.2)	45 (28) (50)
4.7	4R7	4x5.4	20	5x5.4 (4x5.4)	23 (19)	6.3x5.4 (5x5.4)	30 (23)	6.3x7.7 (6.3x5.4) (8x6.2)	50 (30) (50)
10	100	5x5.4 (4x5.4)	30 (20)	6.3x5.4 (5x5.4)	34 (27)	6.3x7.7 (6.3x5.4)	55 (34)	8x10.5 (6.3x7.7) (8x6.2)	110 (50) (50)
22	220	6.3x5.4	54	6.3x5.4 (8x6.2)	60 (120)	8x10.5 (6.3x7.7) (8x6.2)	140 (70) (35)	10x10.5 (8x10.5)	180 (120)
33	330	6.3x5.4 (8x6.2)	60 (130)	6.3x7.7 (8x6.2)	85 (65)	8x10.5 (6.3x7.7)	160 (85)	10x10.5	190
47	470	6.3x5.4 (8x6.2)	70 (165)	10x10.5 (8x10.5) (6.3x7.7)	130 (110) (90)	10x10.5 (8x10.5)	230 (170)	12.5x13.5 (10x13.5) (10x10.5)	330 (220) (200)
56	560	6.3x7.7	80	6.3x7.7	110	10x10.5	250		
68	680	6.3x7.7	110	8x10.5	170	10x10.5	260	12.5x13.5 (10x13.5)	380 (250)
100	101	8x10.5 (6.3x7.7)	175 (120)	10x10.5 (8x10.5)	240 (200)	12.5x13.5 (10x13.5) (10x10.5)	380 (290) (280)	12.5x13.5	440
150	151	8x10.5	220	10x10.5	240	10x13.5	310		
220	221	10x10.5 (8x10.5)	310 (270)	10x13.5 (10x10.5)	400 (320)	12.5x13.5 (10x13.5)	580 (330)	16x16.5	700
330	331	10x10.5	350	12.5x13.5 (10x13.5)	600 (420)	16x16.5 (12.5x16)	820 (720)		
470	471	12.5x13.5 (10x13.5) (10x10.5)	600 (530) (400)	16x16.5 (12.5x16)	850 (740)	16x16.5	950		
680	681	12.5x13.5 (10x13.5)	750 (560)	16x16.5	950				
1000	102	16x16.5 (12.5x16)	1100 (800)					Case Size	Ripple Current

Ripple Current (mA rms) at 85°C 120Hz

## ◆ Frequency Correction Factor of Rated Ripple Current

Frequency Capacitance ( $\mu$ F )		50Hz	120Hz	300Hz	1kHz	10kHz~
$\Phi 4 \sim \Phi 10$	0.1 ~ 68	0.70	1.00	1.17	1.36	1.50
	100 ~ 3300	0.85	1.00	1.08	1.20	1.30
$\Phi 12.5 \sim \Phi 16$	~ 68	0.75	1.00	1.35	1.57	2.00
	100 ~ 680	0.80	1.00	1.23	1.34	1.50
	1000 ~ 6800	0.85	1.00	1.10	1.13	1.15