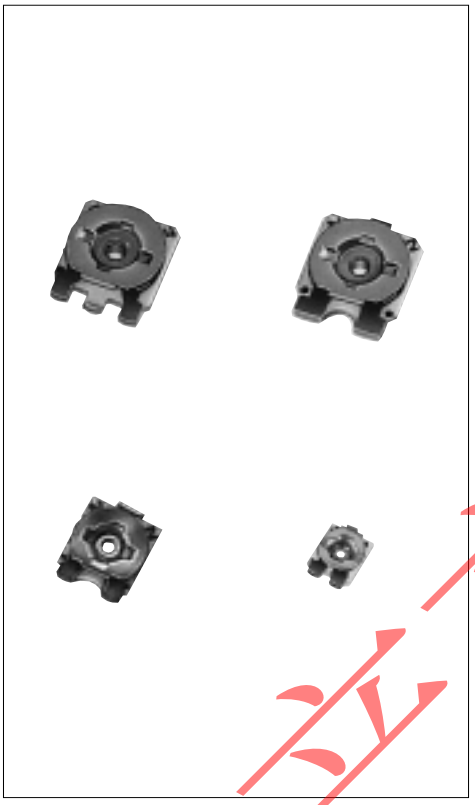
KYOCERA

Chip Trimmer Potentiometers (CVR-1, CVR-3, CVR-4 Series)



Features

- Wave solderable due to stainless steel wiper.
- Easy identification by letter code of resistance value and dot marking of circuit type on adjustment side.
- The same shape of 2 or 3 terminals allows standardization of circuit pattern design (CVR-4 series).
- High accuracy and high reliability by cermet construction.
- Tape & reel packaging (all of CVR series), and automatic adjustment type is available. (CVR-42G, CVR-43G, CVR-32A, CVR-12G)
- Standardization on both E6 value series and 1, 2, 3, 5 series. (Excludy CVR-12G)

Application

- Optical pick ups
- Tuners
- HDD/FDD
- Telecommunications
- LCD
- Camcorders

How to Order

CVR	3	2	A	223	S	W	2	C	30
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

①Series

②Size(4 : 4mm, 3 : 3mm, 1 : 1.5mm)

③Number of Terminals

2	2 terminals	**3**	3 terminals

(CVR-3, CVR-1 : 2 terminals only available)

④Circuit Type

A	Voltage Adjustment	**C**	Current Adjustment

(CVR-3, CVR-1 : A type only available)

⑤Nominal Full Resistance Value (3 Digits)

102→10×10^2=1000Ω

⑥Adjustment Method

Code	Adjustment Method	Type
S	Front Side Adjustment by Standard Screw Driver	CVR-42•43 CVR-3 Series
G	Automatic Adjustment	CVR-42•43 CVR-1 Series
A	Automatic Adjustment	CVR-3 Series
R	Front & Reverse Adjustment by Screw Driver	CVR-43 Series

⑦Packaging

B	Bulk
W	Taping W Direction (standard)
X	Taping X Direction (option)

⑧Standard Quantity Per Package

CVR-4	Taping Qty.	CVR-3 CVR-1	Taping Qty.
1	1,000pcs/reel	**2**	2,000pcs/reel
5	5,000pcs/reel	**5**	5,000pcs/reel
		0	10,000pcs/reel

(CVR-1 : Reflow Slodering only)

⑨Spec

C : Reflow Solderable

D : Wave Solderable

⑩Tolerance

30 : ±30%

Please contact your local AVX office for custom specification.

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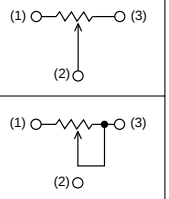
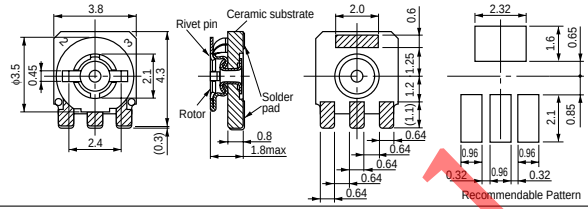
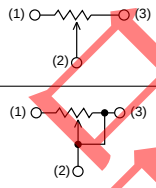
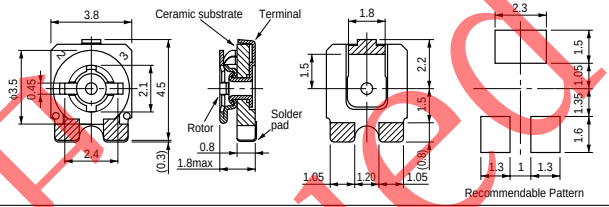
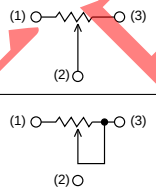
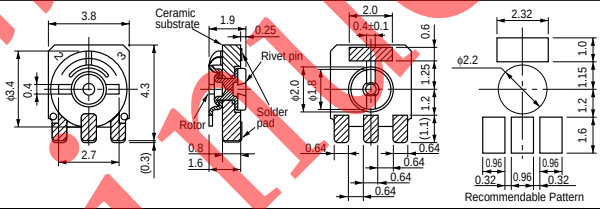
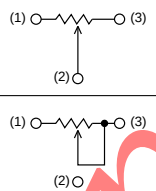
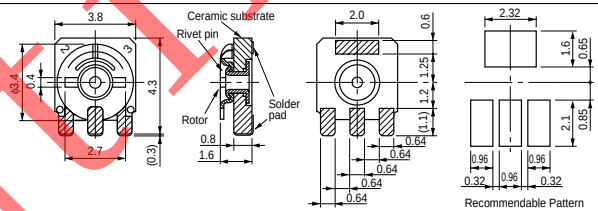
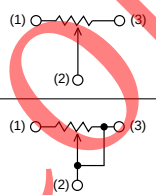
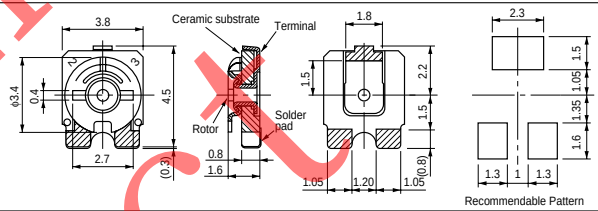
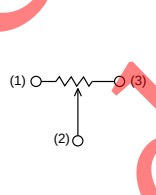
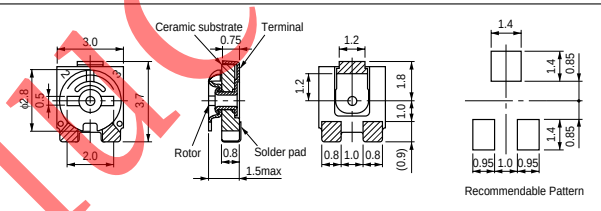
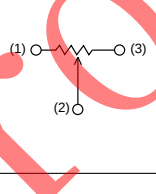
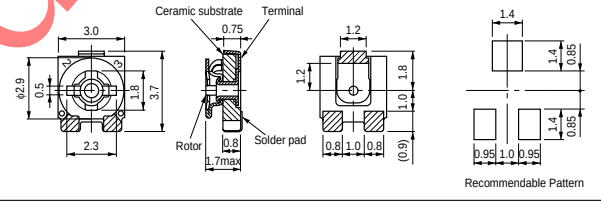
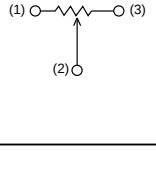
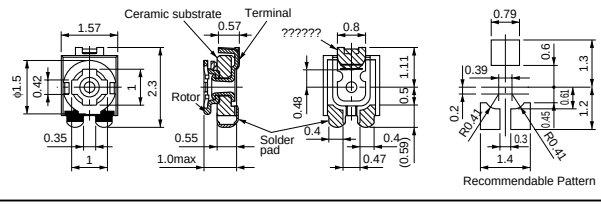
Item	Circuit Type	Equivalent Circuit	Dimensions (Unit:mm), Tolerance : ±0.2
(Front) (Reverse)  CVR-43G (Auto)	A Type C Type		
 CVR-42G (Auto)	A Type C Type		
 CVR-43R (Reverse)	A Type C Type		
 CVR-43S (Standard)	A Type C Type		
 CVR-42S (Standard)	A Type C Type		
 CVR-32S (Standard)	A Type		
 CVR-32A (Auto)	A Type		
 CVR-12G (Auto)	A Type		

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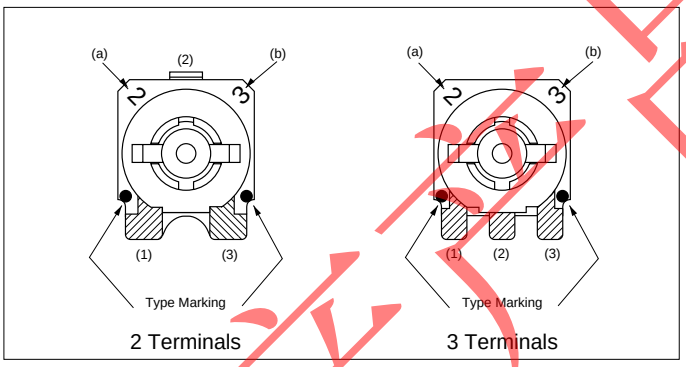
Specifications

P/N	Rated power	Rated voltage	Resistance value	Resistance tolerance	Resistance change linearity	Rotation Life	Torque (within 10 Rotations)	Rotation angle	Operating temp.	T.C.R.
CVR-4 Series	0.2W (70°C)	DC100V	100Ω to 2.2MΩ	±30%	(B) Linear	(20 rotations) ≤±15%	2.0 to 29.4mNm 20 to 300gfcm	270±20°	–40°C to +100°C	±250PPM/°C max
CVR-3 Series	0.1W (70°C)	DC50V					2.0 to 19.6mNm 20 to 200gfcm			
CVR-1 Series	0.05W (70°C)		1kΩ to 47kΩ			(5 rotations) ≤±15%	0.5 to 9.8mNm 5 to 100gfcm 5 rotation max	290±20°		

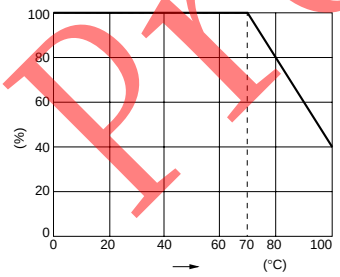
Marking



Example (A)2,(B)3 22×10^3=22kΩ (a) ▰, (b) ⁘ 22×10^3=22kΩ (CVR-1 series)
∗CVR-1 series : No Type marking

Marking(a)		Marking(b)	
The first two significant figures		Logarithmic multiplier	
Code	Value	Code	Value
1, ◢	10	1	10^1
A, ◣	15	2, ▰	10^2
2, ▰	20,22	3, ⁘	10^3
3, ⁘	30,33	4	10^4
4, ◀	47	5	10^5
5	50		
6, ●	68		

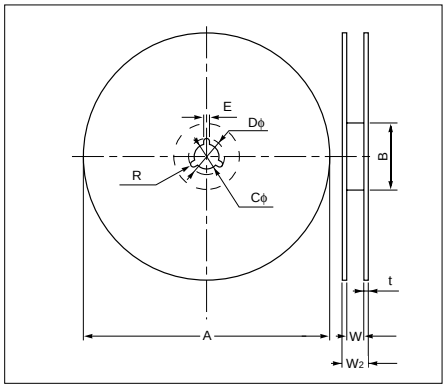
- End resistance
- For resistance under 330Ω : 10Ω max
  under 1kΩ : 30Ω max
  over 1kΩ : 2% max (not exceeding 10kΩ)
- Contact resistance less than 5% of nominal full resistance
- Rated Power
  CVR-4 series : 0.2W
  CVR-3 series : 0.1W
  CVR-1 series : 0.05W
  (When ambient temp. exceed 70°C, please refer to the derating curve shown below.)
- Rated Voltage
  Rated voltage is calculated using following formula.
  $E=\sqrt{PR}$ E:Rated voltage (V)
  P:Rated power (W)
  R:Nominal resistance value(W)
  Maximum operating voltage
  DC100V; CVR-4 series
  DC50V; CVR-3, CVR-1 series



Style	Full Resistance Value (Ω, kΩ, MΩ)	Code (a)	Code (b)
CVR□□□101□□□□□	100Ω	1	1
CVR□□□151□□□□□	150Ω	A	1
CVR□□□201□□□□□	200Ω	2	1
CVR□□□221□□□□□	220Ω		
CVR□□□301□□□□□	300Ω	3	1
CVR□□□331□□□□□	330Ω		
CVR□□□471□□□□□	470Ω	4	1
CVR□□□501□□□□□	500Ω	5	1
CVR□□□681□□□□□	680Ω	6	1
CVR□□□102□□□□□	1.0kΩ	1, ◢	2, ▰
CVR□□□152□□□□□	1.5kΩ	A, ◣	2, ▰
CVR□□□202□□□□□	2.0kΩ	2, ▰	2, ▰
CVR□□□222□□□□□	2.2kΩ		
CVR□□□302□□□□□	3.0kΩ	3, ⁘	2, ▰
CVR□□□332□□□□□	3.3kΩ		
CVR□□□472□□□□□	4.7kΩ	4, ◀	2, ▰
CVR□□□502□□□□□	5.0kΩ	5	2
CVR□□□682□□□□□	6.8kΩ	6, ●	2, ▰
CVR□□□103□□□□□	10 kΩ	1, ◢	3, ⁘
CVR□□□153□□□□□	15 kΩ	A, ◣	3, ⁘
CVR□□□203□□□□□	20 kΩ	2, ▰	3, ⁘
CVR□□□223□□□□□	22 kΩ		
CVR□□□303□□□□□	30 kΩ	3, ⁘	3, ⁘
CVR□□□333□□□□□	33 kΩ		
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	2	4
CVR□□□224□□□□□	220 kΩ		
CVR□□□304□□□□□	300 kΩ	3	4
CVR□□□334□□□□□	330 kΩ		
CVR□□□474□□□□□	470 kΩ	4	4
CVR□□□504□□□□□	500 kΩ	5	4
CVR□□□684□□□□□	680 kΩ	6	4
CVR□□□105□□□□□	1.0MΩ	1	5
CVR□□□155□□□□□	1.5MΩ	A	5
CVR□□□205□□□□□	2.0MΩ	2	5
CVR□□□225□□□□□	2.2MΩ		

Packing

• Reel



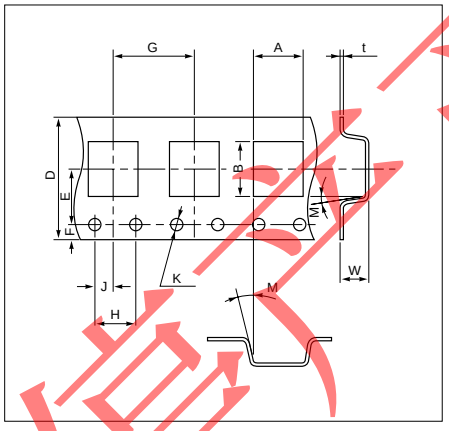
<CVR-4> (Unit : mm)

Code	1,000 per reel	5,000per reel
A	180^{0}_{-3}	420±2.0
B	60^{+1}_{0}	80.0±2.0
C	13.0±0.2	13.0±0.5
D	21.0±0.8	21.0±0.5
E	2.0±0.5	2.0±0.5
W	13.0±0.3	13.5±1.5
W_2	17.0±1.4(or 15.4±1.0)	
t		2.0±0.5
R	1.0(or 0.5)	1.0

<CVR-3, CVR-1> (Unit : mm)

Code	2,000 per reel	5,000 per reel	10,000 per reel
A	180^{0}_{-3}	250±2.0	330±2.0
B	60^{+1}_{0}	80.0±2.0	80.0±2.0
C	13.0±0.2	13.0±0.5	13.0±0.5
D	21.0±0.8	21.0±0.5	21.0±0.5
E	2.0±0.5	2.0±0.5	2.0±0.5
W	9.0±0.3	9.5±1.5	9.5±1.5
W_2	13.0±1.4 (or 11.4±1.0)		
t		2.0±0.5	2.0±0.5
R	1.0(or 0.5)	1.0	1.0

• Carrier tape



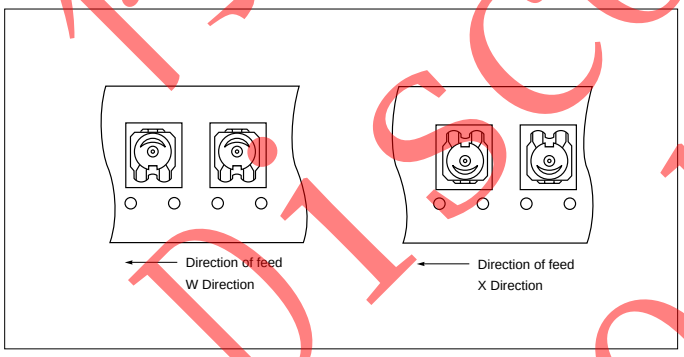
(Unit : mm)

Code		A	B	D	E	F	G	H
Dimension	CVR-4	4.2±0.2	4.8±0.2	12.0±0.3	5.5±0.1	1.5±0.2	8.0±0.1	4.0±0.1
	CVR-3	3.3±0.2	4.0±0.2	8.0±0.3	3.5±0.1	1.75±0.2	4.0±0.1	4.0±0.1
	CVR-1	1.8±0.2	2.4±0.2	8.0±0.3	3.5±0.1	1.75±0.2	4.0±0.1	4.0±0.1

Code		J	K	M	W	t
Dimension	CVR-4	2.0±0.1	1.55±0.1	5°max	1.85±0.1 (Remarks 4)	0.3±0.1
	CVR-3	2.0±0.1	1.55±0.1	3°max	1.85±0.1	0.2±0.1
	CVR-1	2.0±0.1	1.55±0.1	5°max	1.1±0.1	0.25±0.1

Remarks:
1) Embossed style plastic.
2) The dimensional tolerance on pitch is ±0.2 cumulative 10 pitches.
3) There is a ϕ1.0 hole in the center of cavity for VCR-3.
4) CVR-43R : W=2.7±0.1

• Taping



①One reel unit
5000 pcs. max for CVR-4
10000 pcs. max for CVR-3, CVR-1
②Direction of taping
W direction : Standard
X direction : Option

Specifications and Methods of Reliability Test

Item	Specification	Test Conditions
Load life	±5%max	Stabilize at 70±3°C for 24±4hrs. Measure initial resistance value. Perform voltage cycle for 1000±12hrs. on 1.5hrs., off 0.5hrs. Stabilize at room temp. for 1 to 2hrs. measure resistance value.
Load Life in Moisture	±5%max	Perform voltage cycle for 500±12hrs. in chamber (40±2°C, 90-95%RH) On: 1.5hrs Off: 0.5hrs. Stabilize at room temp. for 1 to 2hrs. measure resistance value.
Heat Resistance	±5%max	Dwell at 100±2°C for 240±8hrs. Stabilize at room temp. for 1 to 2hrs. measure resistance value.
Temperature Cycle	±2%max ±5%max (CVR-12G)	(Cycle) 1. –40±3°C 30min 2. 25 $^{+10}_{-5}$°C 2 to 3min 3. 100±2°C 30min 4. 25 $^{+10}_{-5}$°C 2 to 3min 1 cycle composed of 4 conditions. After 5cycles, stabilized at room temp. for 1 to 2hrs. and measure resistance value.
Anti-Vibration Test	±1%max ±2%max (CVR-12G)	Sweep through a frequency of 10 to 55Hz, amplitude 1.5mm, 2hrs. each in X, Y and Z axis (total 6hrs.) measure resistance value.
Resistance to Solder	±1%max ∗No evidence of leaching	Immerse in solder bath at 260±5°C for 5±0.5sec. Stabilize at room temp. for 1 to 2hrs. measure resistance value.
	±2%max (CVR-12G) ∗No evidence of leaching	Reflow soldering at our recamended Temperature probrle (Pre-Heating = 150°C 1min, Peak 230 to 250°C 10seconds max) And stabilize at room temp. for 1 to 2hrs. measure resistance value
Resistance to Solvent	±1%max ±3%max (CVR-12G)	Immerse in Isopropanol(IPA) at 20 to 25°C for 60±10sec. Stabilize at room temp. for 1 to 2hrs. measure resistance value.
Solderability	Cover>75% each termination end	Immerse in solder at 235±5°C for 2±0.5sec.