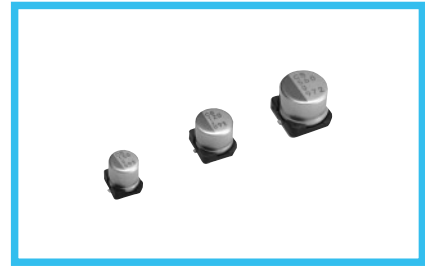


**CS** series Chip Type, Long Life Assurance



- 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 (2002/95/EC).



## Specifications

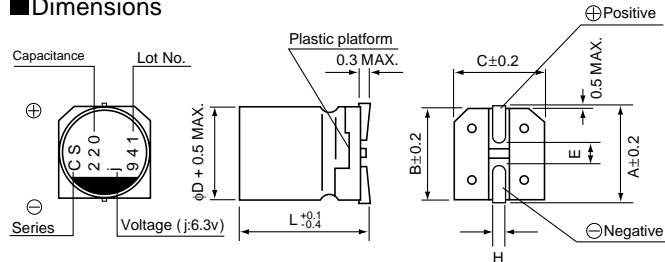
Item	Performance Characteristics									
Category Temperature Range	-55 to +105°C									
Rated Voltage Range	4 to 16V									
Rated Capacitance Range	22 to 560μF									
Capacitance Tolerance	±20% at 120Hz, 20°C									
Tangent of loss angle (tan δ)	Less than or equal to the specified value at 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.	<table border="1"> <tr><td>Capacitance change</td><td>Within ± 20% of the initial capacitance value (※ 3)</td></tr> <tr><td>tan δ</td><td>150% or less than the initial specified value</td></tr> <tr><td>ESR (※ 1)</td><td>150% or less than the initial specified value</td></tr> <tr><td>Leakage current (※ 2)</td><td>Less than or equal to the initial specified value</td></tr> </table>	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
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.	<table border="1"> <tr><td>Capacitance change</td><td>Within ± 20% of the initial capacitance value (※ 3)</td></tr> <tr><td>tan δ</td><td>150% or less than the initial specified value</td></tr> <tr><td>ESR (※ 1)</td><td>150% or less than the initial specified value</td></tr> <tr><td>Leakage current (※ 2)</td><td>Less than or equal to the initial specified value</td></tr> </table>	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
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, provided that it's temperature profile is measured at the capacitor top and the terminal. 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 the case of peak temp, less than 250°C, reflow soldering shall be two times maximum. In the case of peak temp, less than 260°C, reflow soldering shall be once. Measurement for solder temperature profile shall be made at the capacitor top and the terminal.	<table border="1"> <tr><td>Capacitance change</td><td>Within ± 10% of the initial capacitance value (※ 3)</td></tr> <tr><td>tan δ</td><td>130% or less than the initial specified value</td></tr> <tr><td>ESR (※ 1)</td><td>130% or less than the initial specified value</td></tr> <tr><td>Leakage current (※ 2)</td><td>Less than or equal to the initial specified value</td></tr> </table>	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
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



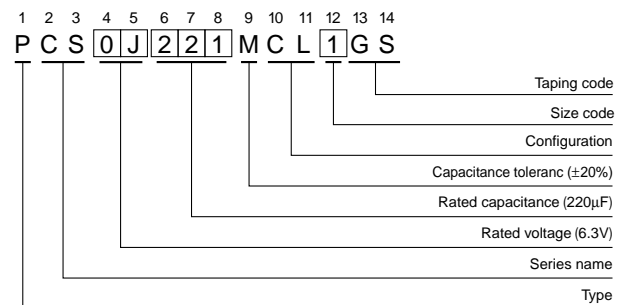
(mm)

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)



● Dimension table in next page.



■ 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
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.