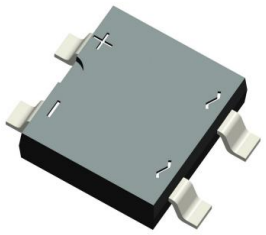
Technical Data
Data Sheet N2744, Rev. -

HBN502 THRU HBN510

Glass Passivated Single-Phase 5.0Amp Surface Mount Bridge Rectifier

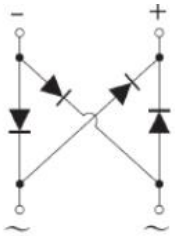


HBS

Features

- Surface mount bridge, small package;
- Ideal for printed circuit boards;
- Glass passivated chip junction;
- High surge current capability;
- High heat dissipation capability;
- Low profile package;
- Low forward voltage drop;
- Plastic package has Underwrites Laboratory Flammability Classification 94V-0
- This is a Pb − Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

Circuit Diagram



Mechanical Data

- Case: HBS;
- Epoxy meets UL-94V-0 Flammability rating;
- Terminals:Matte tin plated leads, solderable per J-STD-002 and JESD22-B102;
- High temperature soldering guaranteed: Solder Reflow 260℃,10seconds;
- Polarity: As marked on body;
- Marking: Type number;

Maximum Ratings and Electrical Characteristics @T_A=25°C unless otherwise specified

Single Phase half wave 60Hz, resistive or inductive load. For capacitive load current derate by 20%.

Type Number	Symbol	HBN502	HBN504	HBN506	HBN508	HBN510	Units
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{DC}	200	400	600	800	1000	V
RMS Reverse Voltage	V_{RMS}	140	280	420	560	700	V
Maximum average forward rectified output current at @T_A =25°C	$I_{(AV)}$	5					A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	I_{FSM}	130					A
Rating for fusing (t<8.3ms)	I^2t	70					A^2sec

Technical Data
Data Sheet N2744, Rev. -

RoHS

Electrical Characteristics@T_A=25°C unless otherwise specified

Type Number	Symbol	HBN502	HBN504	HBN506	HBN508	HBN510	Units
Maximum Forward Voltage (per element) @I_F =2.5A @I_F =5.0A	V_F	1.0 1.1					V
Maximum Peak Reverse Current @T_A = 25°C At Rated DC Blocking Voltage @T_A = 125°C	I_R	5 200					μA
Typical capacitance(Note 1)	Cj	40					pF

* Pulse width < 300 μs, duty cycle < 2%

Thermal-Mechanical Specifications@T_A=25°C unless otherwise specified

Type Number	Symbol	HBN502	HBN504	HBN506	HBN508	HBN510	Units
Typical Thermal Resistance	$R_{\theta JA}$ $R_{\theta JC}$ $R_{\theta JL}$	69.0 12.0 11.0					°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150					°C

Note: 1. Mounted at 1.0 MHz and applied reverse voltage of 4.0V DC.

Ratings and Characteristics Curves

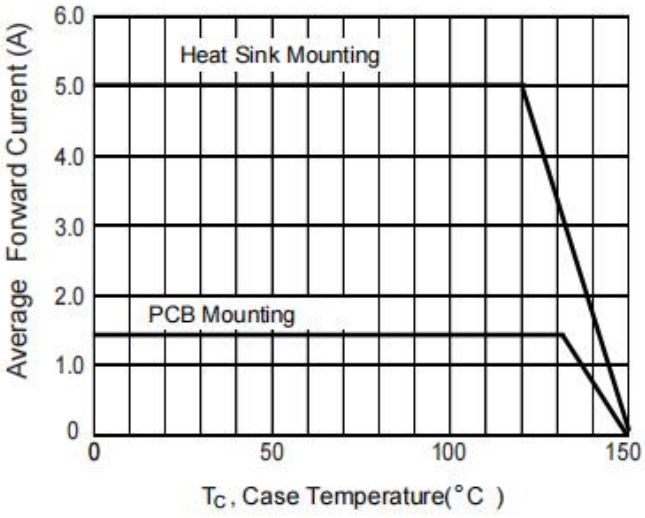


Fig. 1 Forward Current Derating Curve

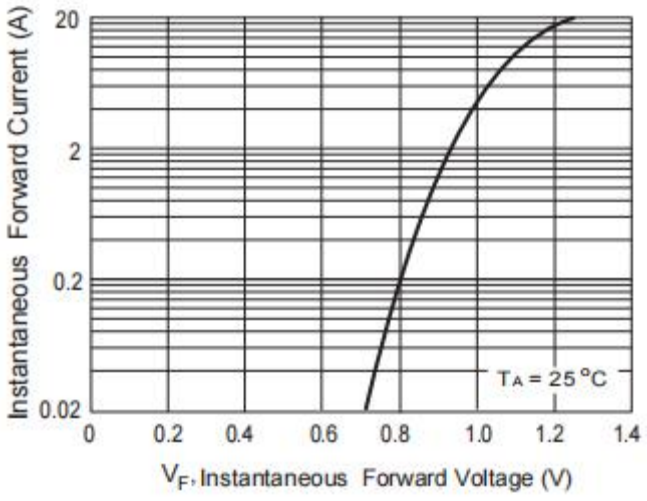


Fig. 2 Typ. Forward Characteristics

Technical Data
Data Sheet N2744, Rev. -

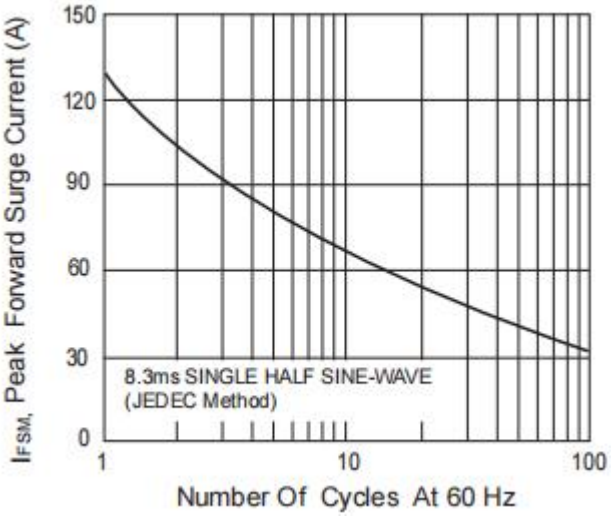


Fig. 3 Max Non-Repetitive Peak Fwd Surge

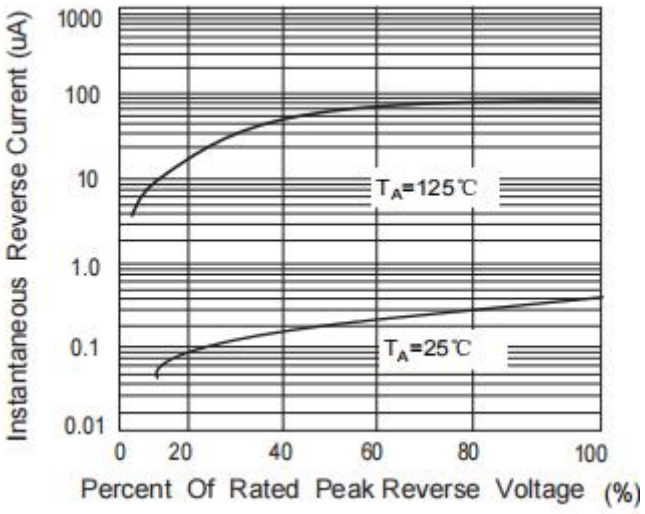
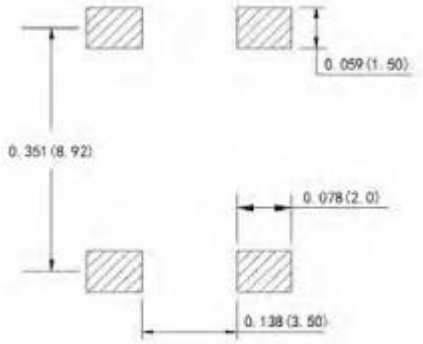


Fig.4 Typical Reverse Chracteristics

Suggested PCB prinfoot layout



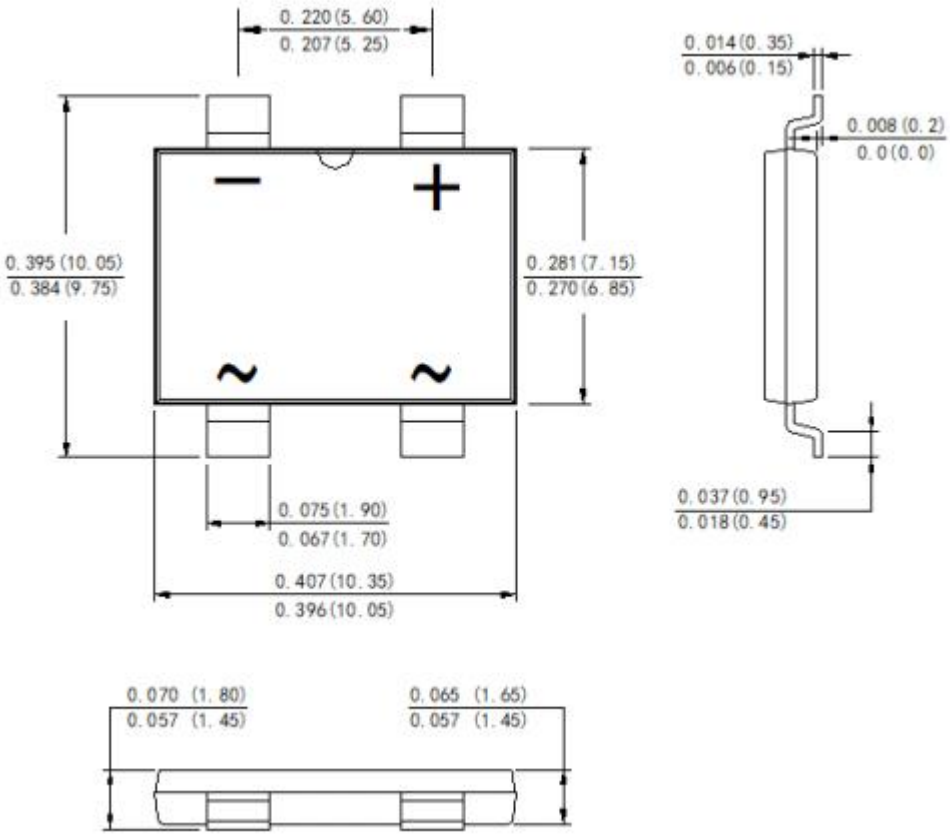
Unit: inches (mm)

HBN502 THRU HBN510

Technical Data
Data Sheet N2744, Rev. -

RoHS

Mechanical Dimensions HBS(Inches/Millimeters)



Ordering Information

Device	Package	Plating	Shipping
HBN502 THRU HBN510	HBS (Pb-Free)	Pure Sn	2500pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Marking Diagram

Where XXXXX is YYWWL

HBN502 = Type Number
YY = Year
WW = Week
L = Lot Number

Cautions: Molding resin
Epoxy resin UL:94V-0

Technical Data
Data Sheet N2744, Rev. -

DISCLAIMER:
1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC Diode Solutions sales department for the latest version of the datasheet(s).
2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment , and safety equipment) , safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement .
3- In no event shall SMC Diode Solutions be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC Diode Solution assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
4- In no event shall SMC Diode Solutions be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC Diode Solutions.
6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC Diode Solutions.
7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..