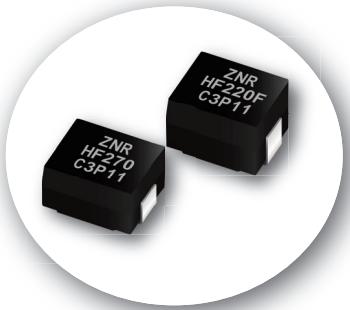


## Automotive ZNR Surge Absorber

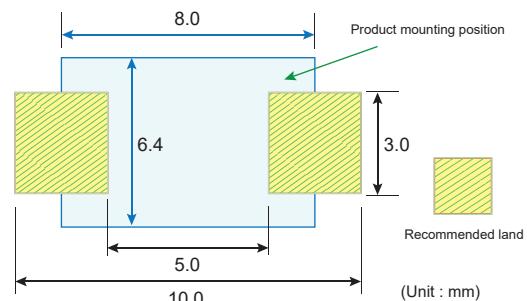
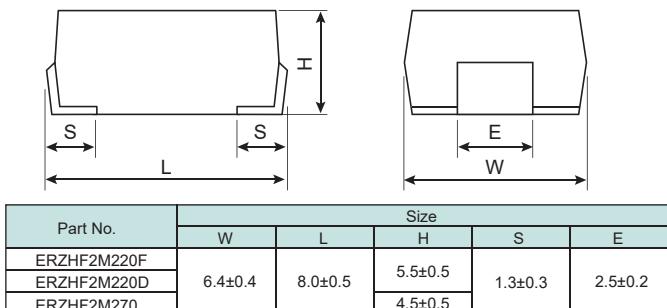
### HF series Load dump surge prevention components



#### Features

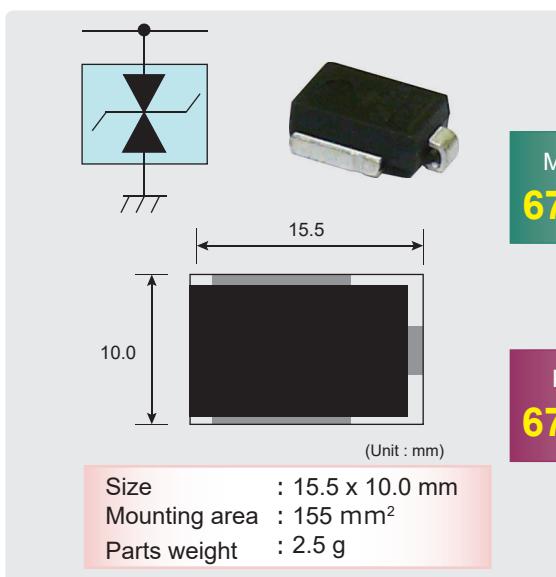
- Resin mold structure with excellent thermal shock resistance during soldering
- Small (8.0x6.4 mm) surface-mount shape for flow/reflow/iron soldering
- RoHS compliant (100% Pb-free)
- Nomical varistor voltage ( $V_{1mA}$ ) : 22 V
- Clamping voltage : 35 V or less
- ISO7637-2 pulse 5a compatible

#### Shape dimensions/recommended land dimensions

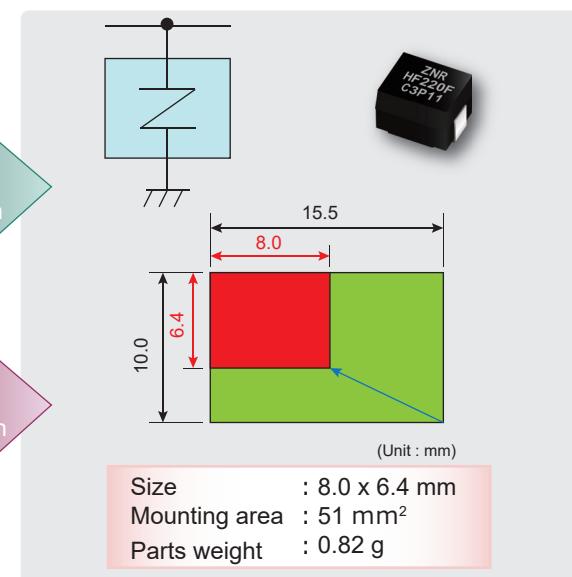


#### Proposal to replace TVS Diodes with varistors and advantages

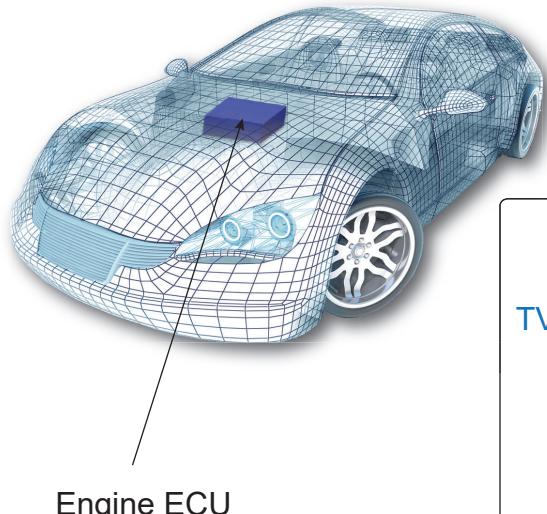
##### 3600W TVS Diode Bi-directional



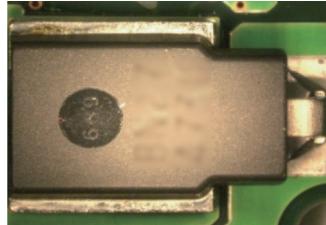
##### ZNR surge absorber "ERZHF2M220D"



## Adoption case



### Replacement case from TVS Diodes

[ Conventional design ]	[ Replacement Part No.]
TVS Diode bidirectional / 3600W	ERZHF2M220D
	
Size : 15.5 x 10.0 x 4.9 mm Weight : 2.5 g	Size : 8.0 x 6.4 x 5.5 mm Weight : 0.82 g

### Comparison table between TVS Diode (3600W) and ZNR-HF

	TVS Diode bidirectional / 3600W				ZNR-HF
	A company	B company	C company	D company	Panasonic Industry
Part No.	*****	*****	*****	*****	ERZHF2M220D
Appearance	 		 		
Size (mm)	15.5x10.0x4.9	15.5x10.0x5.0	7.0x9.0x9.0	15.0x10.0x4.0	8.0x6.4x5.5
Mounting area (mm <sup>2</sup> )	155.0	155.0	63.0	150.0	51.2 67% Down
Parts weight (g)	2.5	2.6	1.5	2.0	0.82
Operating voltage (V) Vz, V1mA	22.4 to 26.9	24 to 30	24.3 to 29.7	24 to 30	20.0 to 23.2
Load dump surge test ISO7637-2 5a Us = 87 V td = 400 ms Ri = 2.0Ω, 1 time	OK	OK	OK	OK	OK
Clamping voltage	35 V or less	35 V or less	35 V or less	35 V or less	35 V or less