

"ZNR" Surge Absorbers SMD Type

Series: **HF**



■ Features

- Meet for Load Dump Surge Test (JASO D 001-94)
[V_p=70 V, τ=200 ms, R_i=0.8 Ω]
- Suitable for requirements of Automotive (12 V)
- Compact size SMD
- Meet flow/reflow/iron soldering
- Strong against "Soldering heat shock" due to molded construction
- RoHS compliant

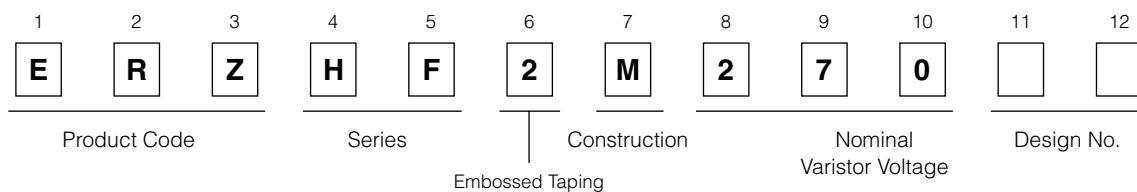
■ Recommended Applications

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

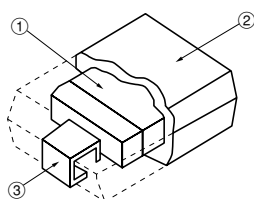
■ Handling Precautions and Minimum Quantity / Packing Unit

Please see Related Information

■ Explanation of Part Numbers

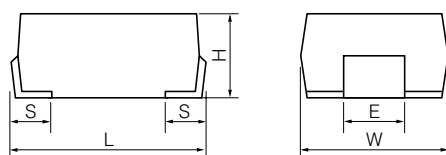


■ Construction



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)



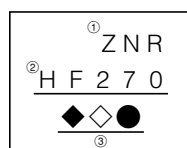
Series	W	L	H	S	E
HF	6.4±0.4	8.0±0.5	4.5±0.5	1.3±0.3	2.5±0.2

■ 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 ₁ mA (V)	DC (V)		(V) at I _p 5(A)	
ERZHF2M270	27 ± 20 %	16	DC24(V) 5 min.	43 (V) max.	JASO Category:A ,A-1 70V, 1time

■ Marking Contents



① Part Number		ZNR Surge Absorbers	
② Abbreviation of P/N		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

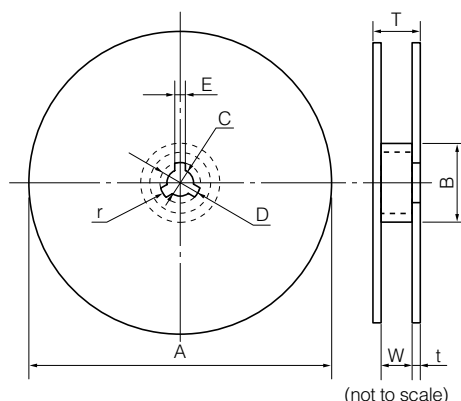
* If the 10's digit of a Christian year is an even year, as an end abbreviation, an alphabetic character is used.
1:A, 2:B, 3:C, 4:D, 5:E, 6:F, 7:G, 8:H, 9:J, 0:K
If the 10's digit of a Christian year is an odd year, as an end abbreviation, a number is used.

■ Packaging Methods

● Packing Quantity

Style	Quantity
Embossed Taping	1000 pcs./reel

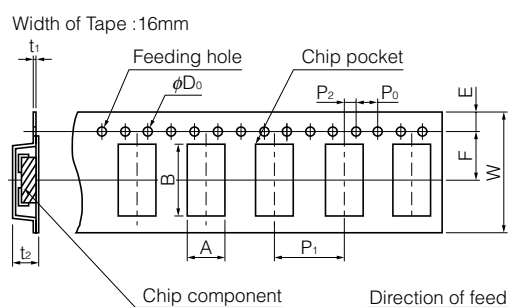
● Reel



Dimensions (mm)	A	B	C	D	E
	382 max.	50 min.	13.0±0.5	21.0±0.8	2.0±0.5

Dimensions (mm)	W	T	t	r
	16.4 ^{+2.0} ₋₀	22.4 max.	2.5±0.5	1.0

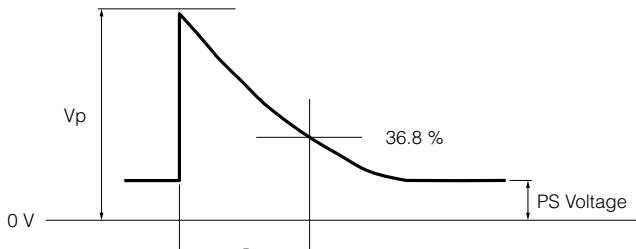
● Embossed Taping



Dimensions (mm)	A	B	W	F	E	P ₁
	7.5 max.	11.9 max.	16.0±0.3	7.5±0.1	1.75±0.10	12.0±0.1

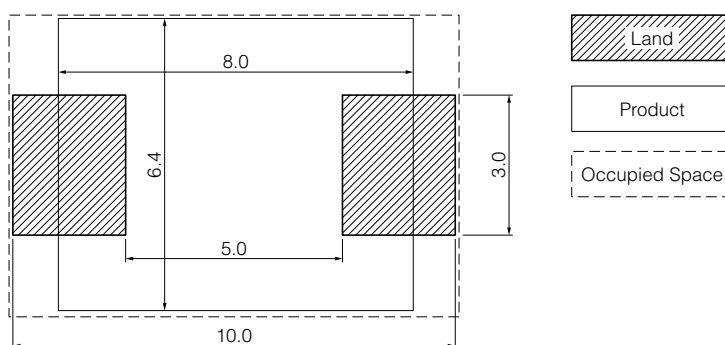
Dimensions (mm)	P ₂	P ₀	φD ₀	t ₁	t ₂
	2.0±0.1	4.0±0.1	1.5 ^{+0.1} ₋₀	0.8 max.	8.0 max.

■ 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 V ₁ . 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).	
Temperature Coefficient of Varistor Voltage	The varistor voltage shall be measured at 25 °C and 85 °C with a DC current of 1 mA. The temperature coefficient of varistor voltage V ₁ is calculated by the following equation : $\text{T.C. (\% / } ^\circ\text{C)} = \frac{V_1 \text{ at } 85 ^\circ\text{C} - V_1 \text{ at } 25 ^\circ\text{C}}{V_1 \text{ at } 25 ^\circ\text{C}} \times \frac{1}{60} \times 100$	0 to -0.05 %/°C
Load Dump Surge	The test waveform of transient voltage which specified JASO Category A A-1 70 V without breakdown. 	No breakdown

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

■ Recommendation Land Size



(Unit:mm)