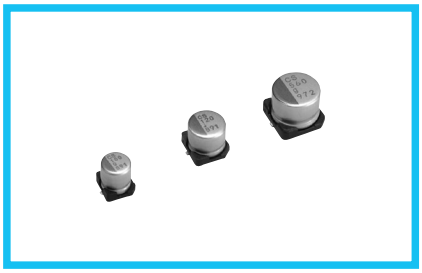
CS series

Chip Type, Long Life Assurance

For SMD | High Ripple Current | Low Impedance | For High Frequency | Long Life | Anti-Solvent Feature

- Load life of 5000 hours at 105°C.
- SMD type : Lead free reflow soldering condition at 260°C peak correspondence.
- Compliant to the RoHS directive (2011/65/EU).

CS → Long Life → CF

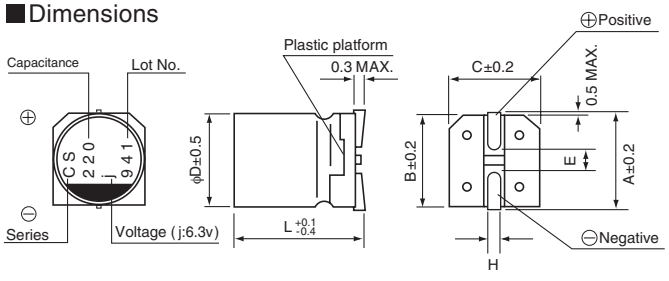


■Specifications

Item	Performance Characteristics
Category Temperature Range	−55 to +105°C
Rated Voltage Range	4 to 16V
Rated Capacitance Range	22 to 560μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Tangent of loss angle (tan δ)	Less than or equal to the specified value at 120Hz, 20°C
ESR (※1)	Less than or equal to the specified value at 100kHz, 20°C
Leakage Current (※2)	Less than or equal to the specified value . After 2 minutes' application of rated voltage at 20°C
Temperature Characteristics (Max.Impedance Ratio)	Z+105°C / Z+20°C ≦ 1.25 (100kHz) Z−55°C / Z+20°C ≦ 1.25
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 5000 hours at 105°C. Capacitance change: Within ± 20% of the initial capacitance value (※3) tan δ: 150% or less than the initial specified value ESR (※1): 150% or less than the initial specified value Leakage current (※2): Less than or equal to the initial specified value
Damp Heat (Steady State)	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 1000 hours at 60°C, 90% RH. Capacitance change: Within ± 20% of the initial capacitance value (※3) tan δ: 150% or less than the initial specified value ESR (※1): 150% or less than the initial specified value Leakage current (※2): Less than or equal to the initial specified value
Resistance to Soldering Heat	After soldering the capacitor under the soldering conditions prescribed here, the capacitor shall meet the specifications listed at right. Pre-heating shall be done at 150 to 200°C and for 60 to 180 sec. The duration for over +230°C temperature at capacitor surface shall not exceed 60 seconds. In case peak temperature is 250°C or less, reflow soldering shall be two times maximum. In case peak temperature is 260°C or less, reflow soldering shall be once. Measurement for solder temperature profile shall be made at the capacitor top and the terminal. Capacitance change: Within ± 10% of the initial capacitance value (※3) tan δ: 130% or less than the initial specified value ESR (※1): 130% or less than the initial specified value Leakage current (※2): Less than or equal to the initial specified value
Marking	Navy blue print on the case top

※1 ESR should be measured at both of the terminal ends closest where the terminals protrude through the plastic platform.
※2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.
※3 Initial value : The value before test of examination of resistance to soldering.

■Dimensions



(mm)

Size	φ5 × 6L	φ6.3 × 6L	φ8 × 7L
φD	5.0	6.3	8.0
L	5.9	5.9	6.9
A	6.0	7.3	9.0
B	5.3	6.6	8.3
C	5.3	6.6	8.3
E	1.6	2.1	3.2
H	0.5 to 0.8	0.5 to 0.8	0.8 to 1.1

Voltage

V	4	6.3	10	16
Code	g	j	A	C

Type numbering system (Example : 6.3V 220μF)

1 2 3 4 5 6 7 8 9 10 11 12 13 14
P C S 0 J 2 2 1 M C L 1 G S

- Taping code
- Size code
- Configuration
- Capacitance tolerance (±20%)
- Rated capacitance (220μF)
- Rated voltage (6.3V)
- Series name
- Type

●Dimension table in next page.

CS series

■Standard Ratings

Rated Voltage (V)(code)	Surge Voltage (V)	Rated Capacitance (μF)	Case Size φD × L (mm)	tan δ	Leakage Current (μA)	ESR (mΩ) (at 100kHz 20°C)	Rated Ripple (mArms)	Part Number
4 (0G)	4.6	150	5 × 6	0.12	120	25	2200	PCS0G151MCL1GS
		330	6.3 × 6	0.12	264	20	2800	PCS0G331MCL1GS
		330	● 8 × 7	0.12	264	22	3200	PCS0G331MCL9GS
		560	8 × 7	0.12	448	18	3600	PCS0G561MCL1GS
6.3 (0J)	7.2	47	5 × 6	0.12	100	35	1600	PCS0J470MCL1GS
		100	5 × 6	0.12	126	25	2400	PCS0J101MCL1GS
		100	● 6.3 × 6	0.12	126	22	2800	PCS0J101MCL9GS
		120	● 6.3 × 6	0.12	151	22	2800	PCS0J121MCL9GS
		220	6.3 × 6	0.12	277	20	2800	PCS0J221MCL1GS
		220	● 8 × 7	0.12	277	22	3200	PCS0J221MCL9GS
		390	8 × 7	0.12	491	22	3200	PCS0J391MCL1GS
10 (1A)	11.5	33	5 × 6	0.12	100	40	1300	PCS1A330MCL1GS
		56	● 6.3 × 6	0.12	112	27	2300	PCS1A560MCL9GS
		68	5 × 6	0.12	136	30	2100	PCS1A680MCL1GS
		120	6.3 × 6	0.12	240	27	2300	PCS1A121MCL1GS
		150	● 8 × 7	0.12	300	30	2600	PCS1A151MCL9GS
		270	8 × 7	0.12	540	22	3200	PCS1A271MCL1GS
16 (1C)	18.4	22	5 × 6	0.12	100	45	1100	PCS1C220MCL1GS
		39	5 × 6	0.12	125	35	2000	PCS1C390MCL1GS
		39	● 6.3 × 6	0.12	125	30	2200	PCS1C390MCL9GS
		68	6.3 × 6	0.12	218	30	2200	PCS1C680MCL1GS
		82	● 8 × 7	0.12	262	28	2800	PCS1C820MCL9GS
		120	8 × 7	0.12	384	28	2800	PCS1C121MCL1GS

Rated ripple current (mArms) at 105°C 100kHz

No marked, [1] will be put at 12th digit of type numbering system.
●: In this case, [9] will be put at 12th digit of type numbering system.

- Taping specifications are given in page 23.
- Recommended land size, soldering by reflow are given in page 18, 19.
- Please refer to page 3 for the minimum order quantity.