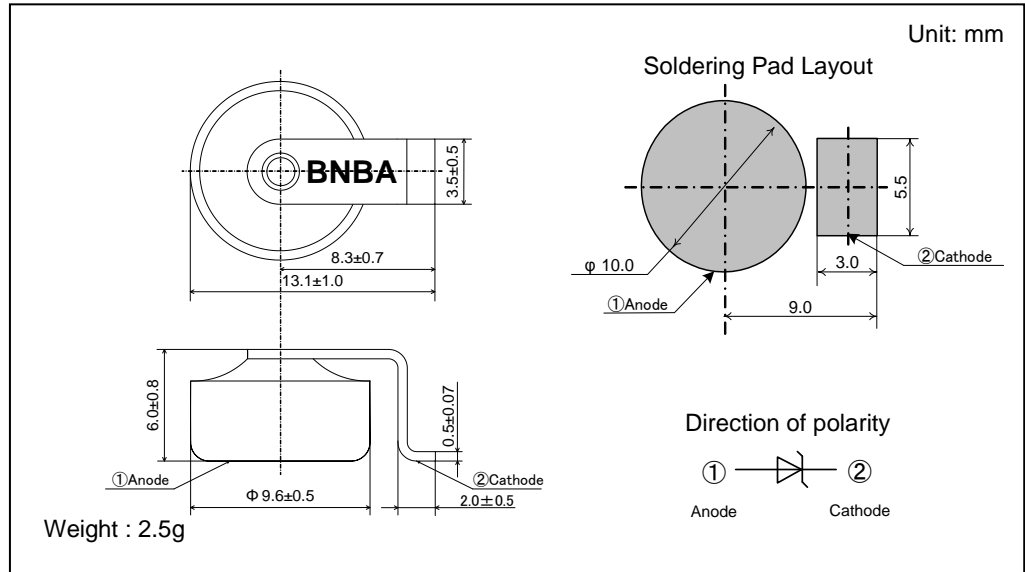


# ZSH8MD40

## FEATURES

- 8W class
- High surge capability for Load Dump Surge
- Meets ISO7637-2 surge specification  
(Varied by test condition)
- Available for automotive use
- AEC-Q101 qualified
- RoHS compliant

## OUTLINE DRAWING



## ABSOLUTE MAXIMUM RATINGS

Items	Symbols	Units	Ratings
Non-Repetitive Peak Reverse One-Cycle Dissipation	$P_{RSM}$	W	5,700(Rectangular pulse $t=1ms$ $T_j=25^\circ C$ start)
Non-Repetitive Peak Reverse Surge Current	$I_{RSM}$	A	80(Exponential waveform. See Fig.1, $T_j=25^\circ C$ start)
DC Reverse Voltage	$V_{DC}$	V	32
Operating Junction Temperature	$T_j$	$^\circ C$	-40 ~ +150
Storage Temperature	$T_{stg}$	$^\circ C$	-40 ~ +150

## CHARACTERISTICS( $T_L=25^\circ C$ )

Items	Symbols	Units	Min.	Typ.	Max.	Test Conditions
Zener Voltage	$V_Z$	V	36	40	44	$I_Z=10mA$
Dynamic Impedance	$Z_Z$	$\Omega$	-	-	50	$I_Z=10mA$
Zener Voltage Temperature Coefficient	$\gamma_Z$	$\%/^\circ C$	-	0.087	-	$I_Z=10mA$
Peak Forward Voltage	$V_{FM}$	V	-	-	0.98	$I_{FM}=6A$
Peak Reverse Current	$I_{RRM}$	$\mu A$	-	-	10	$V_R=32V$

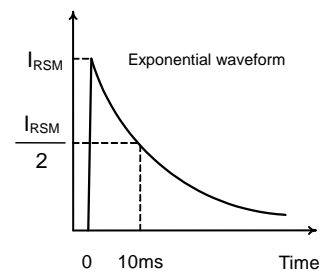
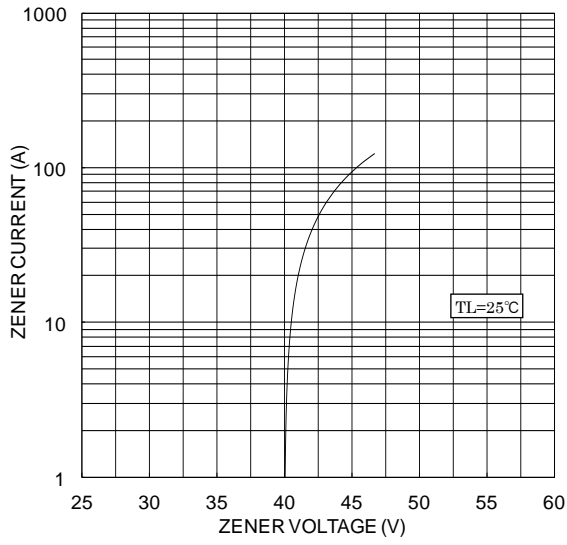


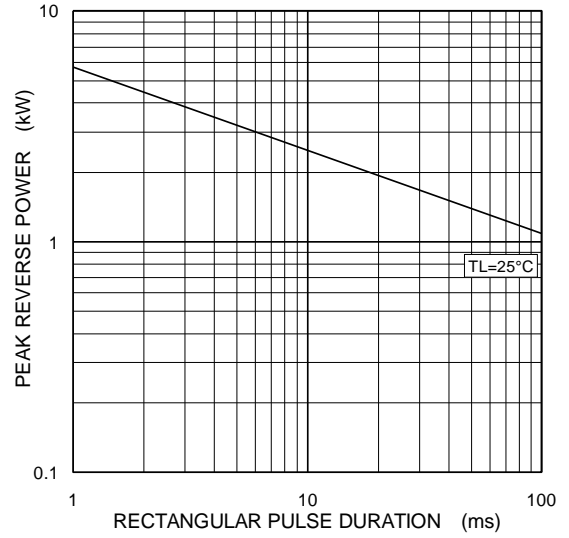
Figure 1.  $I_{RSM}$  waveform

# ZSH8MD40

Typical zener characteristics



Typical reverse power characteristics  
(Rectangular pulse non-repetitive)



## Precautions for Safe Use and Notices

If semiconductor devices are handled in inappropriate manner, failures may result. For this reason, be sure to read "Precaution for Use" before use.



This mark indicates an item about which caution is required.



### CAUTION

This mark indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury and damage to property.



### CAUTION

- (1) Regardless of changes in external conditions during use "absolute maximum ratings" should never be exceed in designing electronic circuits that employ semiconductors. In the case of pulse use, furthermore, "safe operating area(SOA)" precautions should be observed.
- (2) Semiconductor devices may experience failures due to accident or unexpected surge voltages. Accordingly, adopt safe design features, such as redundancy or prevention of erroneous action, to avoid extensive damage in the event of a failure.
- (3) In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, life-support-related medical equipment, fuel control equipment and various kinds of safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of user's fail-safe precautions or other arrangement. Or consult Hitachi's sales department staff.
- (4) (If a semiconductor device fails, there may be cases in which the semiconductor device, wiring or wiring pattern will emit smoke or cause a fire or in which the semiconductor device will burst)

## NOTICES

1. This Datasheet contains the specifications, characteristics(in figures and tables), dimensions and handling notes concerning power semiconductor products (hereinafter called "products") to aid in the selection of suitable products.
2. The specifications and dimensions, etc. stated in this Datasheet are subject to change without prior notice to improve products characteristics. Before ordering, purchasers are advised to contact Hitachi's sales department for the latest version of this Datasheet and specifications.
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Refer to the following website for the latest information. Consult Hitachi's sales department staff if you have any questions.

<http://www.hitachi-power-semiconductor-device.co.jp/en/>