

UL and CSA Recognized “ZNR[®]” Transient/Surge Absorbers with Tabs

Type: **CK**

ZNR Transient/Surge Absorber with Tabs is a heavy duty type ZNR with very unique tab terminals which bring forth a higher reliability.

These tabs are used as electrical connecting terminals and also its mounting legs. This ZNR is meant for application in power supplies or transient voltage surge suppressor units where large surge current or high surge energy absorption is required.

■ Features

- UL and CSA recognized components
- High energy handling capability (210 to 710 joules)
- Large withstanding peak current (25 to 30 kA, 8/20 μ s, 1 time)
- Common terminals for electrical connection and mounting

■ Recommended Applications

- Power suppliers for OA, FA, telecommunication or industrial equipment
- Power strips
- Transient voltage surge suppressor units

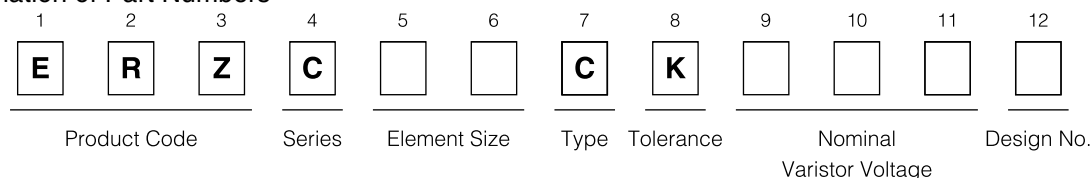
Note: Ask our factory for Product Specification before use.

■ Related Standards

Standard No.	UL1449	CSA C22.2 No.1 Class 2221 01
Title	Transient Voltage Surge Suppressors	Accessories and Parts for Electronic Products (Varistor for Across-The-Line use as transient protection on 120 V ac nominal system)
File No.	E86821 Vol. 1	LR-92226

- Each type designation is not registered by Part Number.
If you have any question on type designation, please contact and ask our office.

■ Explanation of Part Numbers



■ Ratings and Characteristics

- Operating Temperature Range: -40 to 85 °C
- Storage Temperature Range: -40 to 125 °C
- Temperature Coefficient of Varistor Voltage: 0 to -0.05 %/°C

Part Number (UL Recognized)	Part Number (UL & CSA Recognized)	Varistor Voltage	Maximum Allowable Voltage		Maximum Clamping Voltage		Energy (2 ms, 1 time)	Maximum Peak Current (8/20 μs)	
			V _{1mA} (V)	ACrms (V)	DC (V)	V _{XA} (V)		I _p (A)	(J)
ERZC32CK201B	ERZC32CK201W	200 (185– 225)	130	170	340	200	210	25	20
ERZC32CK241B	ERZC32CK241W	240 (216– 264)	150	200	395	200	240	25	20
ERZC32CK271B	ERZC32CK271W	270 (247– 303)	175	225	455	200	255	25	20
ERZC32CK361B	ERZC32CK361W	360 (324– 396)	230	300	595	200	325	25	20
ERZC32CK391B	ERZC32CK391W	390 (351– 429)	250	320	650	200	350	25	20
ERZC32CK431B	ERZC32CK431W	430 (387– 473)	275	350	710	200	400	25	20
ERZC32CK471B	ERZC32CK471W	470 (423– 517)	300	385	775	200	405	25	20
ERZC32CK511B	ERZC32CK511W	510 (459– 561)	320	415	845	200	405	25	20
ERZC32CK621B	ERZC32CK621W	620 (558– 682)	385	505	1025	200	415	25	20
ERZC32CK681B	ERZC32CK681W	680 (612– 748)	420	560	1120	200	450	25	20
ERZC32CK751B	ERZC32CK751W	750 (675– 825)	460	615	1240	200	500	25	20
ERZC32CK781B	ERZC32CK781W	780 (702– 858)	485	640	1290	200	520	25	20
ERZC32CK821B	ERZC32CK821W	820 (738– 902)	510	670	1355	200	545	25	20
ERZC32CK911B	ERZC32CK911W	910 (819–1001)	550	745	1500	200	600	25	20
ERZC32CK951B	ERZC32CK951W	950 (855–1045)	575	765	1570	200	600	25	20
ERZC40CK201B	ERZC40CK201W	200 (185– 225)	130	170	340	250	260	30	25
ERZC40CK241B	ERZC40CK241W	240 (216– 264)	150	200	395	250	300	30	25
ERZC40CK271B	ERZC40CK271W	270 (247– 303)	175	225	455	250	340	30	25
ERZC40CK361B	ERZC40CK361W	360 (324– 396)	230	300	595	250	405	30	25
ERZC40CK391B	ERZC40CK391W	390 (351– 429)	250	320	650	250	435	30	25
ERZC40CK431B	ERZC40CK431W	430 (387– 473)	275	350	710	250	500	30	25
ERZC40CK471B	ERZC40CK471W	470 (423– 517)	300	385	775	250	505	30	25
ERZC40CK511B	ERZC40CK511W	510 (459– 561)	320	415	845	250	505	30	25
ERZC40CK621B	ERZC40CK621W	620 (558– 682)	385	505	1025	250	515	30	25
ERZC40CK681B	ERZC40CK681W	680 (612– 748)	420	560	1120	250	560	30	25
ERZC40CK751B	ERZC40CK751W	750 (675– 825)	460	615	1240	250	625	30	25
ERZC40CK781B	ERZC40CK781W	780 (702– 858)	485	640	1290	250	650	30	25
ERZC40CK821B	ERZC40CK821W	820 (738– 902)	510	670	1355	250	680	30	25
ERZC40CK911B	ERZC40CK911W	910 (819–1001)	550	745	1500	250	750	30	25
ERZC40CK951B	ERZC40CK951W	950 (855–1045)	575	765	1570	250	750	30	25

■ Dimensions in mm (not to scale)

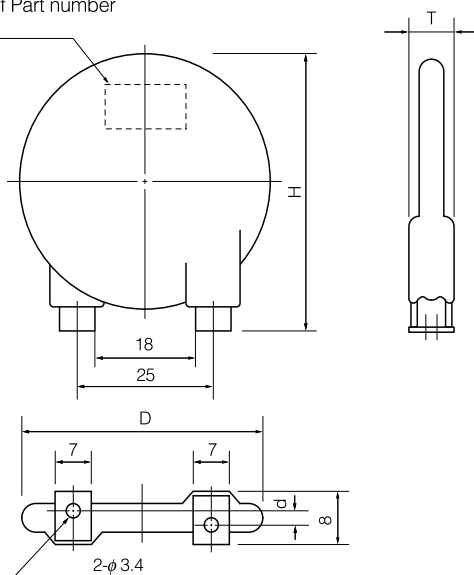
Manufacturing

Identification 

ZNR

Abbreviation of Part number

Date code

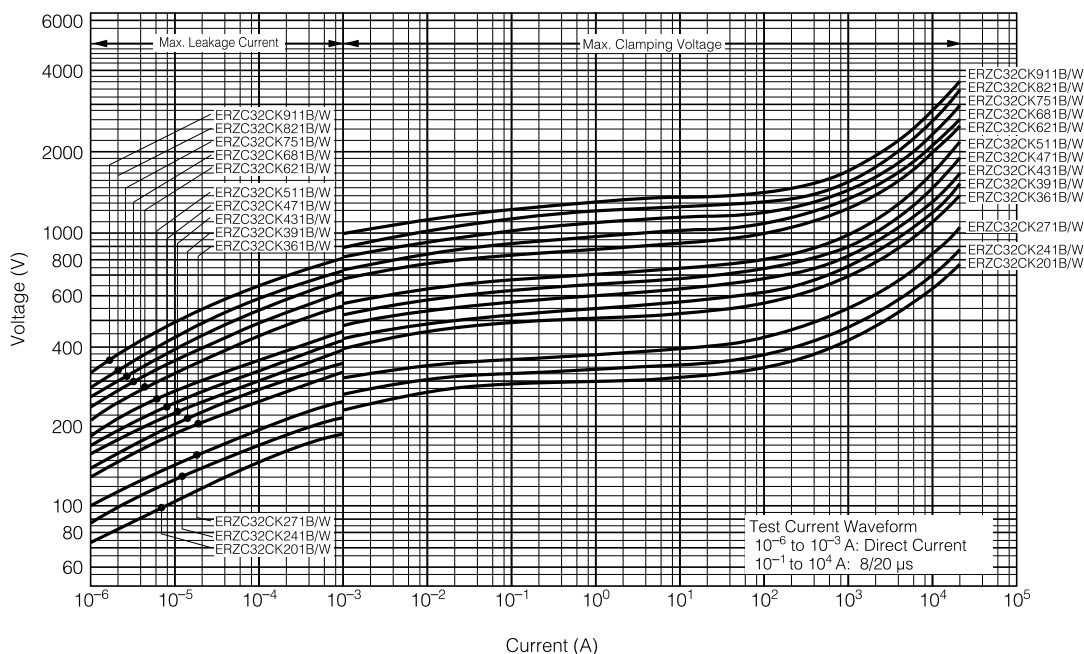


Part Number (UL Recognized)	Part Number (UL & CSA Recognized)	D max.	H max.	T max.	d
ERZC32CK201B	ERZC32CK201W	36	46	7.5	5.7±1.0
ERZC32CK241B	ERZC32CK241W			7.5	5.4±1.0
ERZC32CK271B	ERZC32CK271W			8.5	5.2±1.0
ERZC32CK361B	ERZC32CK361W			9.0	4.6±1.0
ERZC32CK391B	ERZC32CK391W			9.0	4.4±1.0
ERZC32CK431B	ERZC32CK431W			9.0	4.1±1.0
ERZC32CK471B	ERZC32CK471W			9.7	3.9±1.0
ERZC32CK511B	ERZC32CK511W			9.7	4.5±1.0
ERZC32CK621B	ERZC32CK621W			9.7	3.9±1.0
ERZC32CK681B	ERZC32CK681W			9.7	3.6±1.0
ERZC32CK751B	ERZC32CK751W			10.5	3.3±1.0
ERZC32CK781B	ERZC32CK781W			10.5	3.1±1.0
ERZC32CK821B	ERZC32CK821W			10.5	2.9±1.0
ERZC32CK911B	ERZC32CK911W			11.5	2.5±1.0
ERZC32CK951B	ERZC32CK951W			11.5	2.3±1.0
ERZC40CK201B	ERZC40CK201W	44	50	7.5	5.7±1.0
ERZC40CK241B	ERZC40CK241W			7.5	5.4±1.0
ERZC40CK271B	ERZC40CK271W			8.5	5.2±1.0
ERZC40CK361B	ERZC40CK361W			9.0	4.6±1.0
ERZC40CK391B	ERZC40CK391W			9.0	4.4±1.0
ERZC40CK431B	ERZC40CK431W			9.0	4.1±1.0
ERZC40CK471B	ERZC40CK471W			9.7	3.9±1.0
ERZC40CK511B	ERZC40CK511W			9.7	4.5±1.0
ERZC40CK621B	ERZC40CK621W			9.7	3.9±1.0
ERZC40CK681B	ERZC40CK681W			9.7	3.6±1.0
ERZC40CK751B	ERZC40CK751W			10.5	3.3±1.0
ERZC40CK781B	ERZC40CK781W			10.5	3.1±1.0
ERZC40CK821B	ERZC40CK821W			10.5	2.9±1.0
ERZC40CK911B	ERZC40CK911W			11.5	2.5±1.0
ERZC40CK951B	ERZC40CK951W			11.5	2.3±1.0

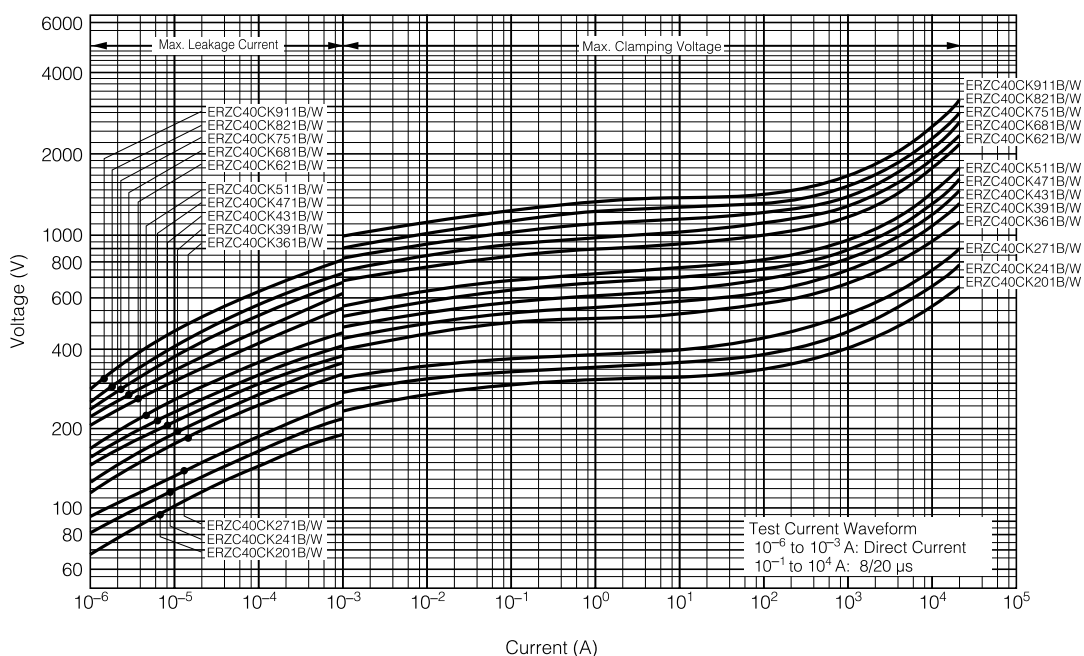
Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

■ Typical Characteristics

Voltage vs. Current (ERZC32CK201 to ERZC32CK951)



Voltage vs. Current (ERZC40CK201 to ERZC40CK951)



■ Application Notes (Type CK)

1) In case of making an application to CSA for equipment with ZNR, following cautions are needed.

- Only across-the-line use is admitted.

Varistors shall not be connected between parts involving a shock hazard and exposed metal parts.

- The ZNR Varistor shall be protected by the fusing specified below:

Maximum Peak Current 8/20 μ s, 1 time (A)	Maximum Rating of Fuse (A)
Up to 500	3
501 to 2000	5
2001 to 6000	10
Over 6000	Not Specified

2) "Rated Voltages" are specified for UL/CSA recognized components besides Maximum Allowable Voltage because of conforming to the Standby Current specified in safety standards.

In case of making an application to UL/CSA approval for equipment with ZNR, the maximum AC operating voltage of equipment shall be lower than the ZNR Rated Voltage.

■ UL and CSA Recognized Components and The AC Rated Voltage

Part Number	Maximum Allowable Voltage		Rated Voltage (Vrms)	
	ACrms (V)	DC (V)	UL1449	CSA (Class 2221 01)
ERZC32CK201B/W	130	170	118	118
ERZC32CK241B/W	150	200	136	136
ERZC32CK271B/W	175	225	159	159
ERZC32CK361B/W	230	300	209	209
ERZC32CK391B/W	250	320	227	227
ERZC32CK431B/W	275	350	250	250
ERZC32CK471B/W	300	385	272	272
ERZC32CK511B/W	320	415	291	291
ERZC32CK621B/W	385	505	350	350
ERZC32CK681B/W	420	560	381	381
ERZC32CK751B/W	460	615	418	418
ERZC32CK781B/W	485	640	440	440
ERZC32CK821B/W	510	670	463	463
ERZC32CK911B/W	550	745	500	500
ERZC32CK951B/W	575	765	522	522
ERZC40CK201B/W	130	170	118	118
ERZC40CK241B/W	150	200	136	136
ERZC40CK271B/W	175	225	159	159
ERZC40CK361B/W	230	300	209	209
ERZC40CK391B/W	250	320	227	227
ERZC40CK431B/W	275	350	250	250
ERZC40CK471B/W	300	385	272	272
ERZC40CK511B/W	320	415	291	291
ERZC40CK621B/W	385	505	350	350
ERZC40CK681B/W	420	560	381	381
ERZC40CK751B/W	460	615	418	418
ERZC40CK781B/W	485	640	440	440
ERZC40CK821B/W	510	670	463	463
ERZC40CK911B/W	550	745	500	500
ERZC40CK951B/W	575	765	522	522

■ Performance Characteristics (Type CK)

Characteristics			Test Methods/Description	Specifications															
Standard Test Condition			Unless otherwise specified, electrical characteristics shall be measured at following conditions (Temperature: 5 to 35 °C, Humidity: 45 to 85 %RH, Atmospheric Pressure: 860 to 1060 hPa).	—															
Electrical	Varistor Voltage		The voltage between two terminals with the specified measuring current I_{mA} DC applied is called V_C or V_{CmA} . The measurement shall be made as fast as possible to avoid heat affection.	To meet the specified value.															
	Maximum Allowable Voltage		The maximum sinusoidal wave voltage (rms) or the maximum DC voltage that can be applied continuously.																
	Maximum Clamping Voltage		The maximum voltage between two terminals with the specified standard impulse current (8/20 μ s).																
	Rated Power		The maximum power that can be applied within the specified ambient temperature.																
	Energy		The maximum energy within the varistor voltage change of ± 10 % when one impulse of 2 ms is applied.																
	Maximum Peak Current	2 times	The maximum current within the varistor voltage change of ± 10 % with the standard impulse current (8/20 μ s) applied two times with an interval of 5 minutes.																
1 time		The maximum current within the varistor voltage change of ± 10 % with the standard impulse current (8/20 μ s) applied one time.																	
Mechanical	Robustness of Terminations (Tensile)		After gradually applying the force of 19.6 N (2 kgf) and keeping the unit fixed for ten seconds, the terminal shall be visually examined for any damage.	No remarkable damage															
	Vibration		After repeatedly applying a single harmonic vibration (amplitude: 0.35 mm): double amplitude: 0.7 mm with 1 minute vibration frequency cycles (10 Hz to 55 Hz to 10 Hz) to each of three perpendicular directions for 2 hours. Thereafter, the unit shall be visually examined.	No remarkable damage															
	Solderability		After dipping the terminal to a depth of approximately 3 mm from the body in a soldering bath of 230 ± 5 °C for 5.0 ± 0.5 seconds, the terminal shall be visually examined.	Approximately 95 % of the terminals shall be covered with new solder uniformly.															
	Resistance to Soldering Heat		The terminal shall be dipped into a soldering bath having a temperature of 350 ± 10 °C to a point 4.0 ± 0.8 mm from the body of the unit and then be held there for 3.0 ± 0.5 seconds. The change of V_C and mechanical damage shall be examined.	$\Delta V_{CmA}/V_{CmA} \leq \pm 5$ % No remarkable damage															
Environmental	Dry Heat/ High Temperature Storage		The specimen shall be subjected to 125 ± 2 °C for 500 hours in a thermostatic bath without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of V_C shall be measured.	$\Delta V_{CmA}/V_{CmA} \leq \pm 5$ %															
	Damp Heat/ Humidity (Steady State)		The specimen shall be subjected to 40 ± 2 °C, 90 to 95 %RH for 1000 hours without load and then stored at room temperature and humidity for one to two hours. Thereafter, the change of V_C shall be measured.																
	Temperature Cycle		The temperature cycle shown below shall be repeated five times and then stored at room temperature and humidity for one to two hours. The change of V_C and mechanical damage shall be examined. <table><tr><th>Step</th><th>Temperature (°C)</th><th>Period (minutes)</th></tr><tr><td>1</td><td>-25 ± 3</td><td>30^{+3}_0</td></tr><tr><td>2</td><td>Room Temp.</td><td>3 max.</td></tr><tr><td>3</td><td>85 ± 2</td><td>30^{+3}_0</td></tr><tr><td>4</td><td>Room Temp.</td><td>3 max.</td></tr></table>	Step	Temperature (°C)	Period (minutes)	1	-25 ± 3	30^{+3}_0	2	Room Temp.	3 max.	3	85 ± 2	30^{+3}_0	4	Room Temp.	3 max.	No remarkable damage $\Delta V_{CmA}/V_{CmA} \leq \pm 5$ %
	Step	Temperature (°C)	Period (minutes)																
1	-25 ± 3	30^{+3}_0																	
2	Room Temp.	3 max.																	
3	85 ± 2	30^{+3}_0																	
4	Room Temp.	3 max.																	
Dry Heat Load/ High Temperature Load		After being continuously applied the Maximum Allowable Voltage at 85 ± 2 °C for 500 hours, the specimen shall be stored at room temperature and humidity for one to two hours. Thereafter, the change of V_C shall be measured.	$\Delta V_{CmA}/V_{CmA} \leq \pm 10$ %																

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