

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



Upgrade

- High voltage (to 125V), 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).

CX ← High Temperature CV



## Specifications

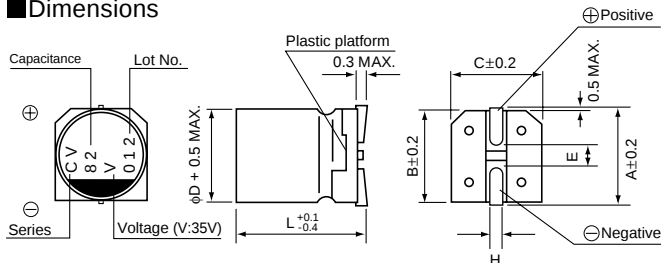
| Item                                              | Performance Characteristics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                       |                                                     |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|
| Category Temperature Range                        | -55 to +105°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |                                                     |
| Rated Voltage Range                               | 16 to 125V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       |                                                     |
| Rated Capacitance Range                           | 5.6 to 680μF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |                                                     |
| 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)<br>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.<br>Pre-heating shall be done at 150 to 200°C and for 60 to 180 sec.<br>The duration for over +230°C temperature at capacitor surface shall not exceed 60 seconds.<br>In the case of peak temp, less than 250°C, reflow soldering shall be two times maximum.<br>In the case of peak temp, less than 260°C, reflow soldering shall be once.<br>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

| V    | 16 | 20 | 25 | 35 | 50 | 63 | 80 | 100 | 125 |
|------|----|----|----|----|----|----|----|-----|-----|
| Code | C  | D  | E  | V  | H  | J  | K  | 2A  | 2B  |

## ■ Standard Ratings

| Rated Voltage<br>(V)(code) | Surge Voltage<br>(V) | Rated Capacitance<br>(μF) | Case Size<br>φD × L (mm) | tan δ | Leakage Current<br>(μA) | ESR (mΩ)<br>(at 100kHz 20°C) | Rated Ripple<br>(mA <sub>rms</sub> ) | Part Number    |
|----------------------------|----------------------|---------------------------|--------------------------|-------|-------------------------|------------------------------|--------------------------------------|----------------|
| 16<br>(1C)                 | 18.4                 | 56                        | 6.3×6                    | 0.12  | 179                     | 50                           | 1000                                 | PCV1C560MCL1GS |
|                            |                      | 82                        | △ 6.3×6                  | 0.12  | 262                     | 47                           | 1300                                 | PCV1C820MCL2GS |
|                            |                      | 100                       | 8×7                      | 0.12  | 320                     | 36                           | 1500                                 | PCV1C101MCL1GS |
|                            |                      | 150                       | △ 8×7                    | 0.12  | 480                     | 34                           | 1700                                 | PCV1C151MCL2GS |
|                            |                      | 220                       | ▲ 8×10                   | 0.12  | 704                     | 27                           | 2000                                 | PCV1C221MCL6GS |
|                            |                      | 220                       | 10×8                     | 0.12  | 704                     | 31                           | 2000                                 | PCV1C221MCL1GS |
|                            |                      | 270                       | □ 8×10                   | 0.12  | 864                     | 21                           | 3800                                 | PCV1C271MCL7GS |
|                            |                      | 270                       | 8×12                     | 0.12  | 864                     | 26                           | 2300                                 | PCV1C271MCL1GS |
|                            |                      | 270                       | △ 10×8                   | 0.12  | 864                     | 24                           | 3200                                 | PCV1C271MCL2GS |
|                            |                      | 330                       | 10×10                    | 0.12  | 1056                    | 26                           | 2400                                 | PCV1C331MCL1GS |
|                            |                      | 390                       | △ 8×12                   | 0.12  | 1248                    | 20                           | 4100                                 | PCV1C391MCL2GS |
|                            |                      | 470                       | △ 10×10                  | 0.12  | 1504                    | 21                           | 3900                                 | PCV1C471MCL2GS |
|                            |                      | 470                       | 10×12.7                  | 0.12  | 1504                    | 25                           | 2800                                 | PCV1C471MCL1GS |
| 20<br>(1D)                 | 23.0                 | 680                       | △ 10×12.7                | 0.12  | 2176                    | 19                           | 4400                                 | PCV1C681MCL2GS |
|                            |                      | 47                        | 6.3×6                    | 0.12  | 188                     | 55                           | 1000                                 | PCV1D470MCL1GS |
|                            |                      | 56                        | △ 6.3×6                  | 0.12  | 224                     | 48                           | 1300                                 | PCV1D560MCL2GS |
|                            |                      | 68                        | 8×7                      | 0.12  | 272                     | 45                           | 1300                                 | PCV1D680MCL1GS |
|                            |                      | 100                       | △ 8×7                    | 0.12  | 400                     | 42                           | 1400                                 | PCV1D101MCL2GS |
|                            |                      | 150                       | ▲ 8×10                   | 0.12  | 600                     | 28                           | 2000                                 | PCV1D151MCL6GS |
|                            |                      | 150                       | 10×8                     | 0.12  | 600                     | 33                           | 1900                                 | PCV1D151MCL1GS |
|                            |                      | 180                       | △ 10×8                   | 0.12  | 720                     | 25                           | 3100                                 | PCV1D181MCL2GS |
|                            |                      | 220                       | □ 8×10                   | 0.12  | 880                     | 22                           | 3700                                 | PCV1D221MCL7GS |
|                            |                      | 220                       | 8×12                     | 0.12  | 880                     | 27                           | 2300                                 | PCV1D221MCL1GS |
|                            |                      | 270                       | △ 8×12                   | 0.12  | 1080                    | 21                           | 4000                                 | PCV1D271MCL2GS |
|                            |                      | 270                       | 10×10                    | 0.12  | 1080                    | 27                           | 2300                                 | PCV1D271MCL1GS |
|                            |                      | 330                       | △ 10×10                  | 0.12  | 1320                    | 22                           | 3800                                 | PCV1D331MCL2GS |
|                            |                      | 330                       | 10×12.7                  | 0.12  | 1320                    | 26                           | 2700                                 | PCV1D331MCL1GS |
| 25<br>(1E)                 | 28.7                 | 470                       | △ 10×12.7                | 0.12  | 1880                    | 20                           | 4300                                 | PCV1D471MCL2GS |
|                            |                      | 33                        | 6.3×6                    | 0.12  | 165                     | 60                           | 1000                                 | PCV1E330MCL1GS |
|                            |                      | 47                        | △ 6.3×6                  | 0.12  | 235                     | 49                           | 1300                                 | PCV1E470MCL2GS |
|                            |                      | 56                        | 8×7                      | 0.12  | 280                     | 50                           | 1300                                 | PCV1E560MCL1GS |
|                            |                      | 82                        | △ 8×7                    | 0.12  | 410                     | 47                           | 1400                                 | PCV1E820MCL2GS |
|                            |                      | 120                       | ▲ 8×10                   | 0.12  | 600                     | 29                           | 1900                                 | PCV1E121MCL6GS |
|                            |                      | 120                       | 10×8                     | 0.12  | 600                     | 35                           | 1800                                 | PCV1E121MCL1GS |
|                            |                      | 150                       | □ 8×10                   | 0.12  | 750                     | 23                           | 3600                                 | PCV1E151MCL7GS |
|                            |                      | 150                       | 8×12                     | 0.12  | 750                     | 28                           | 2200                                 | PCV1E151MCL1GS |
|                            |                      | 150                       | △ 10×8                   | 0.12  | 750                     | 26                           | 3000                                 | PCV1E151MCL2GS |
|                            |                      | 180                       | 10×10                    | 0.12  | 900                     | 28                           | 2300                                 | PCV1E181MCL1GS |
|                            |                      | 220                       | △ 8×12                   | 0.12  | 1100                    | 22                           | 3800                                 | PCV1E221MCL2GS |
|                            |                      | 270                       | △ 10×10                  | 0.12  | 1350                    | 23                           | 3700                                 | PCV1E271MCL2GS |
|                            |                      | 270                       | 10×12.7                  | 0.12  | 1350                    | 27                           | 2700                                 | PCV1E271MCL1GS |
| 35<br>(1V)                 | 40.2                 | 390                       | △ 10×12.7                | 0.12  | 1950                    | 21                           | 4200                                 | PCV1E391MCL2GS |
|                            |                      | 18                        | 6.3×6                    | 0.12  | 126                     | 64                           | 900                                  | PCV1V180MCL1GS |
|                            |                      | 22                        | △ 6.3×6                  | 0.12  | 154                     | 50                           | 1300                                 | PCV1V220MCL2GS |
|                            |                      | 27                        | 8×7                      | 0.12  | 189                     | 55                           | 1200                                 | PCV1V270MCL1GS |
|                            |                      | 39                        | △ 8×7                    | 0.12  | 273                     | 52                           | 1400                                 | PCV1V390MCL2GS |
|                            |                      | 56                        | 8×10                     | 0.12  | 392                     | 31                           | 1900                                 | PCV1V560MCL1GS |
|                            |                      | 68                        | 10×8                     | 0.12  | 476                     | 37                           | 1800                                 | PCV1V680MCL1GS |
|                            |                      | 82                        | □ 8×10                   | 0.12  | 574                     | 24                           | 3600                                 | PCV1V820MCL7GS |
|                            |                      | 82                        | 8×12                     | 0.12  | 574                     | 29                           | 2200                                 | PCV1V820MCL1GS |
|                            |                      | 82                        | △ 10×8                   | 0.12  | 574                     | 27                           | 3000                                 | PCV1V820MCL2GS |
|                            |                      | 100                       | 10×10                    | 0.12  | 700                     | 29                           | 2200                                 | PCV1V101MCL1GS |
|                            |                      | 120                       | □ 8×12                   | 0.12  | 840                     | 23                           | 3800                                 | PCV1V121MCL7GS |
|                            |                      | 120                       | △ 10×10                  | 0.12  | 840                     | 24                           | 3700                                 | PCV1V121MCL2GS |
|                            |                      | 150                       | 10×12.7                  | 0.12  | 1050                    | 28                           | 2600                                 | PCV1V151MCL1GS |
|                            |                      | 180                       | △ 10×12.7                | 0.12  | 1260                    | 22                           | 4100                                 | PCV1V181MCL2GS |

## ■ Standard Ratings

| Rated Voltage<br>(V)(code) | Surge Voltage<br>(V) | Rated Capacitance<br>(μF) | Case Size<br>φD × L (mm) | tan δ | Leakage Current<br>(μA) | ESR (mΩ)<br>(at 100kHz 20°C) | Rated Ripple<br>(mArms) | Part Number    |
|----------------------------|----------------------|---------------------------|--------------------------|-------|-------------------------|------------------------------|-------------------------|----------------|
| 50<br>(1H)                 | 57.5                 | 8.2                       | 6.3×6                    | 0.12  | 82                      | 81                           | 800                     | PCV1H8R2MCL1GS |
|                            |                      | 12                        | △ 6.3×6                  | 0.12  | 120                     | 55                           | 1200                    | PCV1H120MCL2GS |
|                            |                      | 15                        | 8×7                      | 0.12  | 150                     | 63                           | 1100                    | PCV1H150MCL1GS |
|                            |                      | 22                        | △ 8×7                    | 0.12  | 220                     | 60                           | 1300                    | PCV1H220MCL2GS |
|                            |                      | 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                        | □ 8×10                   | 0.12  | 470                     | 29                           | 3300                    | PCV1H470MCL7GS |
|                            |                      | 47                        | △ 10×8                   | 0.12  | 470                     | 37                           | 2600                    | PCV1H470MCL2GS |
|                            |                      | 47                        | 10×10                    | 0.12  | 470                     | 30                           | 2200                    | PCV1H470MCL1GS |
|                            |                      | 56                        | △ 8×12                   | 0.12  | 560                     | 28                           | 3400                    | PCV1H560MCL2GS |
|                            |                      | 68                        | △ 10×10                  | 0.12  | 680                     | 29                           | 3400                    | PCV1H680MCL2GS |
|                            |                      | 68                        | 10×12.7                  | 0.12  | 680                     | 29                           | 2600                    | PCV1H680MCL1GS |
|                            |                      | 100                       | △ 10×12.7                | 0.12  | 1000                    | 27                           | 3600                    | PCV1H101MCL2GS |
| 63<br>(1J)                 | 72.4                 | 5.6                       | 6.3×6                    | 0.12  | 71                      | 105                          | 700                     | PCV1J5R6MCL1GS |
|                            |                      | 8.2                       | △ 6.3×6                  | 0.12  | 103                     | 56                           | 1200                    | PCV1J8R2MCL2GS |
|                            |                      | 10                        | 8×7                      | 0.12  | 126                     | 75                           | 1000                    | PCV1J100MCL1GS |
|                            |                      | 12                        | △ 8×7                    | 0.12  | 151                     | 70                           | 1100                    | PCV1J120MCL2GS |
|                            |                      | 22                        | ▲ 8×10                   | 0.12  | 277                     | 37                           | 1700                    | PCV1J220MCL6GS |
|                            |                      | 22                        | 10×8                     | 0.12  | 277                     | 56                           | 1400                    | PCV1J220MCL1GS |
|                            |                      | 27                        | □ 8×10                   | 0.12  | 340                     | 30                           | 3200                    | PCV1J270MCL7GS |
|                            |                      | 27                        | 8×12                     | 0.12  | 340                     | 35                           | 2000                    | PCV1J270MCL1GS |
|                            |                      | 27                        | △ 10×8                   | 0.12  | 340                     | 38                           | 2500                    | PCV1J270MCL2GS |
|                            |                      | 33                        | 10×10                    | 0.12  | 416                     | 31                           | 2200                    | PCV1J330MCL1GS |
|                            |                      | 39                        | △ 8×12                   | 0.12  | 491                     | 29                           | 3400                    | PCV1J390MCL2GS |
|                            |                      | 47                        | △ 10×10                  | 0.12  | 592                     | 30                           | 3300                    | PCV1J470MCL2GS |
|                            |                      | 47                        | 10×12.7                  | 0.12  | 592                     | 30                           | 2500                    | PCV1J470MCL1GS |
|                            |                      | 56                        | △ 10×12.7                | 0.12  | 706                     | 28                           | 3400                    | PCV1J560MCL2GS |
| 80<br>(1K)                 | 92.0                 | 10                        | 8×10                     | 0.12  | 160                     | 43                           | 1600                    | PCV1K100MCL1GS |
|                            |                      | 12                        | 8×12                     | 0.12  | 192                     | 41                           | 1800                    | PCV1K120MCL1GS |
|                            |                      | 15                        | 10×10                    | 0.12  | 240                     | 39                           | 1900                    | PCV1K150MCL1GS |
|                            |                      | 22                        | 10×12.7                  | 0.12  | 352                     | 38                           | 2200                    | PCV1K220MCL1GS |
| 100<br>(2A)                | 115                  | 6.8                       | 8×10                     | 0.12  | 136                     | 48                           | 1500                    | PCV2A6R8MCL1GS |
|                            |                      | 10                        | 8×12                     | 0.12  | 200                     | 45                           | 1700                    | PCV2A100MCL1GS |
|                            |                      | 12                        | 10×10                    | 0.12  | 240                     | 42                           | 1900                    | PCV2A120MCL1GS |
|                            |                      | 18                        | 10×12.7                  | 0.12  | 360                     | 41                           | 2100                    | PCV2A180MCL1GS |
| 125<br>(2B)                | 143                  | 6.8                       | 8×10                     | 0.12  | 170                     | 93                           | 1100                    | PCV2B6R8MCL1GS |
|                            |                      | 8.2                       | 8×12                     | 0.12  | 205                     | 84                           | 1300                    | PCV2B8R2MCL1GS |
|                            |                      | 12                        | 10×10                    | 0.12  | 300                     | 69                           | 1400                    | PCV2B120MCL1GS |
|                            |                      | 15                        | 10×12.7                  | 0.12  | 375                     | 48                           | 2000                    | PCV2B150MCL1GS |

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

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, [6] will be put at 12th digit of type numbering system.

□ : In this case, [7] 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.

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

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