

◆ Features

1. This varistor is mainly used to protect the back circuit from the surge current.
2. Compact size for 3216/3225/4532/5650.

◆ Applications

Application for Mother Board, Notebook, cellular Phone, PDA, handheld device, DSC, DV, Scanner, and Set-Top Box etc.

◆ How to Order

CVR XXXX RSXXX I
(1) (2) (3) (4)

(1) CVR: Series Name

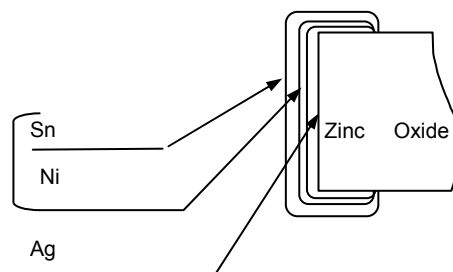
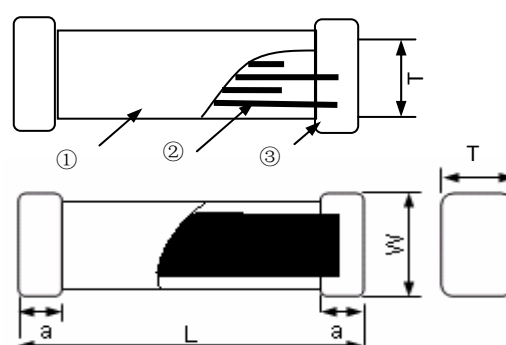
(2) Size:

External Dimensions (L×W) (mm)	
3216 [1206]	3.2×1.6
3225 [1210]	3.2×2.5
4532 [1812]	4.5×3.2
5650 [2220]	5.7×5.0

(3)

Max. Continuous Working Voltage	
Example	Nominal Value
RS120	12V
RS101	100V

(4) Packing: Tape & Reel



- ① ZnO for chip varistor
- ② Internal electrode (Ag-Pd)
- ③-1 Terminal electrode: Inside (Ag)
- ③-2 Outside (Electro-plating Ni-Sn)

◆ Specifications

CVR3216 TYPE

Part Number	Max. Working Voltage		Varistor Voltage	Max. Clamping Voltage		Rated Single Pulse Transient		Typical Capacitance
Test Condition	<30 μ A		@1mA DC	8/20 μ s		Energy 10/1000 μ s	Peak Current 8/20 μ s	@1V _{rms} , 1kHz
	DC	AC RMS						
Units	Volts	Volts	Volts	Volts	Amps	Joules	Amps	pF
Symbol	V _{WDC}	V _{WAC}	V _B	V _C	I _C	E _T	I _P	C _p
CVR3216RS5V5T	5.5	4.0	12.0 [10.0-14.0]	18	5.0	0.5	250	2400
CVR3216RS090T	9	6.4	14.0 [12.0-16.0]	20	5.0	0.5	250	2000
CVR3216RS120T	12	8.5	16.0 [13.0-19.0]	25	5.0	0.5	250	1600
CVR3216RS140T	14	10.0	19.0 [16.0-22.0]	30	5.0	0.5	250	1100
CVR3216RS180T	18	12.7	25.0 [22.0-28.0]	40	5.0	0.5	250	800
CVR3216RS220T	22	15.6	30.0 [26.0-34.0]	45	5.0	0.6	250	750
CVR3216RS260T	26	18.4	35.0 [31.0-38.0]	58	5.0	0.7	200	680
CVR3216RS300T	30	21.3	42.0 [37.0-46.0]	65	5.0	0.7	200	550
CVR3216RS330T	33	23.4	44.0 [39.0-49.0]	72	5.0	0.7	200	500
CVR3216RS380T	38	30.0	50.0 [46.0-54.0]	75	5.0	0.7	200	400
CVR3216RS420T	42	32.0	53.0 [48.0-58.0]	86	5.0	0.5	150	350
CVR3216RS480T	48	34.1	60.0 [54.0-67.0]	100	5.0	0.5	150	280
CVR3216RS560T	56	40.0	68.0 [61.0-75.0]	120	5.0	0.5	150	200
CVR3216RS600T	60	46.0	76.0 [69.0-83.0]	130	5.0	0.5	150	160
CVR3216RS650T	65	50.0	82.0 [73.0-91.0]	140	5.0	0.6	150	140
CVR3216RS750T	75	55.0	94.0 [85.0-103.0]	160	5.0	0.6	150	130
CVR3216RS850T	85	60.0	100.0 [90.0-110.0]	170	5.0	0.7	150	120
CVR3216RS101T	100	75.0	120.0 [108.0-132.0]	200	5.0	0.7	150	100

CVR3225 TYPE

Part Number	Max. Working Voltage		Varistor Voltage	Max. Clamping Voltage		Rated Single Pulse Transient		Typical Capacitance
Test Condition	<30 μ A		@1mA DC	8/20 μ s		Energy 10/1000 μ s	Peak Current 8/20 μ s	@1V _{rms} , 1kHz
	DC	AC RMS						
Units	Volts	Volts	Volts	Volts	Amps	Joules	Amps	pF
Symbol	V _{WDC}	V _{WAC}	V _B	V _C	I _C	E _T	I _P	C _p
CVR3225RS5V5T	5.5	4.0	12.0 [10.0-14.0]	18	5.0	0.7	400	4000
CVR3225RS090T	9	6.4	14.0 [12.0-16.0]	20	5.0	0.9	400	3800
CVR3225RS120T	12	8.5	16.0 [13.0-19.0]	25	5.0	1.0	400	3200
CVR3225RS140T	14	10.0	19.0 [16.0-22.0]	30	5.0	1.2	400	2700
CVR3225RS180T	18	12.7	25.0 [22.0-28.0]	40	5.0	1.5	400	2000
CVR3225RS220T	22	15.6	30.0 [26.0-34.0]	45	5.0	1.7	400	1600
CVR3225RS260T	26	18.4	35.0 [31.0-38.0]	58	5.0	1.9	400	1400
CVR3225RS300T	30	21.3	42.0 [37.0-46.0]	65	5.0	1.7	300	1200
CVR3225RS330T	33	23.4	44.0 [39.0-49.0]	72	5.0	1.7	300	1100
CVR3225RS380T	38	30.0	50.0 [46.0-54.0]	75	5.0	2.0	300	1000
CVR3225RS420T	42	32.0	53.0 [48.0-58.0]	86	5.0	2.0	300	800
CVR3225RS480T	48	34.1	60.0 [54.0-67.0]	100	5.0	2.0	300	700
CVR3225RS560T	56	40.0	68.0 [61.0-75.0]	120	5.0	2.3	300	600
CVR3225RS600T	60	46.0	76.0 [69.0-83.0]	130	5.0	2.0	300	450
CVR3225RS650T	65	50.0	82.0 [73.0-91.0]	140	5.0	1.6	300	320
CVR3225RS750T	75	55.0	94.0 [85.0-103.0]	160	5.0	1.6	200	300
CVR3225RS850T	85	60.0	100.0 [90.0-110.0]	170	5.0	2.0	200	250
CVR3225RS101T	100	75.0	120.0 [108.0-132.0]	200	5.0	1.6	200	180

◆ Specifications

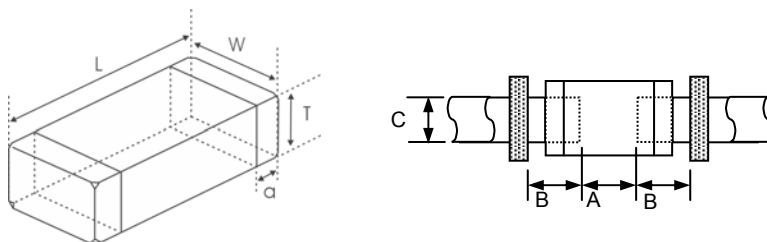
CVR4532 TYPE

Part Number	Max. Working Voltage		Varistor Voltage	Max. Clamping Voltage		Rated Single Pulse Transient		Typical Capacitance
Test Condition	<30 μ A		@1mA DC	8/20 μ s		Energy 10/1000 μ s	Peak Current 8/20 μ s	@1V _{rms} , 1kHz
	DC	AC RMS						
Units	Volts	Volts	Volts	Volts	Amps	Joules	Amps	pF
Symbol	V _{WDC}	V _{WAC}	V _B	V _C	I _C	E _T	I _P	C _p
CVR4532RS5V5T	5.5	4.0	12.0 [10.0-14.0]	18	5.0	1.0	800	7100
CVR4532RS090T	9	6.4	14.0 [12.0-16.0]	20	5.0	1.2	800	6000
CVR4532RS120T	12	8.5	16.0 [13.0-19.0]	25	5.0	1.5	800	5100
CVR4532RS140T	14	10.0	19.0 [16.0-22.0]	30	5.0	1.9	800	4300
CVR4532RS180T	18	12.7	25.0 [22.0-28.0]	40	5.0	2.3	800	3600
CVR4532RS220T	22	15.6	30.0 [26.0-34.0]	45	5.0	2.5	800	2600
CVR4532RS260T	26	18.4	35.0 [31.0-38.0]	58	5.0	3.0	800	2400
CVR4532RS300T	30	21.3	42.0 [37.0-46.0]	65	5.0	3.7	800	2000
CVR4532RS330T	33	23.4	44.0 [39.0-49.0]	72	5.0	3.7	800	1800
CVR4532RS380T	38	30.0	50.0 [46.0-54.0]	75	5.0	4.2	800	1600
CVR4532RS420T	42	32.0	53.0 [48.0-58.0]	86	5.0	4.0	600	1400
CVR4532RS480T	48	34.1	60.0 [54.0-67.0]	100	5.0	4.0	600	1200
CVR4532RS560T	56	40.0	68.0 [61.0-75.0]	120	5.0	4.3	600	1000
CVR4532RS600T	60	46.0	76.0 [69.0-83.0]	130	5.0	4.3	600	900
CVR4532RS650T	65	50.0	82.0 [73.0-91.0]	140	5.0	4.0	600	780
CVR4532RS750T	75	55.0	94.0 [85.0-103.0]	160	5.0	4.0	500	600
CVR4532RS850T	85	60.0	100.0 [90.0-110.0]	170	5.0	4.0	500	450
CVR4532RS101T	100	75.0	120.0 [108.0-132.0]	200	5.0	4.0	500	400

CVR5650TYPE

Part Number	Max. Working Voltage		Varistor Voltage	Max. Clamping Voltage		Rated Single Pulse Transient		Typical Capacitance
Test Condition	<30 μ A		@1mA DC	8/20 μ s		Energy 10/1000 μ s	Peak Current 8/20 μ s	@1V _{rms} , 1kHz
	DC	AC RMS						
Units	Volts	Volts	Volts	Volts	Amps	Joules	Amps	pF
Symbol	V _{WDC}	V _{WAC}	V _B	V _C	I _C	E _T	I _P	C _p
CVR5650RS5V5T	5.5	4	12.0 [10.0-14.0]	18	10.0	1.4	1200	15000
CVR5650RS090T	9	6.4	14.0 [12.0-16.0]	20	10.0	2.7	1200	12000
CVR5650RS120T	12	8.5	16.0 [13.0-19.0]	25	10.0	3.2	1200	10000
CVR5650RS140T	14	10.0	19.0 [16.0-22.0]	30	10.0	5.4	1200	8000
CVR5650RS180T	18	12.7	25.0 [22.0-28.0]	40	10.0	5.8	1200	7200
CVR5650RS220T	22	15.6	30.0 [26.0-34.0]	45	10.0	6.5	1200	5300
CVR5650RS260T	26	18.4	35.0 [31.0-38.0]	58	10.0	7.8	1200	4000
CVR5650RS300T	30	21.3	42.0 [37.0-46.0]	65	10.0	9.6	1200	3600
CVR5650RS330T	33	23.4	44.0 [39.0-49.0]	72	5.0	9.6	1200	3400
CVR5650RS380T	38	30.0	50.0 [46.0-54.0]	75	10.0	12.0	1200	3200
CVR5650RS420T	42	32.0	53.0 [48.0-58.0]	86	5.0	9.0	900	3100
CVR5650RS480T	48	34.1	60.0 [54.0-67.0]	100	10.0	7.7	900	3000
CVR5650RS560T	56	40.0	68.0 [61.0-75.0]	120	10.0	9.0	900	1800
CVR5650RS600T	60	46.0	76.0 [69.0-83.0]	130	10.0	6.5	900	1500
CVR5650RS650T	65	50.0	82.0 [73.0-91.0]	140	10.0	5.6	900	1400
CVR5650RS750T	75	55.0	94.0 [85.0-103.0]	160	10.0	6.0	800	1000
CVR5650RS850T	85	60.0	100.0 [90.0-110.0]	170	10.0	6.8	800	800
CVR5650RS101T	100	75.0	120.0 [108.0-132.0]	200	10.0	6.0	800	650

◆ Dimensions



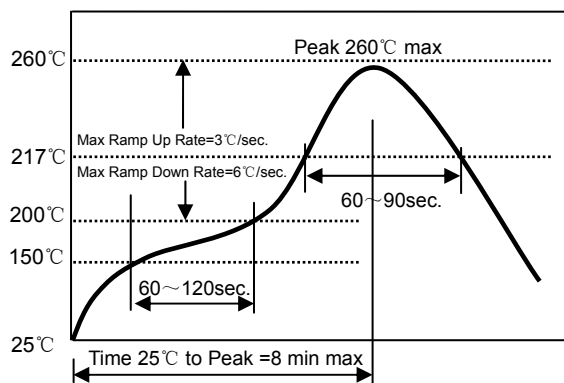
Unit: mm [inch]

Type	L	W	T	a	A	B	C
3216 [1206]	3.2±0.2 [0.126±0.008]	1.6±0.2 [0.063±0.008]	1.6 Max. [0.063]	0.2~0.8 [0.008~0.031]	1.8~2.5	1.0~1.5	1.2~2.0
3225 [1210]	3.2±0.3 [0.126±0.012]	2.5±0.25 [0.098±0.010]	1.7Max. [0.067]	0.25~0.75 [0.010~0.029]	1.9~2.1	1.2~1.5	2.6~2.8
4532 [1812]	4.5±0.40 [0.177±0.016]	3.2±0.30 [0.126±0.012]	2.5Max. [0.098]	0.25~1.0 [0.010±0.039]	2.8~3.0	1.5~1.8	3.3~3.6
5650 [2220]	5.7±0.4 [0.224±0.016]	5.0±0.4 [0.197±0.016]	2.5Max. [0.098]	0.25~1.0 [0.010±0.039]	4.0~4.2	1.8~2.0	5.2~5.5

◆ Reflow Profile:

- △ Preheat condition: 150 ~200°C/60~120sec.
- △ Allowed time above 217°C: 60~90sec.
- △ Max temp: 260°C
- △ Max time at max temp: 10sec.
- △ Solder paste: Sn/3.0Ag/0.5Cu
- △ Allowed Reflow time: 2x max

[Note: The reflow profile in the above table is only for qualification and is not meant to specify board assembly profiles. Actual board assembly profiles must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the Reflow profile shows.]



◆ Environmental Performance

- 1) Operating and storage temperature range (individual chip without packing): -55°C ~ +85°C.
- 2) Storage temperature range (packaging conditions): -10°C~+40°C RH 70% (Max.).

◆ Package

Type	CVR3216	CVR3225	CVR4532	CVR5650
Tape	Paper Tape	Embossed Tape	Embossed Tape	Embossed Tape
Quantity	3K	2K	4K	3K