

“ZNR[®]” Transient/Surge Absorbers

Series: **M**

Type: **J**

Type: **D**

The ZNR, Series M is designed for automotive applications, depending heavily on their capabilities withstanding operation at high temperature and handling extremely large surge energy.

■ Features

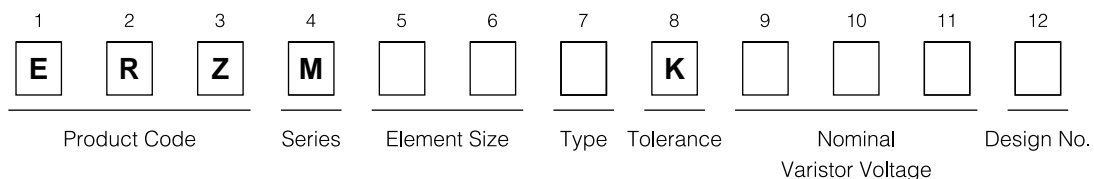
- Wide Operating Temperature Range
Type D: -40 to 125 °C
Type J: -40 to 150 °C
- Very large energy handling capability absorbing load dump surges of an automobile (Type J)
- Bilateral and symmetrical V-I characteristic curve
- Low leakage current and excellent clamping voltage characteristics
- Simple construction and compact in size

■ Recommended Applications

- Protection of sensors, transistors and diodes used in automobile control system (transistorized ignition system or electronic fuel injection system) against load dump surges or switching surges.

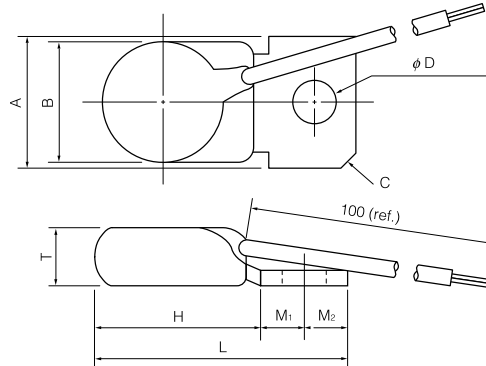
Note: Ask our factory for Product Specification before use.

■ Explanation of Part Numbers



Type J

■ Dimensions in mm (not to scale)



Part No.	Dimensions in mm									Lead Wires
	A	B max.	C	T max.	L	H	M ₁	M ₂	φD	
ERZM10JK220	14±1	14	Cut 1	10	27±2	16±2	6.0±0.5	5.0±0.5	5.5±0.3	AWG22
ERZM10JK270										
ERZM10JK330										
ERZM10JK390										
ERZM10JK470										
ERZM14JK220	18±1	18	Cut 2	10	33.5±2.0	21.5±2.0	6.5±0.5	5.5±0.5	6.5±0.3	AWG22
ERZM14JK270										
ERZM14JK330										
ERZM14JK390										
ERZM14JK470										

■ Ratings and Characteristics (Series M, Type J)

- Operating Temperature Range: -40 °C to 150 °C
- Temperature Coefficient of Varistor Voltage: 0 to -0.05 %/°C

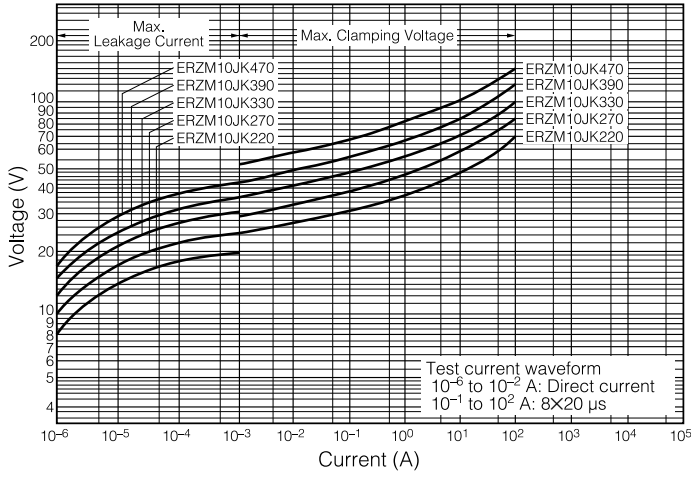
Part No.	Varistor Voltage	Maximum Allowable Voltage	Short Time Allowable Voltage (5 minutes)	Clamping Voltage* (max.)	Maximum Energy (200 ms)
	V _{1mA} (V)	DC (V)	DC (V)	V _{XA} (V)	(J)
ERZM10JK220	22 (20-24)	16	24	43	100
ERZM10JK270	27 (24-30)	19	29	53	
ERZM10JK330	33 (30-36)	24	36	65	
ERZM10JK390	39 (35-43)	28	42	77	
ERZM10JK470	47 (42-52)	34	50	93	
ERZM14JK220	22 (20-24)	16	24	43	200
ERZM14JK270	27 (24-30)	19	29	53	
ERZM14JK330	33 (30-36)	24	36	65	
ERZM14JK390	39 (35-43)	28	42	77	
ERZM14JK470	47 (42-52)	34	50	93	

* Measuring current of Maximum Clamping Voltage is following.
ERZM10JK220 to ERZM10JK470 ... X=5 A (8/20 μs)
ERZM14JK220 to ERZM14JK470 ... X=10 A (8/20 μs)

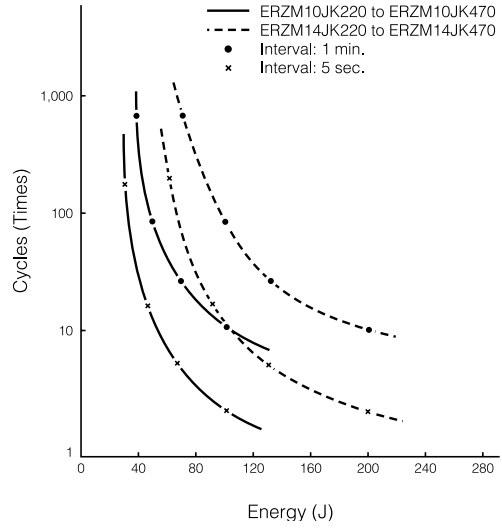
Design, Specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please inform us immediately for technical consultation without fail.

Typical Characteristics

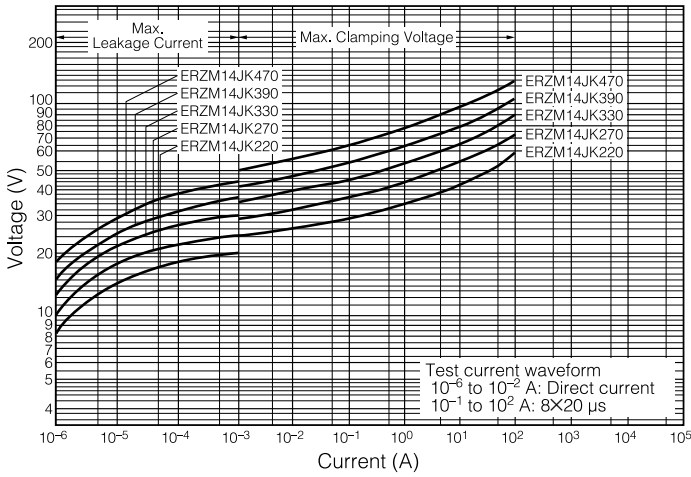
Voltage vs. Current (ERZM10JK220 to ERZM10JK470)



Impulse Derating



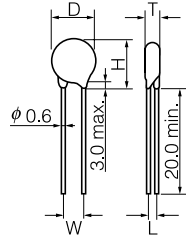
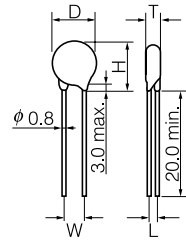
Voltage vs. Current (ERZM14JK220 to ERZM14JK470)



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Type D

■ Dimensions in mm (not to scale)

Part No.	Dimensions (mm)					
	D max.	T max.	W	H max.	L	
ERZM05DK220	7.5	4.5	5.0±1.0	10.0	1.5±1.0	
ERZM05DK270						
ERZM05DK330						
ERZM05DK390						
ERZM05DK470						
ERZM10DK220	13.5	4.7	7.5±1.0	16.5	1.4±1.0	
ERZM10DK270		4.8			1.5±1.0	
ERZM10DK330		5.0			1.7±1.0	
ERZM10DK390		5.1			1.8±1.0	
ERZM10DK470		5.0			1.7±1.0	
ERZM14DK220M	17.0	4.7	7.5±1.0	20.0	1.4±1.0	
ERZM14DK270		4.8			1.5±1.0	
ERZM14DK330		5.0			1.7±1.0	
ERZM14DK390		5.1			1.8±1.0	
ERZM14DK470		5.0			1.7±1.0	

■ Ratings and Characteristics (Series M, Type D)

- Operating Temperature Range: -40 °C to 125 °C
- Storage Temperature Range: -40 °C to 150 °C

Part No.	Varistor Voltage	Maximum Allowable Voltage	Short Time Allowable Voltage (5 minutes)	Clamping Voltage (max.)	Rated Power (at 85 °C)	Maximum Energy (20 ms)	Energy Life (20 ms)
	V _{CmA} * (V)	DC (V)	DC (V)	V _{XA} ** (A)	(W)	(J)	(J)
ERZM05DK220	22 (20-24)	16	24	48	0.01	2.5	0.6
ERZM05DK270	27 (24-30)	19	29	60			
ERZM05DK330	33 (30-36)	24	36	73			
ERZM05DK390	39 (35-43)	28	42	86			
ERZM05DK470	47 (42-52)	34	50	104			
ERZM10DK220	22 (20-24)	16	24	43	0.05	10.0	2.5
ERZM10DK270	27 (24-30)	19	29	53			
ERZM10DK330	33 (30-36)	24	36	65			
ERZM10DK390	39 (35-43)	28	42	77			
ERZM10DK470	47 (42-52)	34	50	93			
ERZM14DK220M	22 (20-24)	16	24	43	0.10	20.0	5.0
ERZM14DK270	27 (24-30)	19	29	53			
ERZM14DK330	33 (30-36)	24	36	65			
ERZM14DK390	39 (35-43)	28	42	77			
ERZM14DK470	47 (42-52)	34	50	93			

*Measuring current of Varistor Voltage is following.

ERZM05DK220 to ERZM05DK470 0.1 mA
 ERZM10DK220 to ERZM10DK470 1 mA
 ERZM14DK220 to ERZM14DK470 1 mA

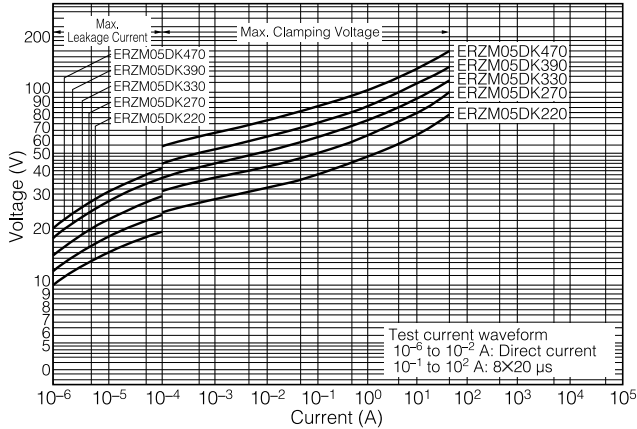
**Measuring current of Maximum Clamping Voltage is following.

ERZM05DK220 to ERZM05DK470 X=1 A (8/20 μs)
 ERZM10DK220 to ERZM10DK470 X=5 A (8/20 μs)
 ERZM14DK220 to ERZM14DK470 X=10 A (8/20 μs)

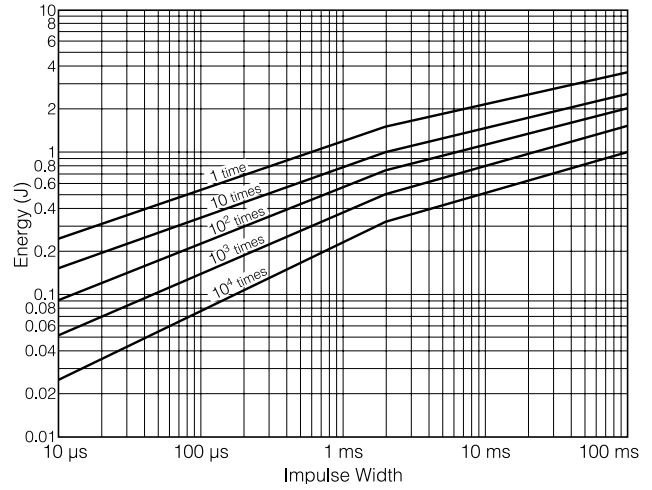
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Typical Characteristics

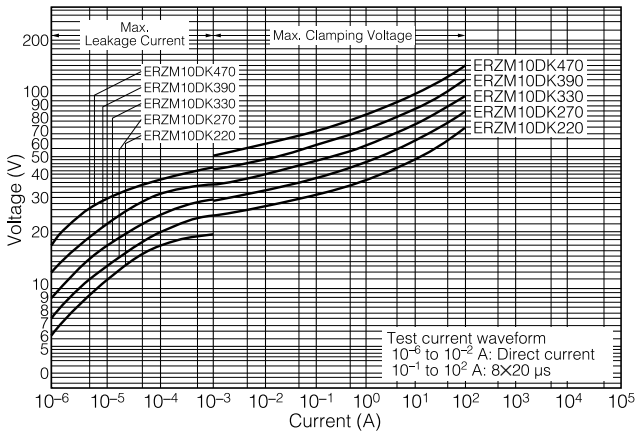
Voltage vs. Current
(ERZM05DK220 to ERZM05DK470)



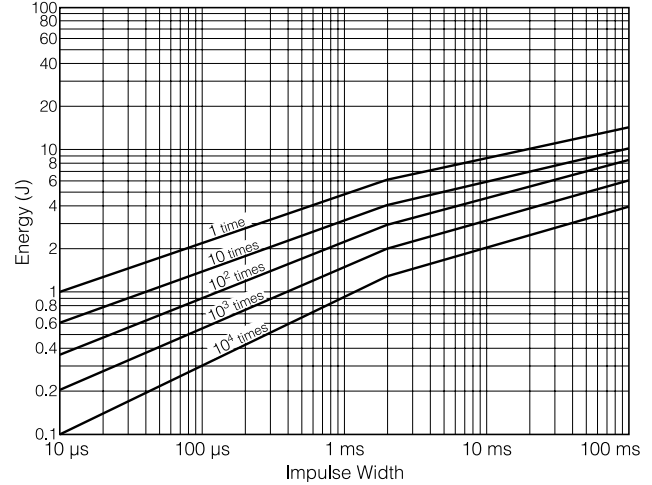
Impulse Derating
(ERZM05DK220 to ERZM05DK470)



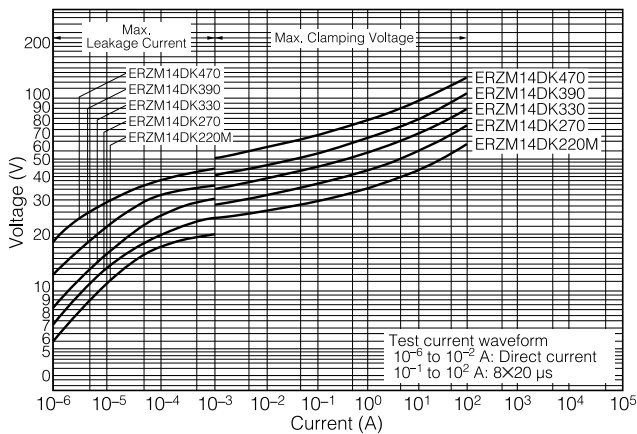
Voltage vs. Current
(ERZM10DK220 to ERZM10DK470)



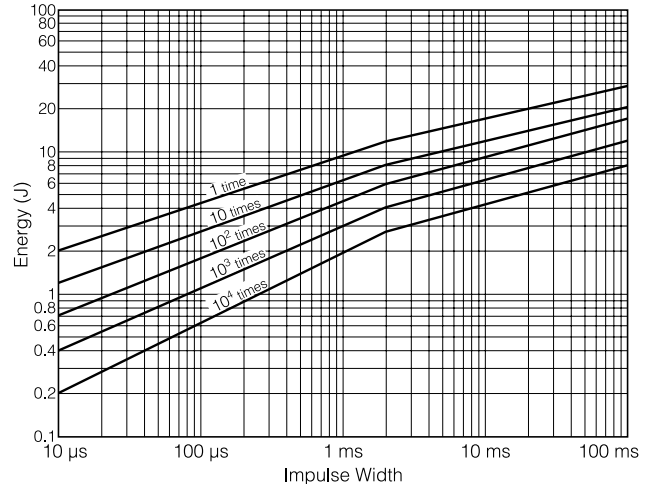
Impulse Derating
(ERZM10DK220 to ERZM10DK470)



Voltage vs. Current
(ERZM14DK220M to ERZM14DK470)



Impulse Derating
(ERZM14DK220M to ERZM14DK470)



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