Description:

The CV Series of transient surge suppressors is disc-shaped varistors that can be operated continuously in low and medium voltage electronic circuits, as well as across AC power lines.

Due to their radial lead construction, these components require very little mounting space. They are available in five model sizes from 5 mm to 20 mm and feature a wide range of AC operating voltages from 50 V to 680 V.

Features:

- AC operating voltage (Vrms) from 50 V to 680 V
- DC operating voltage (Vdc) from 65 V to 895 V
- Broad range of current and energy handling capability
- For RMS voltages ≤40 V see ZV leaded series
- 5 model sizes available from 5 mm to 20 mm
- UL1449, 3rd Ed.
- +85ºC continuous operating temperature
- RoHS compliant, REACH compliant, lead free, and halogen free

General Technical Data	
Climatic Category	40 / 85 / 56
Operating Ambient Temperature	-40ºC to +85ºC
Storage Temperature Range	-40ºC to +125ºC
Threshold Voltage Temperature Coefficient	< +0.05 % /ºC
Isolation Voltage Capability	> 2.5 kV
Response Time	< 25 ns
Insulation Resistance	> 1 Gohm

Standard Packaging Options

Series	Range (Vrms)	Disc Diameter								
		5 mm		7 mm		10 mm		14 mm		20 mm
		Reel	Bulk	Reel	Bulk	Reel	Bulk	Reel	Bulk	Bulk
CV	50 - 75	1500	1500	1500	1500	1300	600	700	500	300
	95	1500	1500	1500	1000	1300	600	600	500	300
	115 - 130	1300	1500	1300	1000	1000	500	600	500	300
	140 - 150	1200	1500	1200	1000	1000	500	600	500	300
	175	1200	1500	1200	1000	1000	500	500	500	300
	230	1000	1000	1000	1000	1000	500	500	300	300
	250 - 275	1000	1000	1000	1000	800	500	400	300	300
	300	900	1000	900	1000	800	500	400	300	200
	320	N/A	N/A	N/A	N/A	800	500	400	300	200
	385	N/A	N/A	N/A	N/A	700	400	400	300	200
	420	N/A	N/A	N/A	N/A	700	400	300	300	200
	460 - 550	N/A	N/A	N/A	N/A	600	400	300	300	200
	625	N/A	N/A	N/A	N/A	600	400	300	300	200

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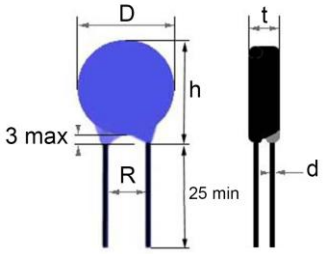
Device Ratings and Dimensions



Part Number	V_{RMS} (volts)	V_{DC} (volts)	V_N (1 mA) (volts)	V_C (volts)	I_C (8/20 uSec) (amps)	W_{MAX} (10/1000 uSec) (joules)	P_{MAX} (watts)	I_{MAX} (8/20 uSec) (amps)	C_{TYP} (@ 1 kHz) (pF)	D_{max} (mm)	t_{max} (mm)	R (mm)	d (mm)	h_{max} (mm)
CV50K05	50	65	82	135	5	2.7	0.1	400	350	7	3.5	5	0.6	9.5
CV50K07	50	65	82	135	10	6.8	0.25	1,200	820	9	3.5	5	0.6	11.5
CV50K10	50	65	82	135	25	17	0.4	2,500	1,400	12.5	4.1	7.5	0.8	15
CV50K14	50	65	82	135	50	35	0.6	4,500	2,600	16.5	4.1	7.5	0.8	20
CV50K20	50	65	82	135	100	75	1	6,500	5,000	22.5	4.5	10	1	26
CV60K05	60	85	100	165	5	3	0.1	400	300	7	3.5	5	0.6	9.5
CV60K07	60	85	100	165	10	7	0.25	1,200	680	9	3.5	5	0.6	11.5
CV60K10	60	85	100	165	25	16	0.4	2,500	1,200	12.5	4.1	7.5	0.8	15
CV60K14	60	85	100	165	50	34	0.6	4,500	2,200	16.5	4.2	7.5	0.8	20
CV60K20	60	85	100	165	100	71	1	6,500	4,100	22.5	4.6	10	1	26
CV75K05	75	100	120	200	5	4	0.1	400	250	7	3.6	5	0.6	9.5
CV75K07	75	100	120	200	10	9	0.25	1,200	550	9	3.6	5	0.6	11.5
CV75K10	75	100	120	200	25	21	0.4	2,500	950	12.5	4.2	7.5	0.8	15
CV75K14	75	100	120	200	50	41	0.6	4,500	1,800	16.5	4.2	7.5	0.8	20
CV75K20	75	100	120	200	100	81	1	6,500	3,300	22.5	4.6	10	1	26
CV95K05	95	125	150	250	5	6	0.1	400	200	7	3.8	5	0.6	9.5
CV95K07	95	125	150	250	10	11	0.25	1,200	440	9	3.8	5	0.6	11.5
CV95K10	95	125	150	250	25	25	0.4	2,500	750	12.5	4.3	7.5	0.8	15
CV95K14	95	125	150	250	50	51	0.6	4,500	1,400	16.5	4.3	7.5	0.8	20
CV95K20	95	125	150	250	100	106	1	6,500	2,600	22.5	4.6	10	1	26
CV115K05	115	150	180	300	5	6	0.1	400	170	7	4.0	5	0.6	9.5
CV115K07	115	150	180	300	10	13	0.25	1,200	360	9	4.0	5	0.6	11.5
CV115K10	115	150	180	300	25	30	0.4	2,500	650	12.5	4.3	7.5	0.8	15
CV115K14	115	150	180	300	50	62	0.6	4,500	1,200	16.5	4.4	7.5	0.8	20
CV115K20	115	150	180	300	100	118	1	6,500	2,100	22.5	4.8	10	1	26
CV130K05	130	170	205	340	5	7	0.1	400	150	7	4.0	5	0.6	9.5
CV130K07	130	170	205	340	10	15	0.25	1,200	320	9	4.0	5	0.6	11.5
CV130K10	130	170	205	340	25	34	0.4	2,500	580	12.5	4.5	7.5	0.8	15
CV130K14	130	170	205	340	50	68	0.6	4,500	1,050	16.5	4.6	7.5	0.8	20
CV130K20	130	170	205	340	100	142	1	6,500	1,900	22.5	5.0	10	1	26
CV140K05	140	180	220	360	5	7	0.1	400	140	7	4.1	5	0.6	9.5
CV140K07	140	180	220	360	10	18	0.25	1,200	300	9	4.1	5	0.6	11.5
CV140K10	140	180	220	360	25	37	0.4	2,500	540	12.5	4.6	7.5	0.8	15
CV140K14	140	180	220	360	50	75	0.6	4,500	950	16.5	4.7	7.5	0.8	20
CV140K20	140	180	220	360	100	157	1	6,500	1,700	22.5	5.1	10	1	26
CV150K05	150	200	240	395	5	9	0.1	400	130	7	4.3	5	0.6	9.5
CV150K07	150	200	240	395	10	18	0.25	1,200	280	9	4.3	5	0.6	11.5
CV150K10	150	200	240	395	25	41	0.4	2,500	510	12.5	4.6	7.5	0.8	15
CV150K14	150	200	240	395	50	81	0.6	4,500	900	16.5	4.8	7.5	0.8	20
CV150K20	150	200	240	395	100	170	1	6,500	1,550	22.5	5.2	10	1	26

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Device Ratings and Dimensions

Part Number	V_{RMS} (volts)	V_{DC} (volts)	V_N (1 mA) (volts)	V_C (volts)	I_C (8/20 uSec) (amps)	W_{MAX} (10/1000 uSec) (joules)	P_{MAX} (watts)	I_{MAX} (8/20 uSec) (amps)	C_{TYP} (@ 1 kHz) (pF)	D_{max} (mm)	t_{max} (mm)	R (mm)	d (mm)	h_{max} (mm)
CV175K05	175	225	270	455	5	9.5	0.1	400	120	7	4.8	5	0.6	9.5
CV175K07	175	225	270	455	10	21	0.25	1200	250	9	4.8	5	0.6	11.5
CV175K10	175	225	270	455	25	46	0.4	2500	440	12.5	4.9	7.5	0.8	15
CV175K14	175	225	270	455	50	95	0.6	4500	800	16.5	4.9	7.5	0.8	20
CV175K20	175	225	270	455	100	193	1	6500	1400	22.5	5.3	10	1	26
CV230K05	230	300	360	595	5	13	0.1	400	90	7	4.8	5	0.6	9.5
CV230K07	230	300	360	595	10	28	0.25	1200	190	9	4.8	5	0.6	11.5
CV230K10	230	300	360	595	25	62	0.4	2500	350	12.5	5.4	7.5	0.8	15
CV230K14	230	300	360	595	50	126	0.6	4500	620	16.5	5.5	7.5	0.8	20
CV230K20	230	300	360	595	100	258	1	6500	1200	22.5	5.9	10	1	26
CV250K05	250	320	390	650	5	14	0.1	400	80	7	5	5	0.6	9.5
CV250K07	250	320	390	650	10	30	0.25	1200	180	9	5	5	0.6	11.5
CV250K10	250	320	390	650	25	68	0.4	2500	320	12.5	5.6	7.5	0.8	15
CV250K14	250	320	390	650	50	135	0.6	4500	580	16.5	5.7	7.5	0.8	20
CV250K20	250	320	390	650	100	276	1	6500	1000	22.5	6.1	10	1	26
CV275K05	275	350	430	710	5	16	0.1	400	70	7	5.6	5	0.6	9.5
CV275K07	275	350	430	710	10	35	0.25	1200	160	9	5.6	5	0.6	11.5
CV275K10	275	350	430	710	25	78	0.4	2500	300	12.5	6	7.5	0.8	15
CV275K14	275	350	430	710	50	150	0.6	4500	530	16.5	6	7.5	0.8	20
CV275K20	275	350	430	710	100	304	1	6500	900	22.5	6.3	10	1	26
CV300K05	300	385	470	775	5	21	0.1	400	65	7	5.8	5	0.6	9.5
CV300K07	300	385	470	775	10	37	0.25	1200	150	9	5.8	5	0.6	11.5
CV300K10	300	385	470	775	25	82	0.4	2500	280	12.5	6.1	7.5	0.8	15
CV300K14	300	385	470	775	50	169	0.6	4500	490	16.5	6.1	7.5	0.8	20
CV300K20	300	385	470	775	100	350	1	6500	850	22.5	6.6	10	1	26
CV320K10	320	420	510	840	25	91	0.4	2500	260	12.5	6.8	7.5	0.8	16
CV320K14	320	420	510	840	50	184	0.6	4500	460	16.5	6.8	7.5	0.8	21
CV320K20	320	420	510	840	100	388	1	6500	800	22.5	6.8	10	1	27
CV385K10	385	505	620	1025	25	93	0.4	2500	240	12.5	7.4	7.5	0.8	16
CV385K14	385	505	620	1025	50	193	0.6	4500	400	16.5	7.4	7.5	0.8	21
CV385K20	385	505	620	1025	100	396	1	6500	700	22.5	7.5	10	1	27
CV420K10	420	560	680	1120	25	97	0.4	2500	220	12.5	7.3	7.5	0.8	16
CV420K14	420	560	680	1120	50	202	0.6	4500	350	16.5	7.4	7.5	0.8	21
CV420K20	420	560	680	1120	100	418	1	6500	650	22.5	7.8	10	1	27
CV460K10	460	615	750	1240	25	106	0.4	2500	200	12.5	7.8	7.5	0.8	16
CV460K14	460	615	750	1240	50	220	0.6	4500	330	16.5	7.8	7.5	0.8	21
CV460K20	460	615	750	1240	100	460	1	6500	550	22.5	8.2	10	1	27
CV510K10	510	670	820	1355	25	115	0.4	2500	180	12.5	8.2	7.5	0.8	16
CV510K14	510	670	820	1355	50	227	0.6	4500	310	16.5	8.2	7.5	0.8	21
CV510K20	510	670	820	1355	100	478	1	6500	500	22.5	8.7	10	1	27
CV550K10	550	745	910	1500	25	134	0.4	2500	170	12.5	8.8	7.5	0.8	16
CV550K14	550	745	910	1500	50	264	0.6	4500	290	16.5	8.8	7.5	0.8	21
CV550K20	550	745	910	1500	100	515	1	6500	450	22.5	9.2	10	1	27
CV575K10	575	750	950	1570	25	136	0.4	2500	165	12.5	8.9	7.5	0.8	16
CV575K14	575	750	950	1570	50	270	0.6	4500	280	16.5	8.9	7.5	0.8	21
CV575K20	575	750	950	1570	100	525	1	6500	460	22.5	9.4	10	1	27
CV625K10	625	825	1000	1650	25	140	0.4	2500	160	12.5	9.1	7.5	0.8	16
CV625K14	625	825	1000	1650	50	280	0.6	4500	270	16.5	9.2	7.5	0.8	21
CV625K20	625	825	1000	1650	100	565	1	6500	400	22.5	9.7	10	1	27
CV680K10	680	895	1100	1815	25	155	0.4	2500	150	12.5	9.7	7.5	0.8	16
CV680K14	680	895	1100	1815	50	310	0.6	4500	250	16.5	9.8	7.5	0.8	21
CV680K20	680	895	1100	1815	100	620	1	6500	350	22.5	10.2	10	1	27

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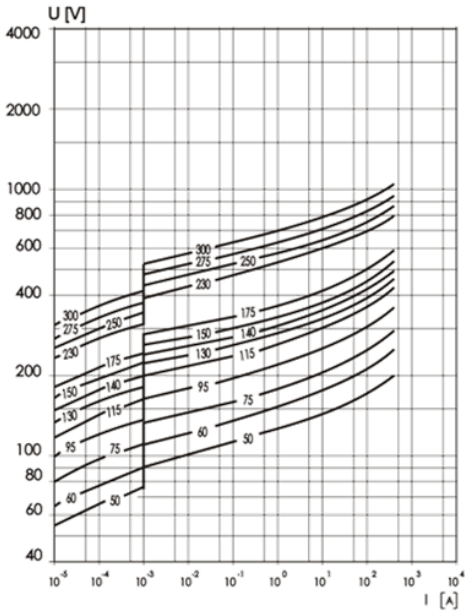
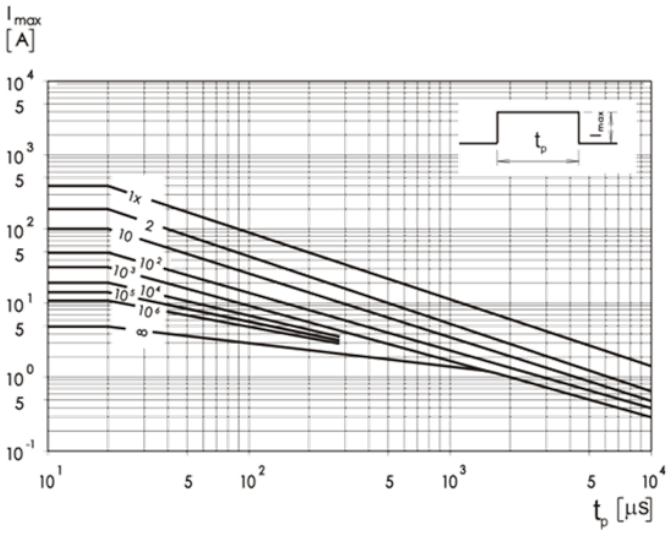
Pulse Rating Curves

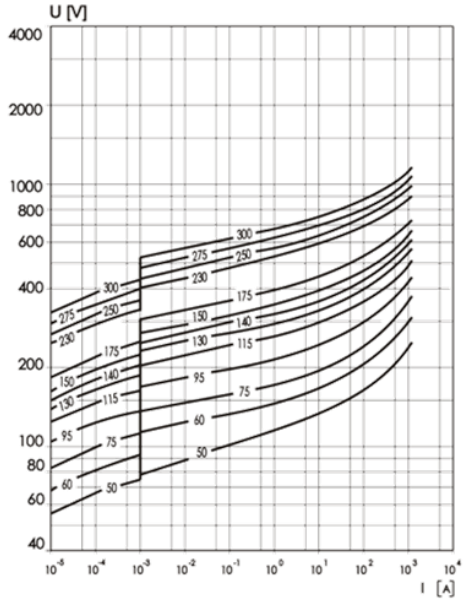
Protection Levels

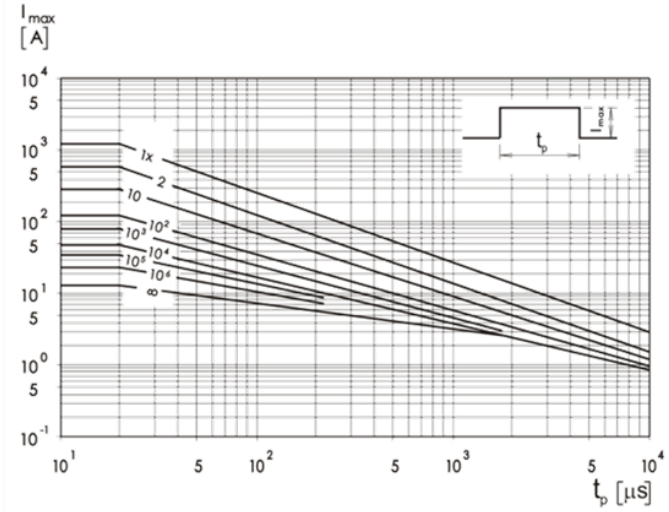
CV50K05 to CV300K05





CV50K07 to CV300K07





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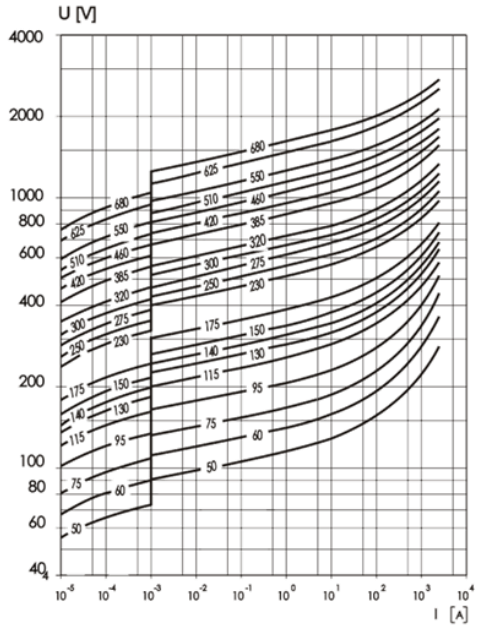
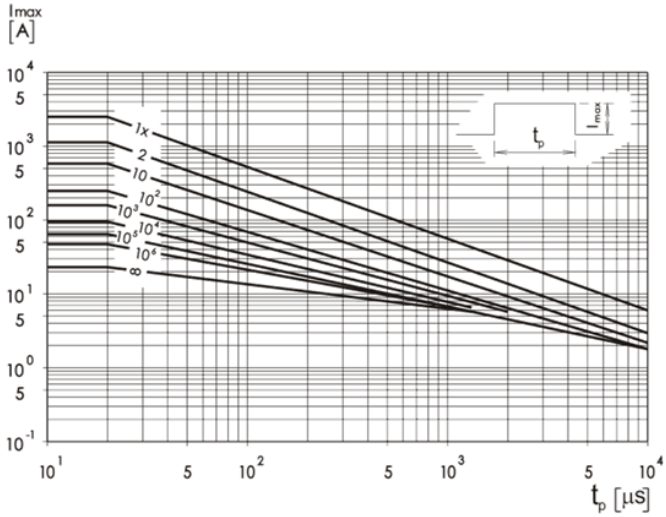
Pulse Rating Curves

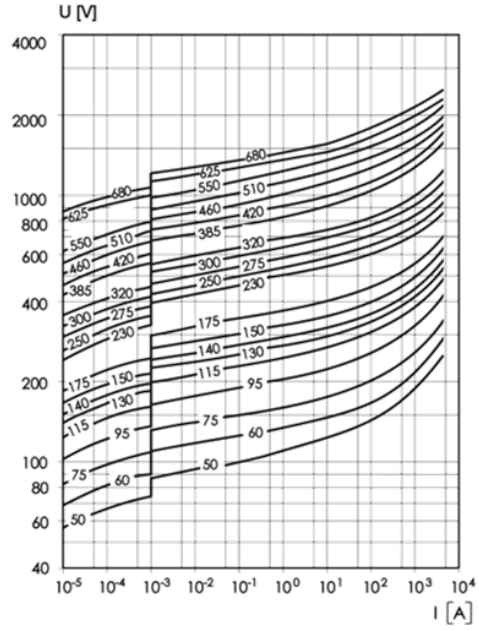
Protection Levels

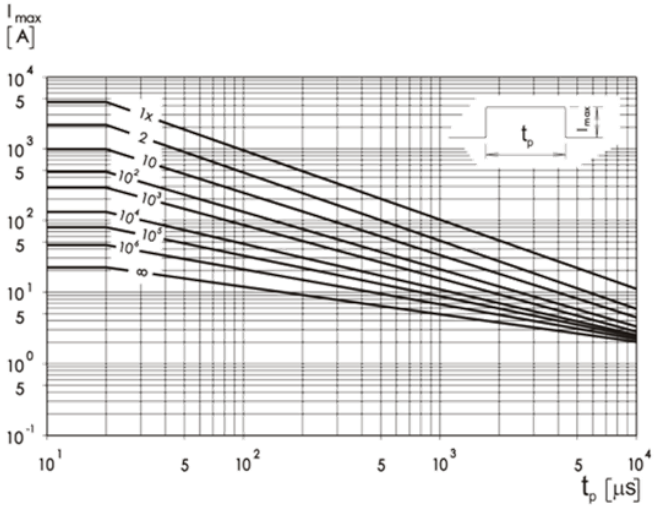
CV50K10 to CV680K10





CV50K14 to CV680K14





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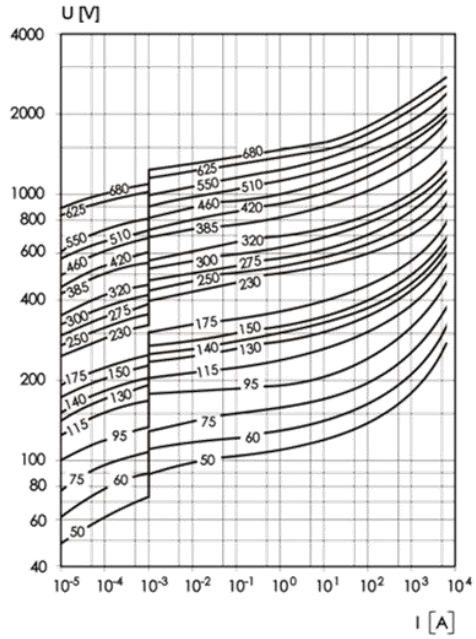
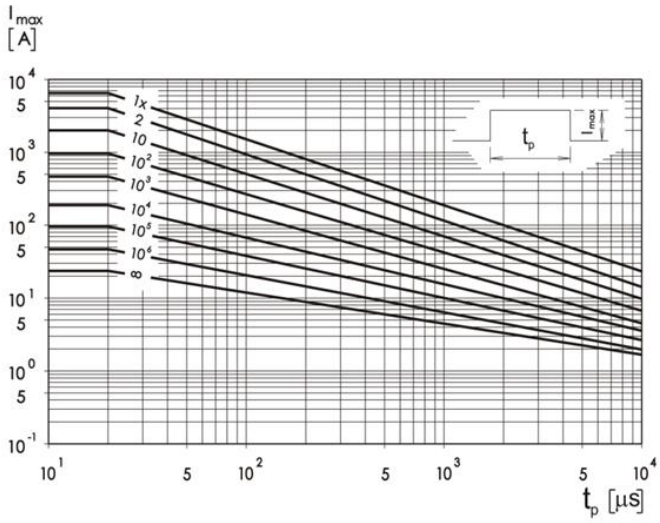
Pulse Rating Curves

Protection Levels

CV50K20 to CV680K20





RoHS Compliance

Stackpole Electronics has joined the worldwide effort to reduce the amount of lead in electronic components and to meet the various regulatory requirements now prevalent, such as the European Union's directive regarding "Restrictions on Hazardous Substances" (RoHS 3). As part of this ongoing program, we periodically update this document with the status regarding the availability of our compliant components. All our standard part numbers are compliant to EU Directive 2011/65/EU of the European Parliament as amended by Directive (EU) 2015/863/EU as regards the list of restricted substances.

RoHS Compliance Status

Standard Product Series	Description	Package / Termination Type	Standard Series RoHS Compliant	Lead-Free Termination Composition
CV	Low and Medium Voltage Leaded Varistor	Leaded	YES	100% Matte Sn

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“Conflict Metals” Commitment

We at Stackpole Electronics, Inc. are joined with our industry in opposing the use of metals mined in the “conflict region” of the eastern Democratic Republic of the Congo (DRC) in our products. Recognizing that the supply chain for metals used in the electronics industry is very complex, we work closely with our own suppliers to verify to the extent possible that the materials and products we supply do not contain metals sourced from this conflict region. As such, we are in compliance with the requirements of Dodd-Frank Act regarding Conflict Minerals.

Compliance to “REACH”

We certify that all passive components supplied by Stackpole Electronics, Inc. are SVHC (Substances of Very High Concern) free and compliant with the requirements of EU Directive 1907/2006/EC, “The Registration, Evaluation, Authorization and Restriction of Chemicals”, otherwise referred to as REACH. Contact us for complete list of REACH Substance Candidate List.

Environmental Policy

It is the policy of Stackpole Electronics, Inc. (SEI) to protect the environment in all localities in which we operate. We continually strive to improve our effect on the environment. We observe all applicable laws and regulations regarding the protection of our environment and all requests related to the environment to which we have agreed. We are committed to the prevention of all forms of pollution.

How to Order

C	V	1	4	0	K	1	4	B

Product Series
CV

Vrms
voltage

Tolerance	
Code	Tol
K	10%
S	Special

Disc Diameter
Size (mm)
05
07
10
14
20

Packaging	
Code	Description
B	Bulk (all sizes)
T	Tape and Reel (all sizes, except 20 mm)

Lead Style Option	
Code	Description
(blank)	straight
-05	kinked

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