

## “ZNR” Transient/Surge Absorbers

Type: **D**  
Series: **E-S1**



“ZNR” Transient/Surge Absorber, Series E-S1, improves E series products with high capability for absorbing transient overvoltage in a compact size, suitable for surge protection at high temperature.

### Features

- Large withstanding surge current capability in compact sizes
- Withstanding surge current at max. 125 °C
- Large “Energy Handling Capability” absorbing transient overvoltages in compact sizes
- Wide range of varistor voltages
- RoHS compliant

### Recommended Applications

- Transistor, diode, IC, thyristor or triac semiconductor protection
- Surge protection in consumer electronic equipment
- Surge protection in communication, measuring or controller electronics
- Surge protection in electronic home appliances, gas or petroleum appliances

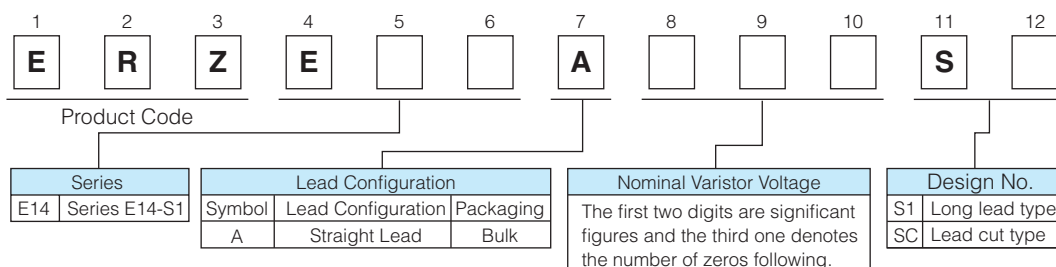
### Applicable Standards

- UL1449 (VZCA2/UL, VZCA8/C-UL)
  - VDE IEC61051-1, -2, -2-2, IEC60950-1 Annex.Q, IEC62368-1 G8.2
  - CQC(GB/T10193, GB/T10194, GB4943.1, GB8898)
- Refer to “Reference Guide to Standard Products”, and “Application Note for Safety Standards” for the details

### As for Handling Precautions

Please see Related Information

### Explanation of Part Numbers



## Reference Guide to Standard Products

Part No.	Applicable Standards		Varistor Voltage at 1 mA (V)	Maximum Allowable Voltage		Clamping Voltage at 8/20 $\mu$ s		Maximum Peak Current at 8/20 $\mu$ s(A)			Recommended Applications
	Type Name	Approvals		ACrms (V)	DC (V)	max.(V)	I <sub>p</sub> (A)	85 °C 1 time	125 °C 1 time	125 °C 2 time	
ERZE14A201S1	E14201	○☆☆◇◆	200 (185 to 225)	130	170	340	100	10000	7500	7000	AC 100 V Line-Line Applications
ERZE14A221S1	E14221	○☆☆◇◆	220 (198 to 242)	140	180	360	100	10000	7500	7000	
ERZE14A241S1	E14241	○☆☆◇◆	240 (216 to 264)	150	200	395	100	10000	7500	7000	AC 100 V to 120 V, Line-Line Applications
ERZE14A271S1	E14271	○☆☆◇◆	270 (247 to 303)	175	225	455	100	10000	7500	7000	
ERZE14A331S1	E14331	○☆☆◇◆	330 (297 to 363)	210	270	545	100	10000	7500	6500	AC 100 V to 120 V, Line-Line Applications
ERZE14A361S1	E14361	○☆☆◇◆	360 (324 to 396)	230	300	595	100	10000	7500	6500	
ERZE14A391S1	E14391	○☆☆◇◆	390 (351 to 429)	250	320	650	100	10000	7500	6500	Telephone Line Applications, (For DC 250 V Insulation Resistance Test)
ERZE14A431S1	E14431	○☆☆◇◆	430 (387 to 473)	275	350	710	100	10000	7500	6500	
ERZE14A471S1	E14471	○☆☆◇◆	470 (423 to 517)	300	385	775	100	10000	7500	6500	AC 100 V to 220 V, Line-Line and Line-Ground Applications
ERZE14A511S1	E14511	○☆☆◇◆	510 (459 to 561)	320	410	845	100	10000	7500	6500	
ERZE14A561S1	E14561	○☆☆◇◆	560 (504 to 616)	350	450	930	100	10000	7500	6500	AC 100 V to 240 V, Line-Line and Line-Ground Applications
ERZE14A621S1	E14621	○☆☆◇◆	620 (558 to 682)	385	505	1025	100	7500	7500	6500	
ERZE14A681S1	E14681	○☆☆◇◆	680 (612 to 748)	420	560	1120	100	7500	7500	6500	AC 380 V, Line-Line and Line-Ground Applications (For DC 500 V Insulating Test)
ERZE14A751S1	E14751	○☆☆◇◆	750 (675 to 825)	460	615	1240	100	7500	7500	6500	
ERZE14A821S1	E14821	○☆☆◇◆	820 (738 to 902)	510	670	1355	100	7500	7500	6500	AC 415 V, Line-Line and Line-Ground Applications (For DC 500 V Insulating Test)
ERZE14A911S1	E14911	○☆☆◇◆	910 (819 to 1001)	550	745	1500	100	7500	7500	6500	
ERZE14A102S1	E14102	○☆☆◇◆	1000 (900 to 1100)	625	825	1650	100	7500	7500	6500	AC 480 V, Line-Line and Line-Ground Applications (For DC 500 V Insulating Test)
ERZE14A112S1	E14112	○☆☆◇◆	1100 (990 to 1210)	680	895	1815	100	7500	7500	6500	

Maximum Allowable Voltage and Maximum Peak Current at 8/20  $\mu$ s(A) at 125 °C

○ : UL1449 (VZCA2/UL, VZCA8/C-UL), ☆ : VDE (IEC61051-1, -2, -2-2), ★ : VDE (IEC60950-1 Annex.Q, IEC62368-1 G8.2),

◇ : CQC (GB/T10193, GB/T10194), ◆ : CQC (GB4943.1, GB8898)

※ Approval number (File No.) of safety regulations are subject to revision without notice. Ask factory for a copy of the latest file No.

## Series E14-S1

### Ratings and Characteristics

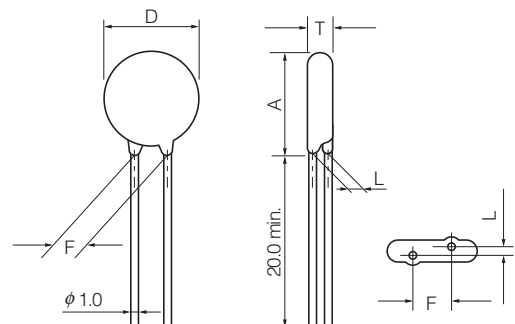
- Operating Temperature Range : -40 to 125 °C
- Storage Temperature Range : -40 to 125 °C

STD Part No.	Varistor Voltage	Maximum Allowable Voltage		Clamping Voltage (max.) *I <sub>p</sub>	Rated Power	Maximum Energy		Maximum Peak Current (8/20 μs)			Capacitance (max.) at 1 kHz (pF)
						(10/1000 μs)	(2 ms)	85 °C 1 time	125 °C 1 time	125 °C 2 time	
						(J)	(J)	(A)	(A)	(A)	
V <sub>1mA</sub> (V)	ACrms (V)	DC (V)	(V)	(W)	(J)	(J)	(A)	(A)	(A)		
ERZE14A201S1	200(185 to 225)	130	170	340	1.0	140	100	10000	7500	7000	1300
ERZE14A221S1	220(198 to 242)	140	180	360	1.0	155	110	10000	7500	7000	1200
ERZE14A241S1	240(216 to 264)	150	200	395	1.0	168	120	10000	7500	7000	1100
ERZE14A271S1	270(247 to 303)	175	225	455	1.0	190	135	10000	7500	7000	1000
ERZE14A331S1	330(297 to 363)	210	270	545	1.0	228	160	10000	7500	6500	900
ERZE14A361S1	360(324 to 396)	230	300	595	1.0	255	180	10000	7500	6500	900
ERZE14A391S1	390(351 to 429)	250	320	650	1.0	275	195	10000	7500	6500	800
ERZE14A431S1	430(387 to 473)	275	350	710	1.0	303	215	10000	7500	6500	800
ERZE14A471S1	470(423 to 517)	300	385	775	1.0	350	250	10000	7500	6500	750
ERZE14A511S1	510(459 to 561)	320	410	845	1.0	382	273	10000	7500	6500	700
ERZE14A561S1	560(504 to 616)	350	450	930	1.0	382	273	10000	7500	6500	700
ERZE14A621S1	620(558 to 682)	385	505	1025	1.0	382	273	7500	7500	6500	650
ERZE14A681S1	680(612 to 748)	420	560	1120	1.0	382	273	7500	7500	6500	600
ERZE14A751S1	750(675 to 825)	460	615	1240	1.0	420	300	7500	7500	6500	530
ERZE14A821S1	820(738 to 902)	510	670	1355	1.0	460	325	7500	7500	6500	500
ERZE14A911S1	910(819 to 1001)	550	745	1500	1.0	510	360	7500	7500	6500	400
ERZE14A102S1	1000(900 to 1100)	625	825	1650	1.0	565	400	7500	7500	6500	400
ERZE14A112S1	1100(990 to 1210)	680	895	1815	1.0	620	440	7500	7500	6500	350

\*I<sub>p</sub> Measuring current of clamping voltage : 100 A

### Dimensions in mm (not to scale)

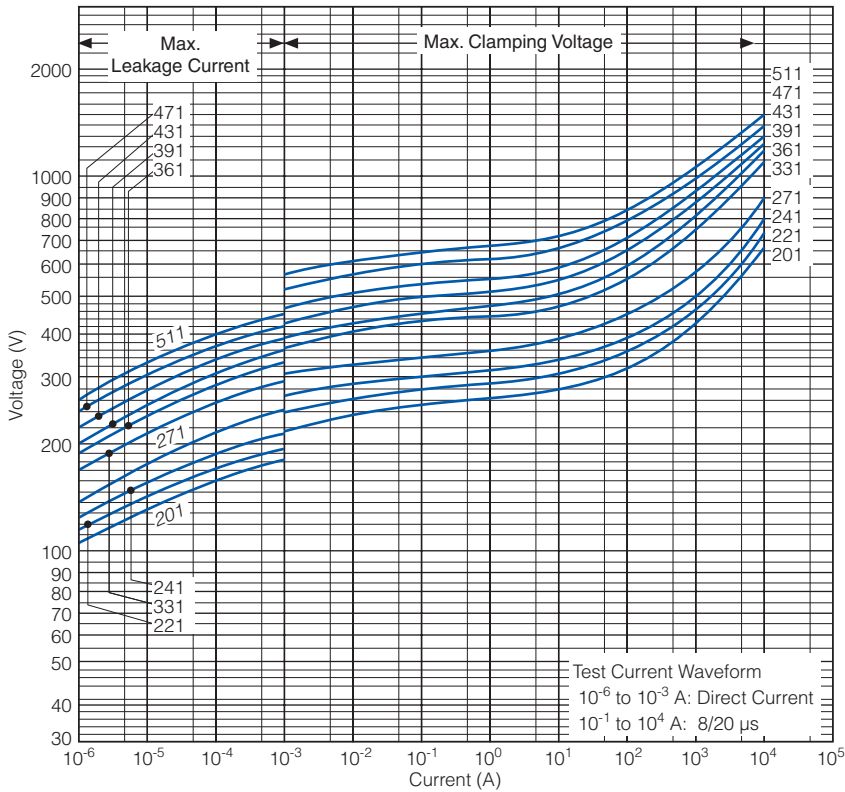
STD Part No.	D max.	T max.	F±1.0	A max.	L±1.0
ERZE14A201S1	16.5	5.2	10.0	20.0	2.1
ERZE14A221S1	16.5	5.3	10.0	20.0	2.2
ERZE14A241S1	16.5	5.4	10.0	20.0	2.3
ERZE14A271S1	16.5	5.6	10.0	20.0	2.5
ERZE14A331S1	16.5	5.9	10.0	20.0	2.8
ERZE14A361S1	16.5	6.1	10.0	20.0	3.0
ERZE14A391S1	16.5	6.2	10.0	20.0	3.1
ERZE14A431S1	16.5	6.4	10.0	20.0	3.3
ERZE14A471S1	16.5	6.6	10.0	20.0	3.5
ERZE14A511S1	16.5	6.8	10.0	20.0	3.7
ERZE14A561S1	16.5	7.2	10.0	20.0	4.0
ERZE14A621S1	17.5	7.5	10.0	20.5	4.4
ERZE14A681S1	17.5	7.8	10.0	20.5	4.7
ERZE14A751S1	17.5	8.2	10.0	20.5	5.1
ERZE14A821S1	17.5	8.5	10.0	20.5	5.4
ERZE14A911S1	17.5	9.0	10.0	20.5	5.9
ERZE14A102S1	17.5	9.5	10.0	20.5	6.4
ERZE14A112S1	17.5	10.1	10.0	20.5	7.2



## Typical Characteristics

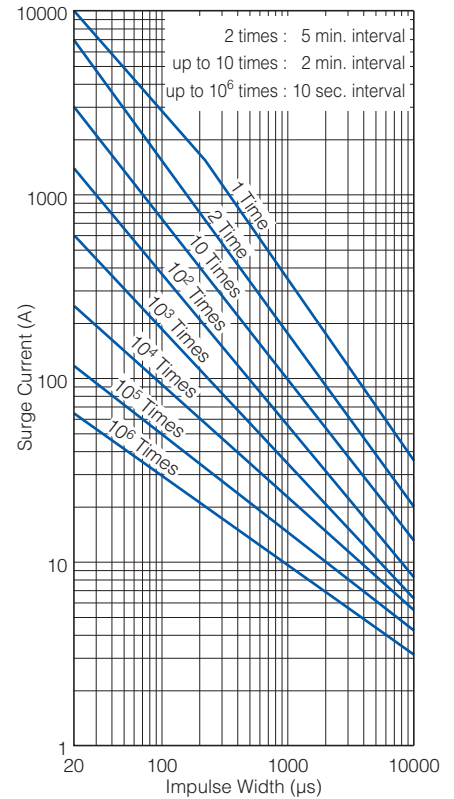
### Voltage vs. Current

ERZE14A201S1 to ERZE14A511S1

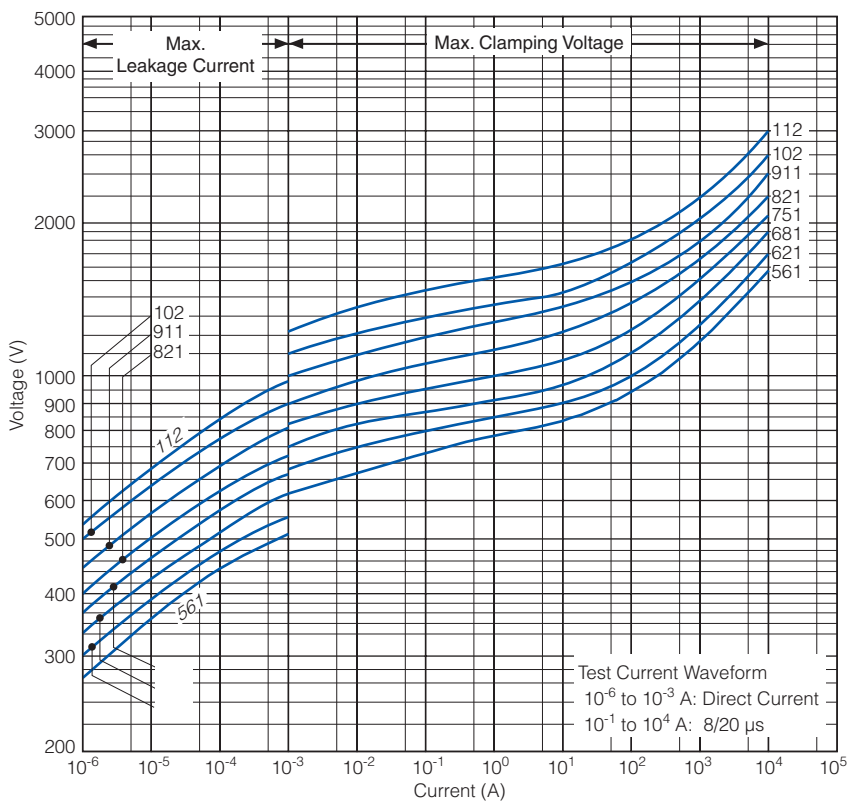


### Impulse Derating (Relation between impulse width and impulse current multiple)

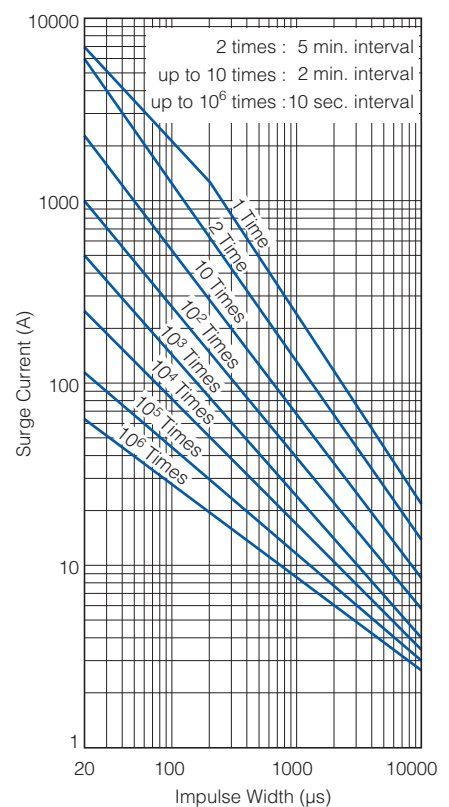
ERZE14A201S1 to ERZE14A511S1



ERZE14A561S1 to ERZE14A112S1



ERZE14A561S1 to ERZE14A112S1

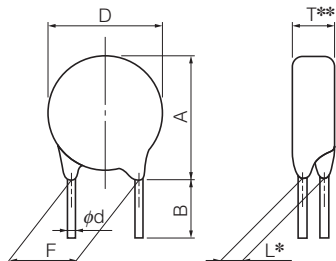


## Straight Leads Cut Type (Bulk Type)

### Ratings and Characteristics

\* Refer to bulk standard type part no.

### Dimensions in mm (not to scale)



notes \* Dimension "L": Conforms to each individual specification.  
 \*\* Dimension "T": Conforms to each individual specification.

Unit : mm

Series	E14-S1	
Symbol	Varistor Voltage	
	201 to 561	621 to 112
D	16.5 max.	17.5 max.
A	20.0 max.	20.5 max.
F	10.0±1.0	10.0±1.0
$\phi d$	1.00 <sup>+1.00</sup> <sub>-0.05</sub>	1.00 <sup>+1.00</sup> <sub>-0.05</sub>
B	4.0±1.5	4.0±1.5
Standard Products Part No.	ERZE14A□□□SC	

## Application Note for Safety Standards (For Series E, E-S1)

- Approvals products lists in "Reference Guide to Standard Products"
- UL and VDE : Registered in "Type Name" , it isn't registered in "Panasonic Part No."
- CQC : Registered in "Panasonic Part No."
- "Rated Voltages" are specified for UL recognized components in list shown below.

### The AC Rated Voltage and Maximum Allowable Voltage

Type Name	Maximum Allowable Voltage		Rated Voltage (Vrms)
	ACrms (V)	DC (V)	UL1449
E*201	130	170	118
E*221	140	180	127
E*241	150	200	136
E*271	175	225	159
E*331	210	270	189
E*361	230	300	209
E*391	250	320	227
E*431	275	350	250
E*471	300	385	272
E*511	320	410	291
E*561	350	450	320
E*621	385	505	350
E*681	420	560	381
E*751	460	615	418
E*821	510	670	463
E*911	550	745	500
E*102	625	825	568
E*112	680	895	600

\*: 5 series is blank, 7 series is 7, 8 series is 8, 10 series is 10, 11 series is 11, 14 series is 14