

## "ZNR" Surge Absorbers

Type: **SMD**

Series: **HF**



### Features

- Meet for Load Dump Surge Test (JASO D 001-94)  
[Vp=70 V,  $\tau$ =200 ms, Ri=0.8  $\Omega$ ]
- Meet for Load Dump Surge Test ISO7637-2 and ISO16750-2
- Suitable for requirements of Automotive
- Compact size SMD
- Meet flow/reflow/iron soldering
- Strong against "Soldering heat shock" due to molded construction
- RoHS compliant

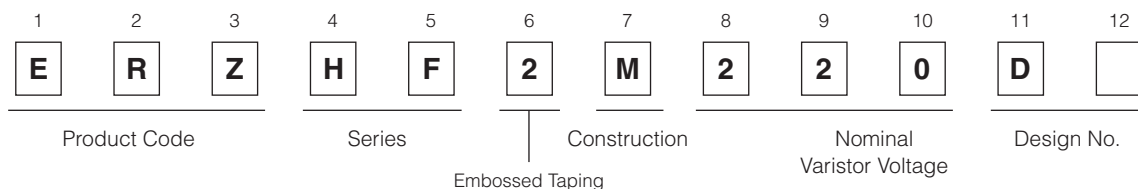
### Recommended Applications

- Protection of Body & Accessory ECU about DC12 V automotive against Load Dump Surge

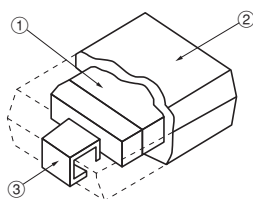
### As for Handling Precautions and Minimum Quantity / Packing Unit

Please see Related Information

### Explanation of Part Numbers

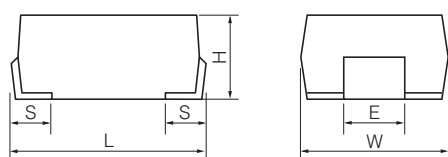


### Construction



① Multilayer Varistor	ZnO, others
② Mold Resin	Epoxy (UL94 V-0 approved)
③ Lead Terminal	Sn plated Ni-Fe alloy

### Dimensions in mm (not to scale)



Unit : mm

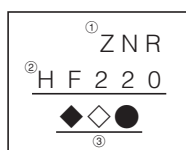
Part No.	W	L	H	S	E
ERZHF2M220D	6.4±0.4	8.0±0.5	5.5±0.5	1.3±0.3	2.5±0.2
ERZHF2M270			4.5±0.5		

## Ratings and Characteristics

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

Part No.	Varistor Voltage	Maximum Allowable Voltage	Short Time Over-voltage	Clamping Voltage	Load Dump Surge
	V <sub>1mA</sub> (V)	DC (V)		(V) at I <sub>p</sub> 5(A)	
ERZHF2M220D	20 to 23.2	16	DC24(V) 5 min.	35(V) max.	JASO Category:A ,A-1 70V, 1time
ERZHF2M270	27±20 %			43(V) max.	

## Marking Contents



① Part No.		ZNR Surge Absorbers	
② Abbreviation of P/N		HF220(ERZHF2M220D), HF270(ERZHF2M270)	
③ Date Code	◆*	Yearly	2011:1, 2012:2, 2013:3, 2014:4, 2015:5, 2016:6
	◇	Monthly	Jan.:1, Feb.:2, Mar.:3, Apr.:4, May:5, Jun.:6, Jul.:7, Aug.:8, Sep.:9, Oct.:O, Nov.:N, Dec.:D
	●	10 Days	1st to 10th:1, 11th to 20th:2, 21st to 31st:3

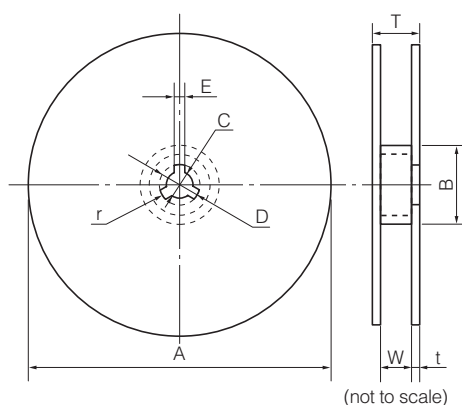
\* If the 10's digit of a Christian year is an even year, as an end abbreviation, an alphabetic character is used.  
 1:A, 2:B, 3:C, 4:D, 5:E, 6:F, 7:G, 8:H, 9:J, 0:K  
 If the 10's digit of a Christian year is an odd year, as an end abbreviation, a number is used.

## Packaging Methods

- Packing Quantity

Style	Part No.	Quantity
Embossed Taping	ERZHF2M220D	800 pcs./reel
	ERZHF2M270	1,000 pcs./reel

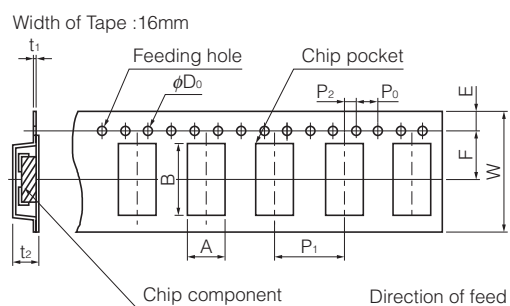
- Reel



Unit : mm

Part No.	A	B	C	D	E
ERZHF2M□□□	382 max.	50 min.	13.0±0.5	21.0±0.8	2.0±0.5
Part No.	W	T	t	r	
ERZHF2M□□□	16.4 <sup>+0.2</sup> <sub>0</sub>	22.4 max.	2.5±0.5	1.0	

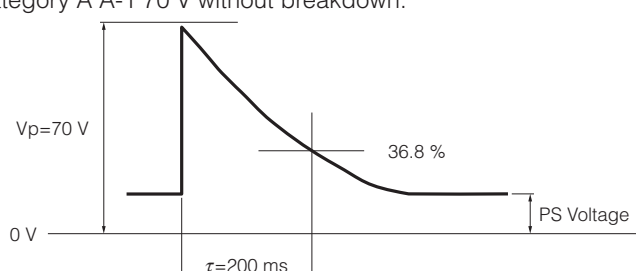
- Embossed Taping



Unit : mm

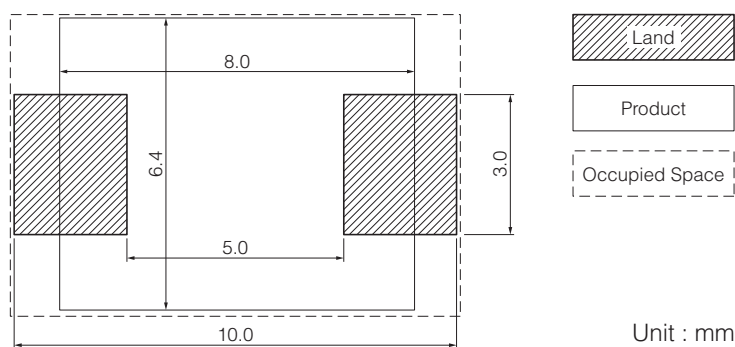
Part No.	A	B	W	F	E	P <sub>1</sub>
ERZHF2M220D	7.5 max.	11.9 max.	16.0±0.3	7.5±0.1	1.75±0.10	12.0±0.1
ERZHF2M270						
Part No.	P <sub>2</sub>	P <sub>0</sub>	φD <sub>0</sub>	t <sub>1</sub>	t <sub>2</sub>	
ERZHF2M220D	2.0±0.1	4.0±0.1	1.5 <sup>+0.1</sup> <sub>0</sub>	0.8 max.	9.0 max.	
ERZHF2M270					8.0 max.	

### Performance Characteristics

Characteristics	Test Methods	Specifications
Standard Test Condition	Environmental conditions under which every measuring is done without doubt on the measuring results. Unless specially, specified, temperature, relative humidity are 5 °C to 35 °C, 45 to 85% RH respectively.	—
Maximum Allowable Voltage	The maximum DC voltage that can be applied continuously in the specified environmental temperature range.	To meet the specified value.
Short Time Over-Voltage	The maximum DC Voltage that can be applied specified period without breakdown	
Varistor Voltage	Voltage between both terminals of ZNR measured when 1 mA of DC current is applied under standard conditions. It is called V1. Measuring the varistor voltage should be made promptly to avoid heat affection.	
Clamping Voltage	The maximum voltage between two terminals with the specified impulse current (8/20 μs).	No breakdown
Load Dump Surge	<p>The test waveform of transient voltage which specified JASO Category A A-1 70 V without breakdown.</p> 	

\* Please Check Specification of the products about Mechanical & Environmental etc. requirements

### Recommendation Land Size



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