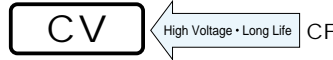


**CV** series Chip Type, High Voltage / Long Life



**NEW**

- High voltage (to 63V), Low ESR, High ripple current.
- Load life of 3000 hours at 105°C.
- SMD type : Lead free reflow soldering condition at 260°C peak correspondence.
- Compliant to the RoHS directive (2002/95/EC).

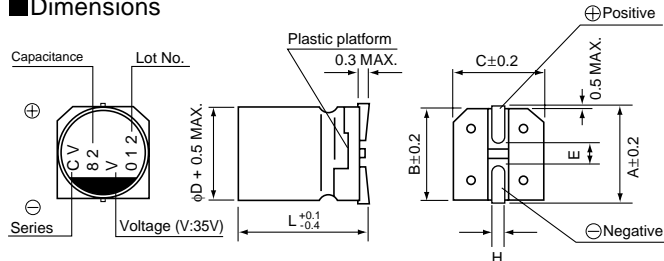


## Specifications

Item	Performance Characteristics		
Category Temperature Range	-55 to +105°C		
Rated Voltage Range	16 to 63V		
Rated Capacitance Range	5.6 to 470μF		
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 3000 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, 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.	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



## Type numbering system (Example : 35V 82μF)



	(mm)						
Size	φ6.3×6L	φ8×7L	φ8×10L	φ8×12L	φ10×8L	φ10×10L	φ10×12.7L
φD	6.3	8.0	8.0	8.0	10.0	10.0	10.0
L	5.9	6.9	9.9	11.9	7.9	9.9	12.6
A	7.3	9.0	9.0	9.0	11.0	11.0	11.0
B	6.6	8.3	8.3	8.3	10.3	10.3	10.3
C	6.6	8.3	8.3	8.3	10.3	10.3	10.3
E	2.1	3.2	3.2	3.2	4.6	4.6	4.6
H	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

Voltage		Code					
V	Code	16	20	25	35	50	63
V	C	D	E	V	H	J	

● 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
16 (1C)	18.4	56	6.3×6	0.12	179	50	1000	PCV1C560MCL1GS
		100	8×7	0.12	320	36	1500	PCV1C101MCL1GS
		220	▲ 8×10	0.12	704	27	2000	PCV1C221MCL6GS
		220	10×8	0.12	704	31	2000	PCV1C221MCL1GS
		270	8×12	0.12	864	26	2300	PCV1C271MCL1GS
		330	10×10	0.12	1056	26	2400	PCV1C331MCL1GS
		470	10×12.7	0.12	1504	25	2800	PCV1C471MCL1GS
20 (1D)	23.0	47	6.3×6	0.12	188	55	1000	PCV1D470MCL1GS
		68	8×7	0.12	272	45	1300	PCV1D680MCL1GS
		150	▲ 8×10	0.12	600	28	2000	PCV1D151MCL6GS
		150	10×8	0.12	600	33	1900	PCV1D151MCL1GS
		220	8×12	0.12	880	27	2300	PCV1D221MCL1GS
		270	10×10	0.12	1080	27	2300	PCV1D271MCL1GS
		330	10×12.7	0.12	1320	26	2700	PCV1D331MCL1GS
25 (1E)	28.7	33	6.3×6	0.12	165	60	900	PCV1E330MCL1GS
		56	8×7	0.12	280	50	1300	PCV1E560MCL1GS
		120	▲ 8×10	0.12	600	29	1900	PCV1E121MCL6GS
		120	10×8	0.12	600	35	1800	PCV1E121MCL1GS
		150	8×12	0.12	750	28	2200	PCV1E151MCL1GS
		180	10×10	0.12	900	28	2300	PCV1E181MCL1GS
		270	10×12.7	0.12	1350	27	2700	PCV1E271MCL1GS
35 (1V)	40.2	18	6.3×6	0.12	126	64	900	PCV1V180MCL1GS
		27	8×7	0.12	189	55	1200	PCV1V270MCL1GS
		56	8×10	0.12	392	31	1900	PCV1V560MCL1GS
		68	10×8	0.12	476	37	1800	PCV1V680MCL1GS
		82	8×12	0.12	574	29	2200	PCV1V820MCL1GS
		100	10×10	0.12	700	29	2200	PCV1V101MCL1GS
		150	10×12.7	0.12	1050	28	2600	PCV1V151MCL1GS
50 (1H)	57.5	8.2	6.3×6	0.12	82	81	800	PCV1H8R2MCL1GS
		15	8×7	0.12	150	63	1100	PCV1H150MCL1GS
		33	▲ 8×10	0.12	330	36	1700	PCV1H330MCL6GS
		33	10×8	0.12	330	49	1500	PCV1H330MCL1GS
		39	8×12	0.12	390	34	2000	PCV1H390MCL1GS
		47	10×10	0.12	470	30	2200	PCV1H470MCL1GS
		68	10×12.7	0.12	680	29	2600	PCV1H680MCL1GS
63 (1J)	72.4	5.6	6.3×6	0.12	71	105	700	PCV1J5R6MCL1GS
		10	8×7	0.12	126	75	1000	PCV1J100MCL1GS
		22	▲ 8×10	0.12	277	37	1700	PCV1J220MCL6GS
		22	10×8	0.12	277	56	1400	PCV1J220MCL1GS
		27	8×12	0.12	340	35	2000	PCV1J270MCL1GS
		33	10×10	0.12	416	31	2200	PCV1J330MCL1GS
		47	10×12.7	0.12	592	30	2500	PCV1J470MCL1GS

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

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