

## CS series

- Standard type of V-chip, -55~ +85°C
- Applicable to SMT process
- AEC-Q200 Compliant
- RoHS Compliant



### SPECIFICATIONS

Items	Characteristics									
Capacitance Tolerance	±20% (120Hz, 20°C)									
Operating Temperature Range	-55°C ~ +85°C									
Rated Voltage Range	4 ~ 100VDC									
Capacitance Range	0.1 ~ 1500μF									
Leakage Current	I ≤ 0.01CV or 3(μA), which is greater. (After 2 minutes application of DC rated voltage at 20°C)									
Dissipation Factor (tan δ)	Measurement Frequency:120Hz. Temperature: 20°C									
	Rated Voltage(V)	4	6.3	10	16	25	35	50	63~100	
	tanδ (Max)	0.42	0.30	0.26	0.22	0.16	0.14	0.14	0.12	
Low Temperature Stability	Measurement Frequency:120Hz									
Impedance Ratio(Max)	Rated Voltage(V)	4	6.3	10	16	25	35	50	63~100	
	Z(-25°C) / Z(20°C)	7	4	3	2	2	2	2	2	
	Z(-55°C) / Z(20°C)	15	8	8	4	4	3	3	3	
Load Life	2000 hours with application of rated voltage at 85°C									
	Capacitance Change	within ±20% of Initial Value (within ±25% for 4V)								
	tan δ	200% or less of Initial Specified Value								
	Leakage Current	Initial Specified Value or less								
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1000 hours 85°C without voltage applied. Before the measurement, the capacitance shall be preconditioned by applying voltage according to them 4.1 of JIS C5101-4.									
	Capacitance Change	Within ±20% of Initial Value								
	tan δ	200% or less of Initial Specified Value								
	Leakage Current	Initial Specified Value or less								
Resistance to Soldering Heat	The capacitors shall be kept on the hott plate maintained at 250°C for 30 seconds.					Capacitance Change	Within ± 10% of Initial Value			
	After removing from the hot plate and restored at room temperature, they meet the characteristics requirements listed at right.					tan δ	Initial Specified Value			
						Leakage Current	Initial Specified Value or less			
Marking	Black print on the case top									

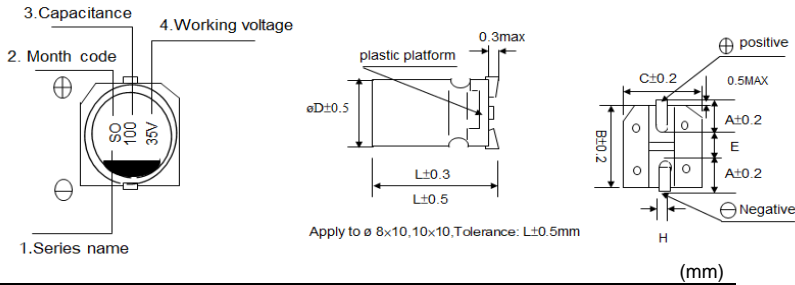
### Frequency Coefficient of Permissible Ripple Current

Frequency (Hz)	50	120	300	1K	≥ 10K
Coefficient	0.70	1.00	1.17	1.36	1.50

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 10°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

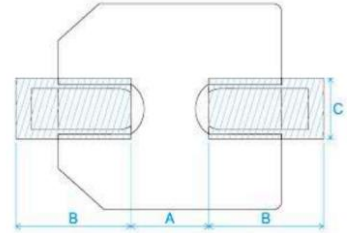
## DIMENSIONS(mm)

### ■ Chip Type



Apply to  $\phi 8 \times 10, 10 \times 10$ , Tolerance:  $L \pm 0.5$ mm

### ■ Land / Pad pattern

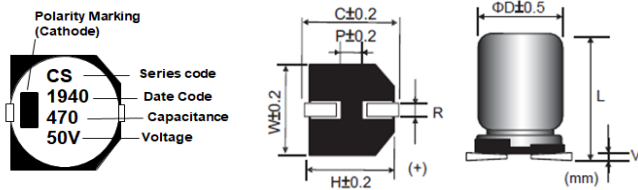


$\Phi D$	4*5.4	5*5.4	6.3*5.4	6.3*7.7	8*10	10*10
A	1.8	2.1	2.4	2.4	2.9	3.2
B	4.3	5.3	6.6	6.6	8.3	10.3
C	4.3	5.3	6.6	6.6	8.3	10.3
E	1.0	1.3	2.2	2.2	3.1	4.5
L	5.4	5.4	5.4	7.7	10	10
H	0.5~0.8	0.5~0.8	0.5~0.8	0.5~0.8	0.8~1.1	0.8~1.1

DxL	A	B	C
$\Phi 4$	1	2.6	1.6
$\Phi 5$	1.4	3	1.6
$\Phi 6.3$	1.9	3.5	1.6
$\Phi 8$	3	3.5	2.5
$\Phi 10$	4	4	2.5
$\Phi 12.5$	4.3	5.8	2.5
$\Phi 16$	6.6	6.5	5
$\Phi 18$	6.6	7.7	5
$\Phi 8(G)$	2.5	4.5	4.7
$\Phi 10(G)$	3.8	4.8	4.7
$\Phi 12.5(G)$	3.8	6.1	6.9
$\Phi 16(G)$	5	8	9.5
$\Phi 18(G)$	5	8.6	9.5

"(G)" "Anti-vibration Structure"

$\Phi D=16$ mm



Size	$\Phi D$	L	W	H	C	R	P	Vmax
16*16.5	16.0	16.5 $\pm 0.5$	17.0	17.0	18.0	1.4~1.8	6.4	0.4

## Electric Characteristics

Su'scon P/N	Cap. (uF)	Cap. Tol. (%)	Rate Volt. (V-DC)	Surge Volt. (V-DC)	Oper. Temp. (°C)	Nominal Case Size D*L(mm)	Leakage Current Max (uA)	D.F. MAX (%)	R.C 100KHz (mA rms)	Load Life (hours)
CS035M4R7C5APE50V00A	4.7	$\pm 20$	35	40.3	85	4*5.4	3	14	18	2000
CS010M330C5APE50V00A	33	$\pm 20$	10	11.5	85	4*5.4	3.3	26	38	2000
CS050M220E5APE50V00A	22	$\pm 20$	50	57.5	85	6.3*5.4	11	14	48	2000
CS025M470E5APE50V00A	47	$\pm 20$	25	28.8	85	6.3*5.4	11	16	60	2000
CS004M221E5APE50V00A	220	$\pm 20$	4	4.6	85	6.3*5.4	8.8	42	96	2000
CS100M220F10PE50V00A	22	$\pm 20$	100	115.0	85	8*10	22	12	130	2000
CS063M470F10PE50V00A	47	$\pm 20$	63	72.5	85	8*10	29	12	130	2000
CS035M101F10PE50V00A	100	$\pm 20$	35	40.3	85	8*10	35	14	280	2000
CS035M221G10PE50V00A	220	$\pm 20$	35	40.3	85	10*10	77	14	570	2000
CS050M471JGBPE50V00A	470	$\pm 20$	50	57.5	85	16*16.5	235	14	740	2000
CS016M470D5APE50V00R	47	$\pm 20$	16	18.4	85	5*5.4	7.5	22	54	2000

### REMARKS:

1. Dissipation Factor Test: at 20°C, 120 Hz
2. Capacitance Test: at 20°C, 120 Hz
3. Ripple Current Test: at 85°C, 120 Hz
4. Leakage Current: Initial specified value or less
5. When have characteristic requested: Load life & shelf life test and etc., judgment standard reference to our catalogue.
6. Remarks: Su'scon Part Number with suffix code "A" is specially offered for automotive project, which meets AEC-Q200 standard.

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**CS-REV.1**