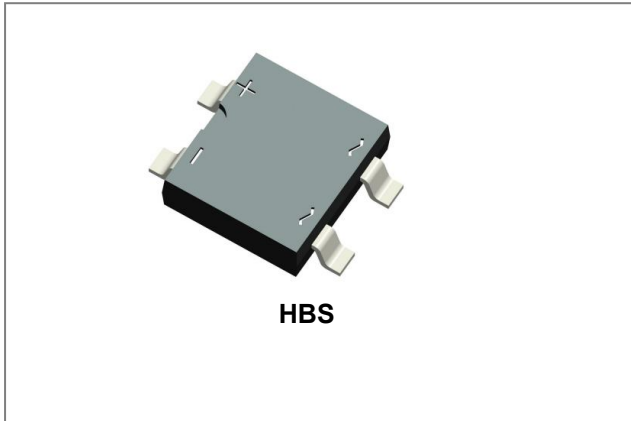


## HBN502 THRU HBN510

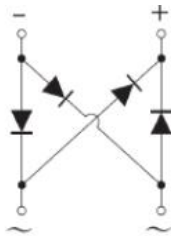
### Glass Passivated Single-Phase 5.0Amp Surface Mount Bridge Rectifier



#### 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°C, 10seconds;
- Polarity: As marked on body;
- Marking: Type number;

#### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=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  | V <sub>RRM</sub>  |        |        |        |        |        |       |                    |
| Working Peak Reverse Voltage   | V <sub>RWM</sub>  | 200    | 400    | 600    | 800    | 1000   | V     |                    |
| DC Blocking Voltage  | V <sub>DC</sub>   |        |        |        |        |        |       |                    |
| RMS Reverse Voltage  | V <sub>RMS</sub>  | 140    | 280    | 420    | 560    | 700    | V     |                    |
| Maximum average forward rectified output current at @T <sub>A</sub> =25°C  | I <sub>(AV)</sub> | 5      |        |        |        |        |       | A                  |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave superimposed on rated load (JEDEC Method) | I <sub>FSM</sub>  | 130    |        |        |        |        |       | A                  |
| Rating for fusing (t<8.3ms)  | I <sup>2</sup> t  | 70     |        |        |        |        |       | A <sup>2</sup> sec |

**Electrical Characteristics@T<sub>A</sub>=25°C unless otherwise specified**

| Type Number   | Symbol         | HBN502 | HBN504 | HBN506     | HBN508 | HBN510 | Units |
|---|----------------|--------|--------|------------|--------|--------|-------|
| Maximum Forward Voltage (per element) @I <sub>F</sub> =2.5A<br>@I <sub>F</sub> =5.0A                        | V <sub>F</sub> |        |        | 1.0<br>1.1 |        |        | V     |
| Maximum Peak Reverse Current @T <sub>A</sub> = 25°C<br>At Rated DC Blocking Voltage @T <sub>A</sub> = 125°C | I <sub>R</sub> |        |        | 5<br>200   |        |        | μA    |
| Typical capacitance(Note 1)   | C <sub>j</sub> |        |        | 40         |        |        | pF    |

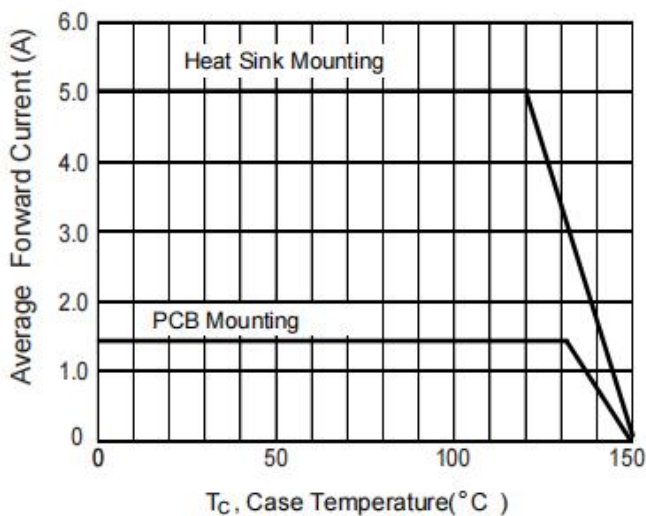
\* Pulse width < 300 μs, duty cycle < 2%

**Thermal-Mechanical Specifications@T<sub>A</sub>=25°C unless otherwise specified**

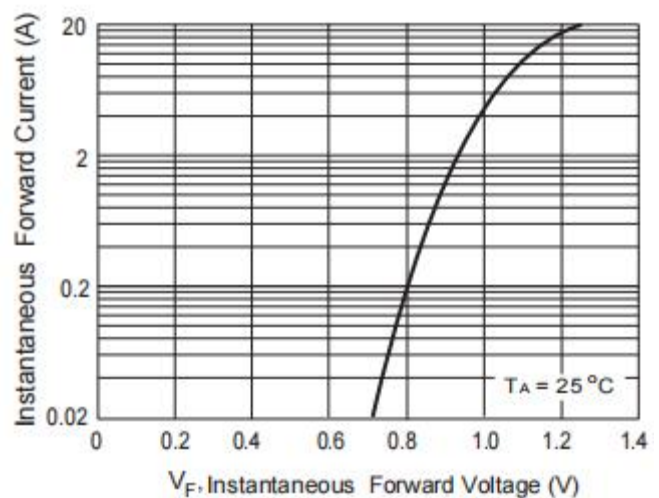
| Type Number                             | Symbol   | HBN502 | HBN504 | HBN506               | HBN508 | HBN510 | Units |
|---|--|--------|--------|----------------------|--------|--------|-------|
| Typical Thermal Resistance              | R <sub>θJA</sub><br>R <sub>θJC</sub><br>R <sub>θJL</sub> |        |        | 69.0<br>12.0<br>11.0 |        |        | °C/W  |
| Operating and Storage Temperature Range | T <sub>J</sub> , T <sub>STG</sub>                        |        |        | -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**

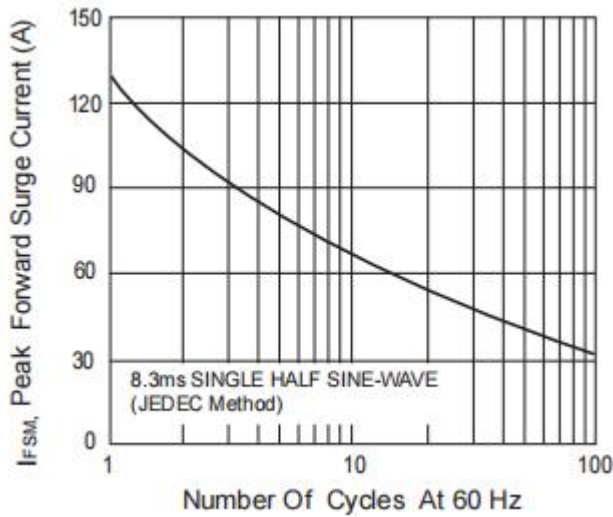


Fig. 3 Max Non-Repetitive Peak Fwd Surge

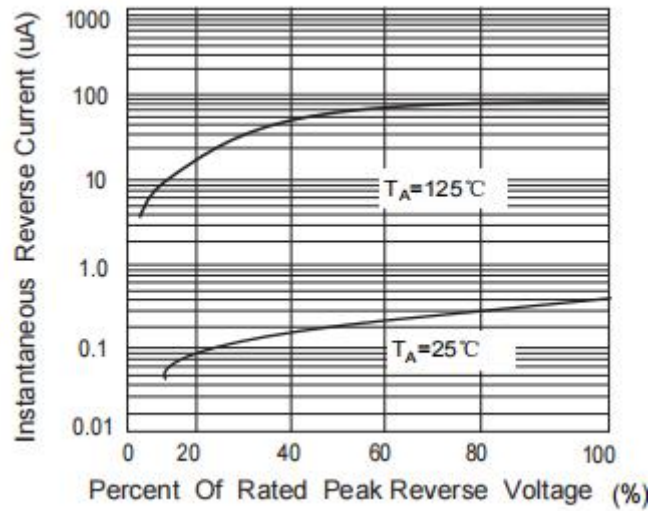
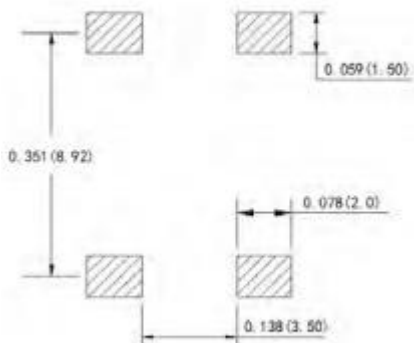


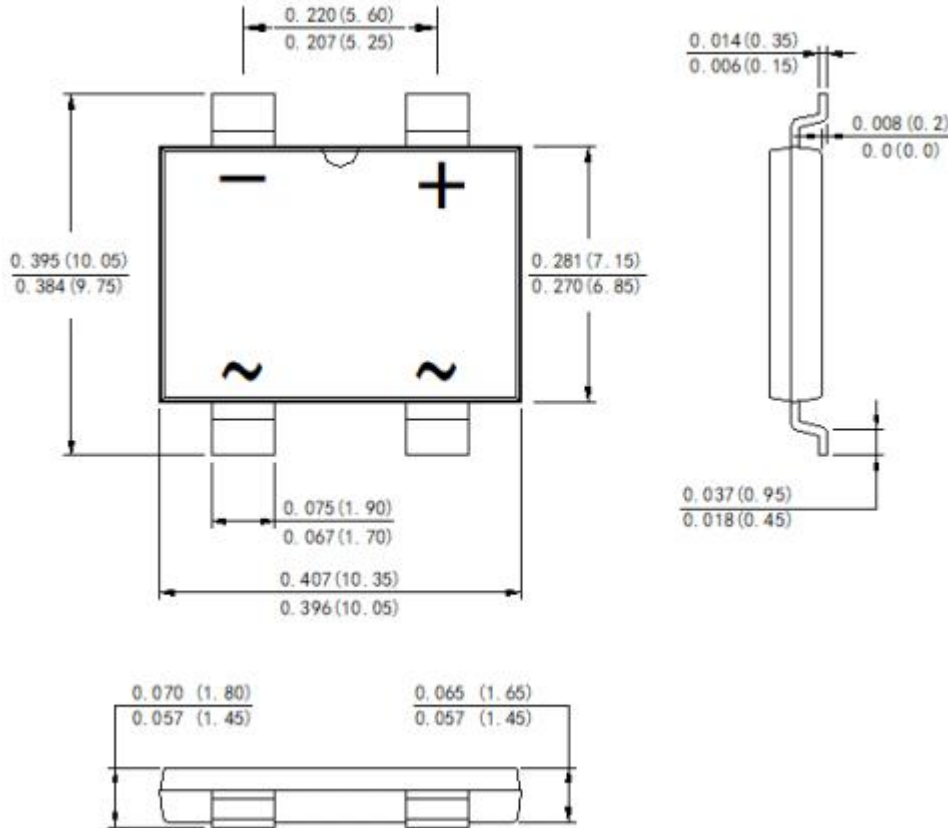
Fig.4 Typical Reverse Characteristics

Suggested PCB pinfoot layout



Unit: inches (mm)

**Mechanical Dimensions HBS(Inches/Millimeters)**



**Ordering Information**

| Device                   | Package          | Plating | Shipping       |
|--------------------------|------------------|---------|----------------|
| HBN502<br>THRU<br>HBN510 | HBS<br>(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

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