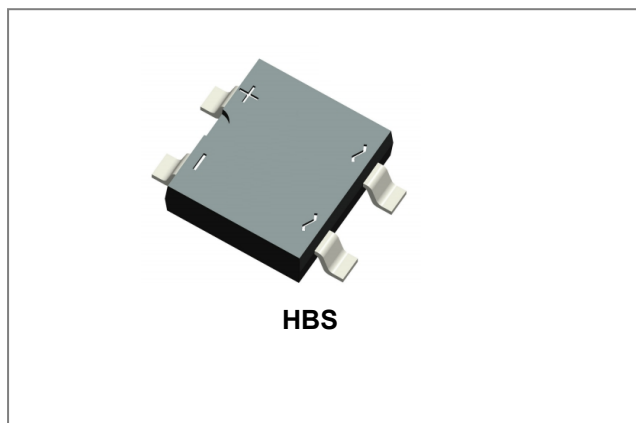


## HBS502 THRU HBS510

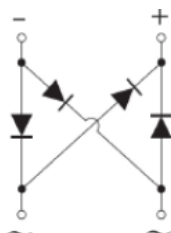
### Glass Passivated Single-Phase 5.0Amp Surface Mount Bridge Rectifier



#### 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                             | HBS502 | HBS504 | HBS506 | HBS508 | HBS510 | Units              |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------|--------|--------|--------|--------|--------|--------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                                | $V_{RRM}$<br>$V_{RWM}$<br>$V_{DC}$ | 200    | 400    | 600    | 800    | 1000   | V                  |
| RMS Reverse Voltage                                                                                                   | $V_{RMS}$                          | 140    | 280    | 420    | 560    | 700    | V                  |
| Maximum average forward rectified output current at<br>@T <sub>A</sub> =25°C                                          | $I_{(AV)}$                         | 5      |        |        |        |        | A                  |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave superimposed on rated<br>load (JEDEC Method) | $I_{FSM}$                          | 150    |        |        |        |        | A                  |
| Rating for fusing (t<8.3ms)                                                                                           | $I^2t$                             | 93     |        |        |        |        | A <sup>2</sup> sec |

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

| Type Number                                                                                                   | Symbol         | HBS502                                                            | HBS504 | HBS506 | HBS508 | HBS510 | Units |
|---------------------------------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------|--------|--------|--------|--------|-------|
| Maximum Forward Voltage (per element) @I <sub>F</sub> =1.0A<br>@I <sub>F</sub> =2.5A<br>@I <sub>F</sub> =5.0A | V <sub>F</sub> | 0.83 Typ. 0.88 Max.<br>0.88 Typ. 0.93 Max.<br>0.92 Typ. 0.97 Max. |        |        |        |        | 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> | 0.15 Typ. 5.0 Max.<br>20.0 Typ. 100 Max.                          |        |        |        |        | μA    |
| Typical capacitance(Note 1)                                                                                   | C <sub>j</sub> | 38                                                                |        |        |        |        | pF    |

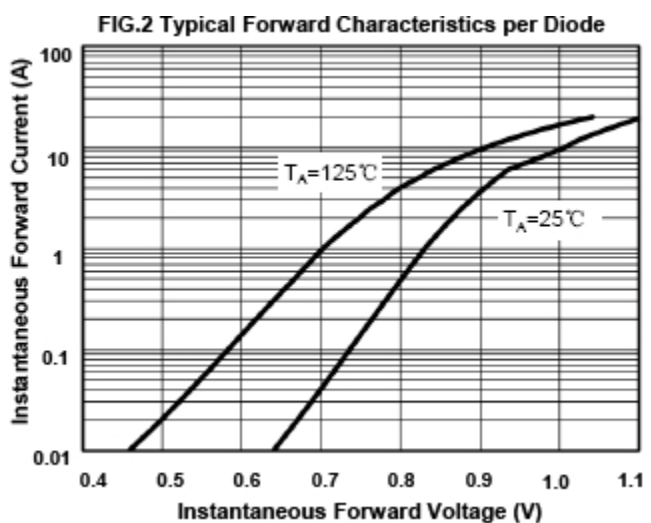
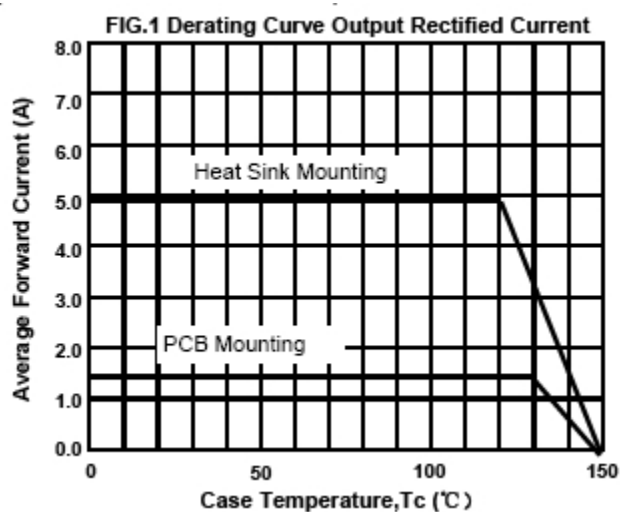
\* Pulse width < 300  $\mu$ s, duty cycle < 2%

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

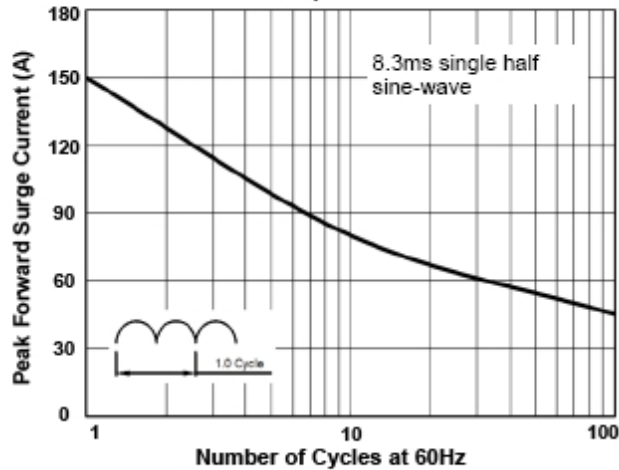
| Type Number                             | Symbol                                                | HBS502               | HBS504 | HBS506 | HBS508 | HBS510 | Units |
|-----------------------------------------|-------------------------------------------------------|----------------------|--------|--------|--------|--------|-------|
| Typical Thermal Resistance              | $R_{\theta JA}$<br>$R_{\theta JC}$<br>$R_{\theta JL}$ | 69.0<br>12.0<br>12.0 |        |        |        |        | °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 5.0V DC.

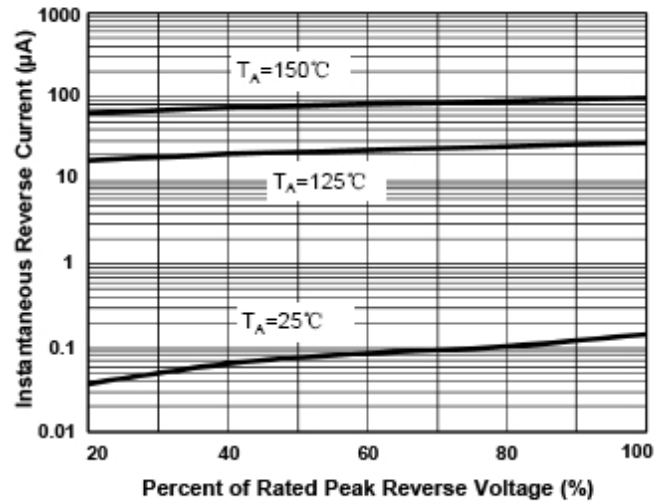
## Ratings and Characteristics Curves



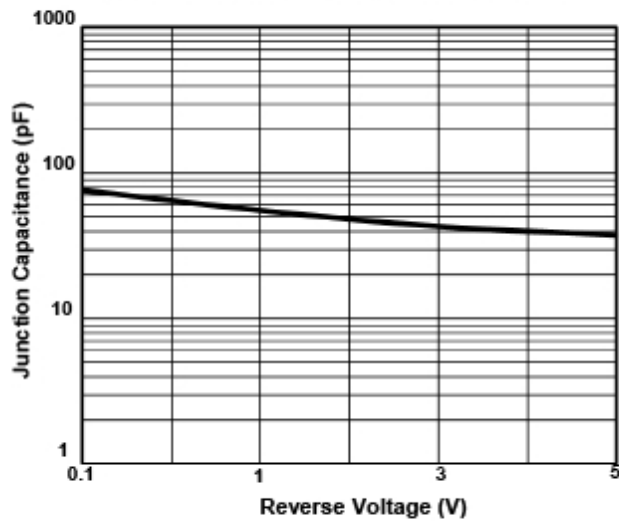
**FIG.3 Maximum Non-Repetitive Peak Forward Surge Current per Diode**



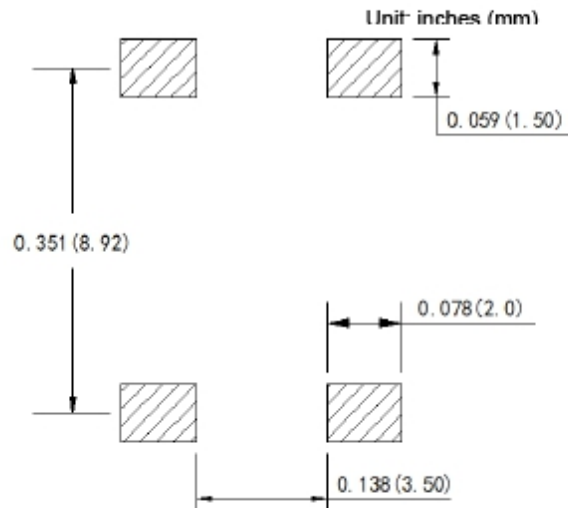
**FIG.4 Typical Reverse Characteristics per Diode**



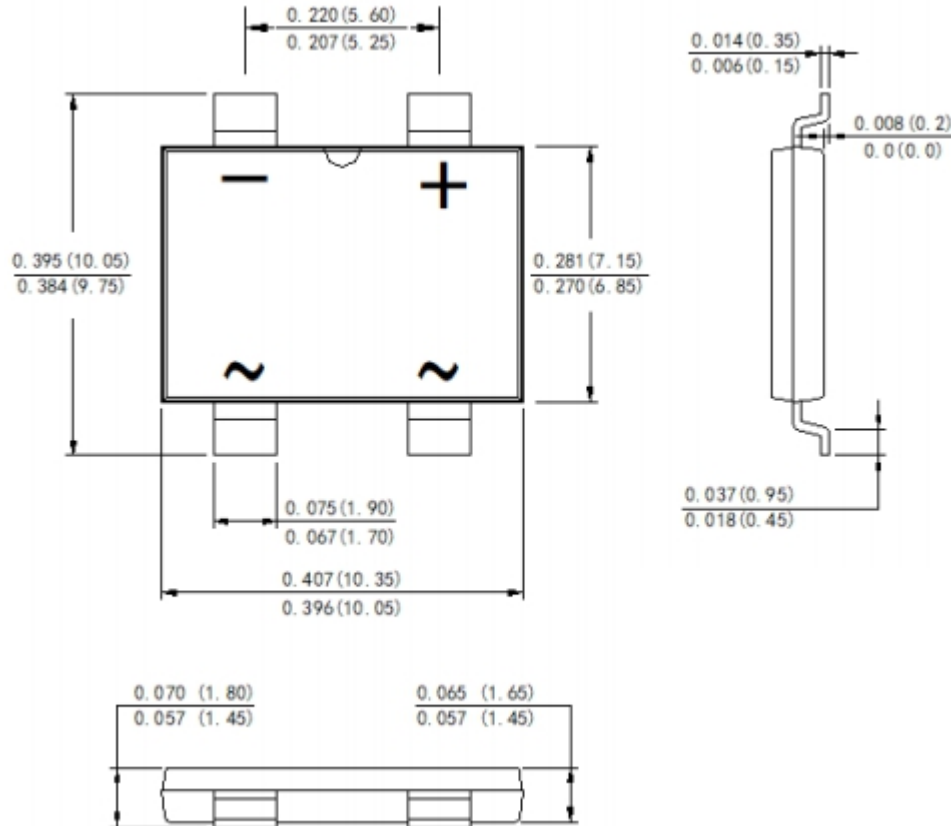
**FIG.5 Typical Junction Capacitance per Diode**



**Suggested PCB printfoot layout**



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



**Ordering Information**

| Device                   | Package          | Plating | Shipping       |
|--------------------------|------------------|---------|----------------|
| HBS502<br>THRU<br>HBS510 | 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

HBS502 = Type Number  
YY = Year  
WW = Week  
L = Lot Number

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

**Technical Data  
Data Sheet N2351, Rev. -**



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