

"ZNR" Surge Absorbers SMD Type

Series: **HF**



■ Features

- Meet for Load Dump Surge Test (JASO D 001-94)
[$V_p=70\text{ V}$, $\tau=200\text{ ms}$, $R_i=0.8\ \Omega$]
- 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

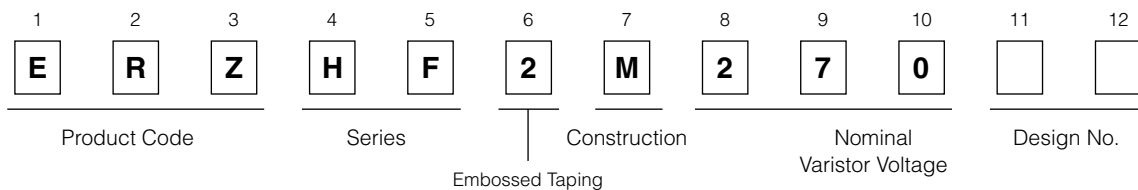
■ Recommended Applications

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

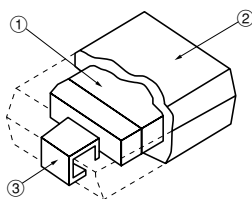
■ Handling Precautions and Minimum Quantity / Packing Unit

Please see Related Information

■ Explanation of Part Numbers

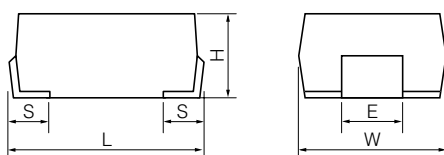


■ Construction



| | |
|-----------------------|---------------------------|
| 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)



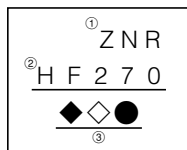
| Series | W | L | H | S | E |
|--------|---------|---------|---------|---------|---------|
| HF | 6.4±0.4 | 8.0±0.5 | 4.5±0.5 | 1.3±0.3 | 2.5±0.2 |

■ 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 |

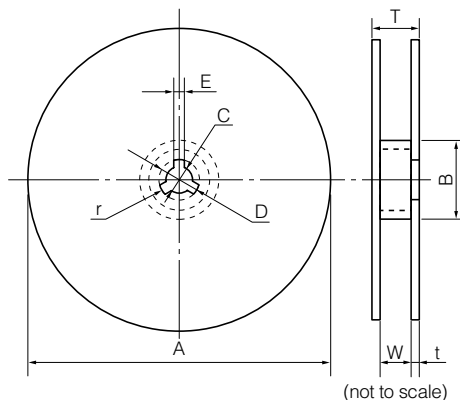
* If the 10's digit of a Christian year is an even year, as an end abbreviation, an alphabetic character is used.
1:A, 2:B, 3:C, 4:D, 5:E, 6:F, 7:G, 8:H, 9:J, 0:K
If the 10's digit of a Christian year is an odd year, as an end abbreviation, a number is used.

■ Packaging Methods

- Packing Quantity

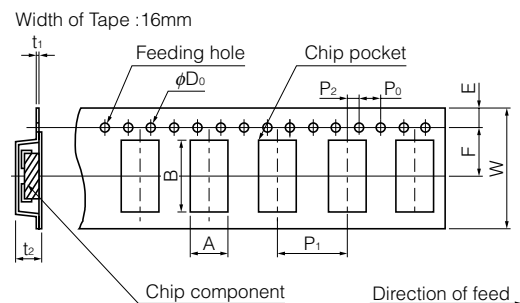
| Style | Quantity |
|-----------------|----------------|
| Embossed Taping | 1000 pcs./reel |

- 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 | |

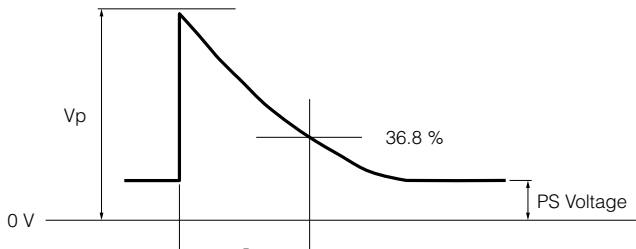
- Embossed Taping



| | | | | | | |
|-----------------|----------------|----------------|-----------------------------------|----------------|----------------|----------------|
| 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. | |

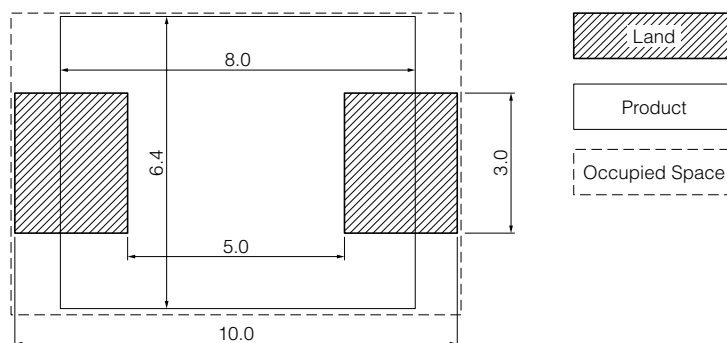
Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

■ 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 : $T.C. (\% / ^\circ C) = \frac{V_1 \text{ at } 85^\circ C - V_1 \text{ at } 25^\circ C}{V_1 \text{ at } 25^\circ C} \times \frac{1}{60} \times 100$ | 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)