

PCM Chip Type, Higher Capacitance
High Temperature Range



- High reliability, Low ESR, High ripple current.
- Long life of 8000 hours at 125°C.
- SMD type : Lead free reflow soldering condition at 260°C peak complete correspondence.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- ESR after Endurance at -40°C.
- AEC-Q200 Qualified. Please contact us for details.



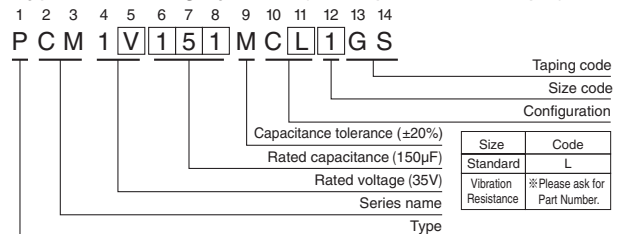
■ Specifications

Item	Performance Characteristics									
Category Temperature Range	-55 to +125°C									
Rated Voltage Range	16 to 80V									
Rated Capacitance Range	12 to 1000μF									
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)	After 2 minutes' application of rated voltage, leakage current is not more than 0.03CV or 3(μA), whichever is greater. ※									
Temperature Characteristics (Max.Impedance Ratio)	$Z(+125^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.25$ (100kHz) $Z(-55^{\circ}\text{C}) / Z(+20^{\circ}\text{C}) \leq 1.25$									
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 8000 hours (φD = 6.3:6000hours) at 125°C.	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ± 20% of initial capacitance value (※3)</td> </tr> <tr> <td>tan δ</td> <td>150% or less of the initial specified value</td> </tr> <tr> <td>ESR (※ 1)</td> <td>200% or less of 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 initial capacitance value (※3)	tan δ	150% or less of the initial specified value	ESR (※ 1)	200% or less of the initial specified value	Leakage current (※ 2)	Less than or equal to the initial specified value
Capacitance change	Within ± 20% of initial capacitance value (※3)									
tan δ	150% or less of the initial specified value									
ESR (※ 1)	200% or less of the initial specified value									
Leakage current (※ 2)	Less than or equal to the initial specified value									
Shelf Life	After storing the capacitors under no load at 125°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.									
ESR after Endurance (※ 1)	Less than or equal to the specified value at 100kHz, -40°C									
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 2000 hours at 85°C, 85% RH.	<table border="1"> <tr> <td>Capacitance change</td> <td>Within ± 20% of initial capacitance value (※3)</td> </tr> <tr> <td>tan δ</td> <td>150% or less of the initial specified value</td> </tr> <tr> <td>ESR (※ 1)</td> <td>200% or less of 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 initial capacitance value (※3)	tan δ	150% or less of the initial specified value	ESR (※ 1)	200% or less of the initial specified value	Leakage current (※ 2)	Less than or equal to the initial specified value
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tan δ	150% or less of the initial specified value									
ESR (※ 1)	200% or less of 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 260°C or less, reflow soldering shall be two times maximum. Measurement for solder temperature profile shall be made at the capacitor top.	<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									

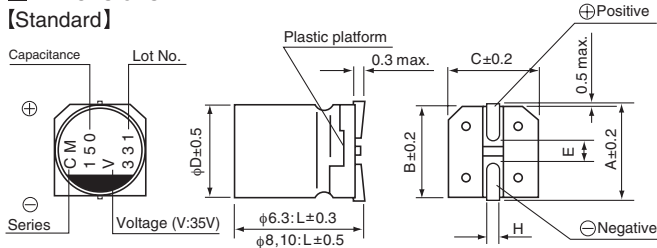
- ※ 1 ESR should be measured at both of the terminal ends closest where the terminals protrude through the plastic platform.
- ※ 2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at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

※ I : Leakage Current (μA), C : Rated Capacitance (μF), V : Rated Voltage (V)

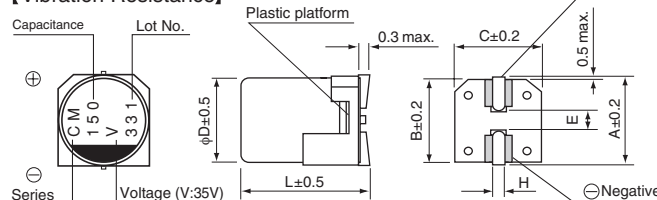
Type numbering system (Example : 35V 150μF)



■ Dimensions [Standard]



■ [Vibration Resistance]



● Dimension table in next page.

■ Aid electrode

※ φ6.3×8L(φ6.3×8L), φ8×10L(φ8×10.5L), φ10×10L(φ10×10.5L), φ10×12.7L(φ10×13.2L) : The vibration structure-resistant product is also available upon request, please ask for details. () : Size of the vibration structure-resistant product.

Standard	(mm)								Vibration Resistance (mm)				
	Size	φ6.3×6L	φ6.3×8L	φ8×7L	φ8×10L	φ8×12L	φ10×8L	φ10×10L	φ10×12.7L	Size	φ6.3×8L	φ8×10.5L	φ10×10.5L
φD	6.3	6.3	8.0	8.0	8.0	10.0	10.0	10.0		6.3	8.0	10.0	10.0
L	5.9	7.9	6.9	9.9	11.9	7.9	9.9	12.6		7.5	10.0	10.0	12.7
A	7.3	7.3	9.0	9.0	9.0	11.0	11.0	11.0		7.3	9.0	11.0	11.0
B	6.6	6.6	8.3	8.3	8.3	10.3	10.3	10.3		6.6	8.3	10.3	10.3
C	6.6	6.6	8.3	8.3	8.3	10.3	10.3	10.3		6.6	8.3	10.3	10.3
E	2.1	2.1	3.2	3.2	3.2	4.6	4.6	4.6		2.5	3.1	4.6	4.6
H	0.5 to 0.8	0.5 to 0.8	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1		0.5 to 0.8	1.1 to 1.5	1.1 to 1.5	1.1 to 1.5

Voltage	Frequency coefficient of rated ripple current							
	V	16	20	25	35	50	63	80
Frequency	120Hz	1kHz	10kHz	100kHz	or more			
Coefficient	0.05	0.30	0.70	1.00				



■ Dimensions

Rated Voltage (V) (code)	Surge Voltage (V)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20°C after 2 minutes)	Initial ESR (mΩ) (20°C/100kHz)	Low temp. ESR after Endurance (mΩ) (-40°C /100kHz)	Rated Ripple (mArms) (125°C /100kHz)	Part Number
16 (1C)	20	120	6.3×6	0.08	57	36	72	1200	PCM1C121MCL1GS
		220	■ 6.3×8	0.08	105	23	46	1700	PCM1C221MCL4GS
		220	8×7	0.08	105	30	60	1500	PCM1C221MCL1GS
		470	▲ 8×10	0.08	225	17	34	2400	PCM1C471MCL6GS
		470	10×8	0.08	225	22	44	1900	PCM1C471MCL1GS
		560	8×12	0.08	268	16	32	2700	PCM1C561MCL1GS
		680	10×10	0.08	326	19	38	2300	PCM1C681MCL1GS
		1000	10×12.7	0.08	480	13	26	2800	PCM1C102MCL1GS
20 (1D)	25	100	6.3×6	0.08	60	41	82	1200	PCM1D101MCL1GS
		150	■ 6.3×8	0.08	90	25	50	1700	PCM1D151MCL4GS
		150	8×7	0.08	90	39	78	1700	PCM1D151MCL1GS
		330	▲ 8×10	0.08	198	19	38	2400	PCM1D331MCL6GS
		330	10×8	0.08	198	23	46	2000	PCM1D331MCL1GS
		470	8×12	0.08	282	18	36	2800	PCM1D471MCL1GS
		560	10×10	0.08	336	20	40	2500	PCM1D561MCL1GS
		680	10×12.7	0.08	408	14	28	3500	PCM1D681MCL1GS
25 (1E)	31	56	6.3×6	0.08	42	43	86	1200	PCM1E560MCL1GS
		100	■ 6.3×8	0.08	75	27	54	1700	PCM1E101MCL4GS
		100	8×7	0.08	75	41	82	1700	PCM1E101MCL1GS
		220	▲ 8×10	0.08	165	20	40	2400	PCM1E221MCL6GS
		220	10×8	0.08	165	24	48	2000	PCM1E221MCL1GS
		270	8×12	0.08	202	19	38	2800	PCM1E271MCL1GS
		330	10×10	0.08	247	20	40	2500	PCM1E331MCL1GS
		470	10×12.7	0.08	352	15	30	3500	PCM1E471MCL1GS
35 (1V)	43	47	6.3×6	0.08	49	48	96	1200	PCM1V470MCL1GS
		68	■ 6.3×8	0.08	71	31	62	1700	PCM1V680MCL4GS
		68	8×7	0.08	71	44	88	1700	PCM1V680MCL1GS
		150	▲ 8×10	0.08	157	22	44	2400	PCM1V151MCL6GS
		150	10×8	0.08	157	25	50	2000	PCM1V151MCL1GS
		220	8×12	0.08	231	21	42	2800	PCM1V221MCL1GS
		270	10×10	0.08	283	20	40	2500	PCM1V271MCL1GS
		330	10×12.7	0.08	346	16	32	3500	PCM1V331MCL1GS
50 (1H)	63	22	6.3×6	0.08	33	50	100	1000	PCM1H220MCL1GS
		39	■ 6.3×8	0.08	58	36	72	1200	PCM1H390MCL4GS
		39	8×7	0.08	58	45	90	1600	PCM1H390MCL1GS
		82	▲ 8×10	0.08	123	26	52	2100	PCM1H820MCL6GS
		82	10×8	0.08	123	34	68	2000	PCM1H820MCL1GS
		120	△ 8×12	0.08	180	25	50	2500	PCM1H121MCL2GS
		120	10×10	0.08	180	25	50	2500	PCM1H121MCL1GS
		180	10×12.7	0.08	270	19	38	3200	PCM1H181MCL1GS
63 (1J)	79	12	6.3×6	0.08	22	51	102	1000	PCM1J120MCL1GS
		22	■ 6.3×8	0.08	41	45	90	1200	PCM1J220MCL4GS
		22	8×7	0.08	41	48	96	1600	PCM1J220MCL1GS
		39	8×10	0.08	73	28	56	2100	PCM1J390MCL1GS
		47	10×8	0.08	88	35	70	2000	PCM1J470MCL1GS
		56	8×12	0.08	105	27	54	2500	PCM1J560MCL1GS
		68	10×10	0.08	128	28	56	2500	PCM1J680MCL1GS
		100	10×12.7	0.08	189	24	48	3200	PCM1J101MCL1GS
80 (1K)	100	12	6.3×8	0.08	28	50	100	1000	PCM1K120MCL1GS
		27	8×10	0.08	64	38	76	1400	PCM1K270MCL1GS
		39	8×12	0.08	93	35	70	1800	PCM1K390MCL1GS
		47	10×10	0.08	112	33	66	1800	PCM1K470MCL1GS
		68	10×12.7	0.08	163	28	56	2200	PCM1K680MCL1GS

• For taping specifications, recommended land size/soldering by reflow and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.

No marked, [1] will be put at 12th digit of type numbering system.
 △: In this case, [2] will be put at 12th digit of type numbering system.
 ■: In this case, [4] will be put at 12th digit of type numbering system.
 ▲: In this case, [6] will be put at 12th digit of type numbering system.