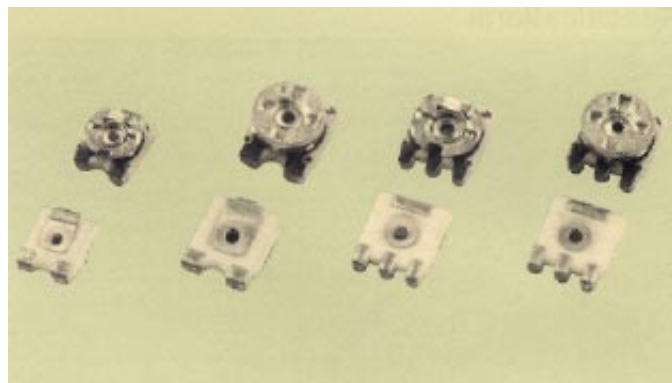


## CVR-32 / CVR-42 / CVR-43 Series

### Features:

- 1) Two small sizes and profiles: CVR-3 & CVR-4.
- 2) Solderable only in the terminal electrode areas.
- 3) Individual part marking provides easy identification.
- 4) The CVR-4 series is available in a 2 or 3 terminal style.
- 5) Packaged in bulk, or on 12mm embossed plastic tape and reel.
- 6) Easily adjustable with a screwdriver.



### How To Order:

**CVR - 4 3 C - 223 S W 1** 

#### Others

#### Standard Quantity Per Package

| CVR-4        | CVR-3         |
|--------------|---------------|
| 1 = 1,000pcs | 2 = 2,000pcs  |
| 5 = 5,000pcs | 5 = 5,000pcs  |
|              | 0 = 10,000pcs |

#### Packaging

B = Bulk  
W = Taping (W direction)  
X = Taping (X direction) option

#### Adjustment Method

S = Standard  
G = Low Profile  
A = For Automatic  
R = Bottom (CVR-43 only)

#### Nominal Resistance Value

(3 digits, 2 significant digits and 1 number of zeros)  
example: 223 = 22kΩ

#### Circuit Type

A = Voltage adjustment  
C = Current adjustment (except for CVR-3)

#### Terminal Numbers

2 = 2 terminals  
3 = 3 terminals (except for CVR-3)

#### Size

4 = 4mm  
3 = 3mm

#### Chip Trimmer Potentiometer

## CVR-32 / CVR-42 / CVR-43 Series

## Dimensions

| Item                             | Circuit Type | Equivalent Circuit | Dimension<br>(Unit: mm)      |
|----------------------------------|--------------|--------------------|------------------------------|
| (Face) (Back)<br><br>CVR-43 Auto | A type       |                    | <br>*G type height = 1.8±0.2 |
|                                  | C type       |                    |                              |
| <br>CVR-42 Auto                  | A type       |                    | <br>*G type height = 1.8±0.2 |
|                                  | C type       |                    |                              |
| <br>CVR-43 Reverse               | A type       |                    | <br>Screw for Adjustment     |
|                                  | C type       |                    |                              |
| <br>CVR-43 Standard              | A type       |                    |                              |
|                                  | C type       |                    |                              |
| <br>CVR-42 Standard              | A type       |                    | <br>Rotor Terminal           |
|                                  | C type       |                    |                              |
| <br>CVR-32 Standard              | A type       |                    | <br>Type Marking             |

## CVR-32 / CVR-42 / CVR-43 Series

### Rating

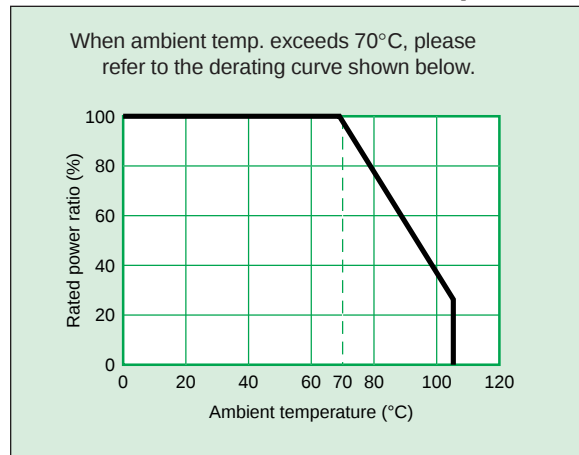
| Specifications              | Rating              |                     |
|-----------------------------|---------------------|---------------------|
|                             | CVR-4 series        | CVR-3 series        |
| Rated power                 | 0.2W (70°C)         | 0.1W (70°C)         |
| Rated voltage               | 100V                | 50V                 |
| Resistance Value            | 100Ω~2.2MΩ          | 100Ω~2.2MΩ          |
| Resistance Tolerance        | ±30%                | ±30%                |
| Resistance Change Linearity | Straight line "B"   | Straight line "B"   |
| Rotation life               | (20 rotations) ±15% | (20 rotations) ±15% |
| Torque                      | 20~200g•cm          | 20~200g•cm          |
| Rotation angle              | 270°±20°            | 270°±20°            |
| Operating temp              | -40°C~+100°C        | -40°C~+100°C        |
| T.C.R.                      | ±250 ppm/°C         | ±250 ppm/°C         |

### Code

| (a) | (2) | (b) | Code (a)<br>(The first two significant figures) |       | Code (b)<br>(10 logarithmic multiplier) |                 |
|-----|-----|-----|-------------------------------------------------|-------|-----------------------------------------|-----------------|
|     |     |     | Sign                                            | Value | Sign                                    | Value           |
| 1   |     |     | 1                                               | 10    | 1                                       | 10 <sup>1</sup> |
| A   |     |     | 2                                               | 15    | 2                                       | 10 <sup>2</sup> |
| 2   |     |     | 3                                               | 20    | 3                                       | 10 <sup>3</sup> |
| 3   |     |     | 4                                               | 30    | 4                                       | 10 <sup>4</sup> |
| 4   |     |     | 5                                               | 47    | 5                                       | 10 <sup>5</sup> |
| 5   |     |     | 6                                               | 50    |                                         |                 |
| 6   |     |     |                                                 | 68    |                                         |                 |

• Example (a) 4 (b) 3 ⇒ 47 × 10<sup>3</sup> = 47 kΩ

### Rated Power vs. Ambient Temp.



### Rated Power

|                                                            |                             |          |  |
|------------------------------------------------------------|-----------------------------|----------|--|
| Rated voltage is calculated from the following definition. |                             |          |  |
| $E = \sqrt{PR}$                                            | E: Rated voltage            | (V)      |  |
|                                                            | P: Rated power              | (W)      |  |
|                                                            | R: Nominal resistance value | (Ω)      |  |
| Maximum operating voltage                                  |                             |          |  |
|                                                            | CVR-4 series                | – 100VDC |  |
|                                                            | CVR-3 series                | – 50VDC  |  |

### Standard Values

| Style       | Full resistance value<br>(Ω, kΩ, MΩ) | Code |     |
|-------------|--------------------------------------|------|-----|
|             |                                      | (a)  | (b) |
| CVR-□□□-101 | 100 Ω                                | 1    | 1   |
| CVR-□□□-151 | 150 Ω                                | A    | 1   |
| CVR-□□□-201 | 200 Ω                                |      | 1   |
| CVR-□□□-221 | 220 Ω                                | 2    | 1   |
| CVR-□□□-301 | 300 Ω                                |      | 1   |
| CVR-□□□-331 | 330 Ω                                | 3    | 1   |
| CVR-□□□-471 | 470 Ω                                | 4    | 1   |
| CVR-□□□-501 | 500 Ω                                | 5    | 1   |
| CVR-□□□-681 | 680 Ω                                | 6    | 1   |
| CVR-□□□-102 | 1.0 kΩ                               | 1    | 2   |
| CVR-□□□-152 | 1.5 kΩ                               | A    | 2   |
| CVR-□□□-202 | 2.0 kΩ                               |      | 2   |
| CVR-□□□-222 | 2.2 kΩ                               | 2    | 2   |
| CVR-□□□-302 | 3.0 kΩ                               |      | 2   |
| CVR-□□□-332 | 3.3 kΩ                               | 3    | 2   |
| CVR-□□□-472 | 4.7 kΩ                               | 4    | 2   |
| CVR-□□□-502 | 5.0 kΩ                               | 5    | 2   |
| CVR-□□□-682 | 6.8 kΩ                               | 6    | 2   |
| CVR-□□□-103 | 10 kΩ                                | 1    | 3   |
| CVR-□□□-153 | 15 kΩ                                | A    | 3   |
| CVR-□□□-203 | 20 kΩ                                |      | 3   |
| CVR-□□□-223 | 22 kΩ                                | 2    | 3   |
| CVR-□□□-303 | 30 kΩ                                |      | 3   |
| CVR-□□□-333 | 33 kΩ                                | 3    | 3   |
| CVR-□□□-473 | 47 kΩ                                | 4    | 3   |
| CVR-□□□-503 | 50 kΩ                                | 5    | 3   |
| CVR-□□□-683 | 68 kΩ                                | 6    | 3   |
| CVR-□□□-104 | 100 kΩ                               | 1    | 4   |
| CVR-□□□-154 | 150 kΩ                               | A    | 4   |
| CVR-□□□-204 | 200 kΩ                               |      | 4   |
| CVR-□□□-224 | 220 kΩ                               | 2    | 4   |
| CVR-□□□-304 | 300 kΩ                               |      | 4   |
| CVR-□□□-334 | 330 kΩ                               | 3    | 4   |
| CVR-□□□-474 | 470 kΩ                               | 4    | 4   |
| CVR-□□□-504 | 500 kΩ                               | 5    | 4   |
| CVR-□□□-684 | 680 kΩ                               | 6    | 4   |
| CVR-□□□-105 | 1.0 MΩ                               | 1    | 5   |
| CVR-□□□-155 | 1.5 MΩ                               | A    | 5   |
| CVR-□□□-205 | 2.0 MΩ                               |      | 5   |
| CVR-□□□-225 | 2.2 MΩ                               | 2    | 5   |

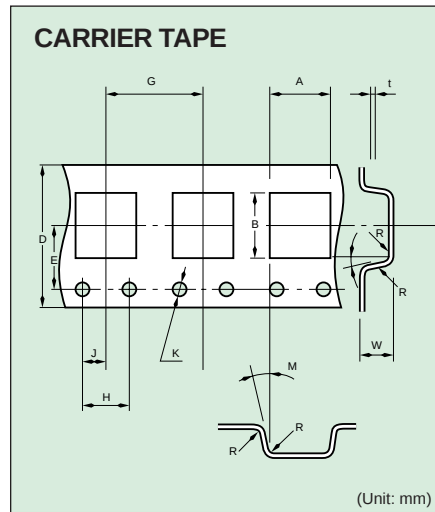
## CVR-32 / CVR-42 / CVR-43 Series

### Specifications and Methods of Reliability Test

| Item                  | Specification                                                      | Measuring Condition                                                                                                                                                                                                                                                                                                                         |
|-----------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Load life             | $\Delta R < \pm 5\%$ of Initial value                              | 1: Stabilize at $70 \pm 2^\circ\text{C}$ for 8 hours.<br>2: Measure initial value.<br>3: Perform voltage cycle for $1000 \pm 12$ hours.<br>on: 1.5 hours    off: 0.5 hours<br>4: Stabilize at $25^\circ\text{C}$ for 5 hours.<br>5: Measure value.                                                                                          |
| Load life in moisture | $\Delta R < \pm 5\%$ of Initial value                              | 1: Perform voltage cycle for $500 \pm 12$ hours in chamber ( $40 \pm 2^\circ\text{C}$ , 90–95% RH).<br>on: 1.5 hours    off: 0.5 hours<br>2: Stabilize at $25^\circ\text{C}$ for 5 hours.<br>3: Measure value.                                                                                                                              |
| Heat resistance       | $\Delta R < \pm 5\%$ of Initial value                              | Dwell in temperature $100 \pm 3^\circ\text{C}$ for $250 \pm 6$ hours stabilize at $25^\circ\text{C}$ for 5 hours.<br>Measure resistance value.                                                                                                                                                                                              |
| Temperature cycle     | $\Delta R < \pm 2\%$ of Initial value                              | Cycle<br>1: $-40^{+3}_{-5}^\circ\text{C}$ for 30 min.<br>2: $25^{+10}_{-5}^\circ\text{C}$ for 15 min.<br>3: $100^{+10}_{-5}^\circ\text{C}$ for 30 min.<br>4: $25^{+10}_{-5}^\circ\text{C}$ for 15 min.<br>1 cycle is composed of 4 conditions.<br>After 5 cycles, stabilize at $25^\circ\text{C}$ for 5 hours.<br>Measure resistance value. |
| Antivibration test    | $\Delta R < \pm 1\%$ of Initial value                              | Sweep at frequency 10 to 55Hz, amplitude 15mm, during 2 hours each in X, Y, and Z axes. (total 6 hours)<br>Measure resistance value.                                                                                                                                                                                                        |
| Resistance to solder  | $\Delta R < \pm 1\%$ of Initial value<br>(no evidence of leaching) | Immerse in solder bath at $250^\circ\text{C}$ for $5 \pm 1$ sec. Stabilize at $25^\circ\text{C}$ for 5 hours.<br>Measure resistance value.                                                                                                                                                                                                  |
| Solvent resistance    | $\Delta R < \pm 1\%$ of Initial value                              | Immerse in trichloroethylene or equivalent for 15 min. Stabilize at $25^\circ\text{C}$ for 5 hours.<br>Measure resistance value.                                                                                                                                                                                                            |
| Solderability         | Coverage $> 75\%$ each termination end                             | Immerse in solder at $230 \pm 5^\circ\text{C}$ for $3 \pm 0.5$ sec.                                                                                                                                                                                                                                                                         |

## CVR-32 / CVR-42 / CVR-43 Series

### Tape & Reel Packaging Dimensions



| Code  | A       | B       | D        | E       |
|-------|---------|---------|----------|---------|
| CVR-4 | 4.2±0.2 | 4.8±0.2 | 12.0±0.3 | 5.5±0.1 |
| CVR-3 | 3.3±0.2 | 4.0±0.2 | 8.1±0.3  | 3.5±0.1 |

| Code  | F        | G       | H       | J       |
|-------|----------|---------|---------|---------|
| CVR-4 | 1.5±0.2  | 8.0±0.1 | 4.0±0.1 | 2.0±0.1 |
| CVR-3 | 1.75±0.2 | 4.0±0.1 | 4.0±0.1 | 2.0±0.1 |

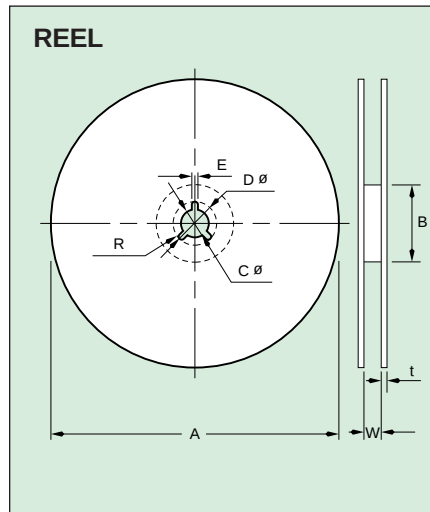
| Code  | K                                 | M     | R     | W*       |
|-------|-----------------------------------|-------|-------|----------|
| CVR-4 | 1.5 <sup>+0.1</sup> <sub>-0</sub> | 15°±0 | 0.3±0 | 2.7±0.1  |
| CVR-3 | 1.55±0.1                          | 3°±0  | 0.3±0 | 2.15±0.2 |

| Code  | t       |
|-------|---------|
| CVR-4 | 0.3±0.1 |
| CVR-3 | 0.2±0.1 |

\*G type W = 1.85±0.1

### Remarks

- 1) Embossed style plastic (CVR-4 series), or vinyl chloride (CVR-3 series).
- 2) The dimensional tolerance on pitch is  $\pm 0.2$  mm cumulative over 40 pitches (CVR-4), or  $\pm 0.2$  mm cumulative over 10 pitches (CVR-3).
- 3) The top cover tape width is  $9.5 \pm 0.2$  mm (CVR-4), or  $5.7 \pm 0.2$  mm (CVR-3), and shall not cover the feeder sprocket holes.



| Code | 1,000 per reel | 5,000 per reel |
|------|----------------|----------------|
| A    | 178±2.0        | 420±2.0        |
| B    | >50            | 80.0±2.0       |
| C    | 13.0±0.5       | 13.0±0.5       |
| D    | 21.0±0.8       | 21.0±1.0       |
| E    | 2.0±0.5        | 2.0±0.5        |
| W    | 14.0±1.5       | 14.0±1.5       |
| t    | 1.0±0.5        | 2.0±0.5        |
| R    | 1.0            | 5.0            |

| Code | 2,000 per reel | 5,000 per reel | 10,000 per reel |
|------|----------------|----------------|-----------------|
| A    | 178±2.0        | 250±2.0        | 330±2.0         |
| B    | 80.0±2.0       | 80.0±2.0       | 80.0±2.0        |
| C    | 13.0±0.5       | 13.0±0.5       | 13.0±0.5        |
| D    | 21.0±0.5       | 21.0±0.5       | 21.0±0.5        |
| E    | 2.0±0.5        | 2.0±0.5        | 2.0±0.5         |
| W    | 9.5±1.0        | 9.5±1.0        | 9.5±1.0         |
| t    | 2.5MAX         | 3.0MAX         | 3.0MAX          |
| R    | 1.0±0.5        | 1.5±0.5        | 1.5±0.5         |

### Taping

- 1) Quantity per reel:  
A maximum of 5000 pcs at 1 reel (CVR-4) or maximum of 1,000 pcs at 1 reel (CVR-3) is packaged. There should be no missing parts.
- 2) Direction of taping:  
W direction is our standard; X direction taping is available upon special order

