

# Super Barrier Rectifier™

Using state-of-the-art SBR IC process technology,  
the following features are made possible in a single device:

### Major ratings and characteristics

| Characteristics                  | Values     | Units      |
|----------------------------------|------------|------------|
| $I_{F(AV)}$ Rectangular Waveform | 10         | A          |
| $V_{RRM}$                        | 40         | V          |
| $V_F @ 5A, T_j = 125^\circ C$    | 0.35       | V, typ     |
| $T_j$ (operating/storage)        | -65 to 150 | $^\circ C$ |





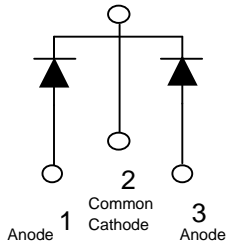
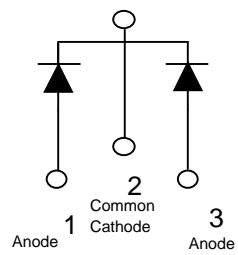
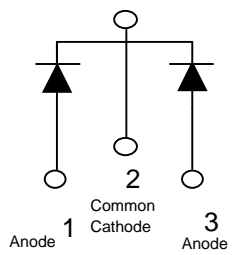
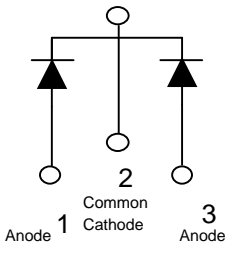
**Device optimized for low forward voltage drop to maximize efficiency in Power Supply applications**

### ELECTRICAL:

- \* Ultra-Low Forward Voltage Drop
- \* Reliable High Temperature Operation
- \* Super Barrier Design
- \* Softest, fast switching capability
- \* 150 $^\circ C$  Operating Junction Temperature

### MECHANICAL:

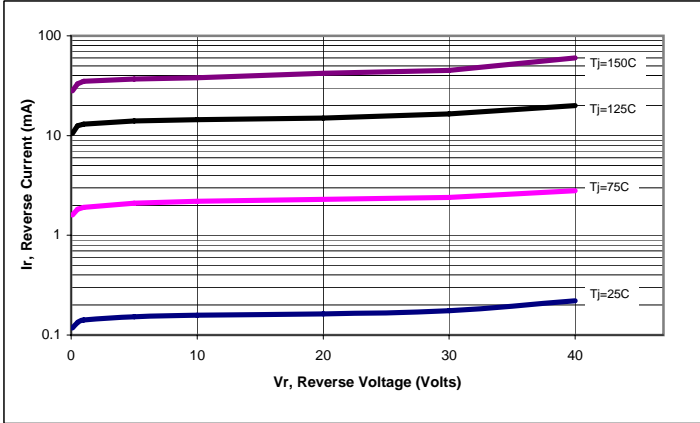
- \* Molded Plastic TO-220AB, TO-262, TO-263, and ITO-220 packages

| Case Styles   |   |  |   |
|---|---|--|---|
| SBR10U40CT  | SBR10U40CTF   | SBR10U40CTI  | SBR10U40CTB   |
|  |  |  |  |
|  |  |  |  |
| TO-220AB  | ITO-220   | TO-262   | TO-263  |

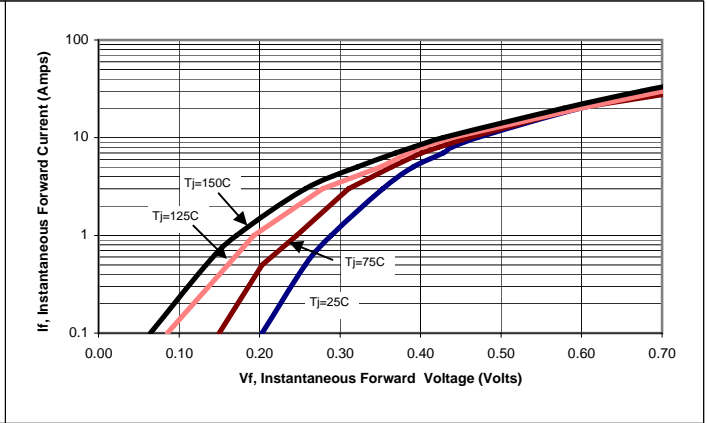
| <b>Maximum Ratings and Electrical Characteristics</b><br>(at 25°C unless otherwise specified)   |                                    |                   |                             |              |
|---|------------------------------------|-------------------|-----------------------------|--------------|
|   | <b>SYMBOL</b>                      |                   |                             | <b>UNITS</b> |
| DC Blocking Voltage<br>Working Peak Reverse Voltage<br>Peak Repetitive Reverse Voltage  | $V_{RM}$<br>$V_{RWM}$<br>$V_{RRM}$ | 40                |                             | Volts        |
| Average Rectified Forward Current<br>(Rated $V_R$ -20Khz Square Wave) - 50% duty cycle  | $I_O$                              | 10                |                             | Amps         |
| Peak Forward Surge Current - 1/2 60hz   | $I_{FSM}$                          | 150               |                             | Amps         |
| Peak Repetitive Reverse Surge Current<br>(2uS-1Khz)   | $I_{RRM}$                          | 3                 |                             | Amps         |
| Instantaneous Forward Voltage (per leg)<br>$I_F = 5A; T_J = 25^\circ C$<br>$I_F = 10A; T_J = 25^\circ C$<br>$I_F = 5A; T_J = 125^\circ C$ | $V_F$                              | Typ<br>---<br>--- | Max<br>0.44<br>0.52<br>0.38 | Volts        |
| Maximum Instantaneous Reverse Current at<br>Rated $V_{RM}$<br>$T_J = 25^\circ C$<br>$T_J = 125^\circ C$                                   | $I_R^*$                            | Typ<br>---<br>--- | Max<br>0.5<br>100           | mA<br>mA     |
| Maximum Rate of Voltage Change<br>(at Rated $V_R$ )   | dv/dt                              | 10,000            |                             | V/uS         |
| Maximum Thermal Resistance JC (per leg)<br>Package = TO-220AB, TO-262, & TO-263<br>Package = ITO-220                                      | $R_{\theta_{JC}}$                  | 2<br>4            |                             | °C/W         |
| Operating and Storage Junction Temperature  | $T_J$                              | -65 to +150       |                             | °C           |

NOTE: Dice are available for customer applications.

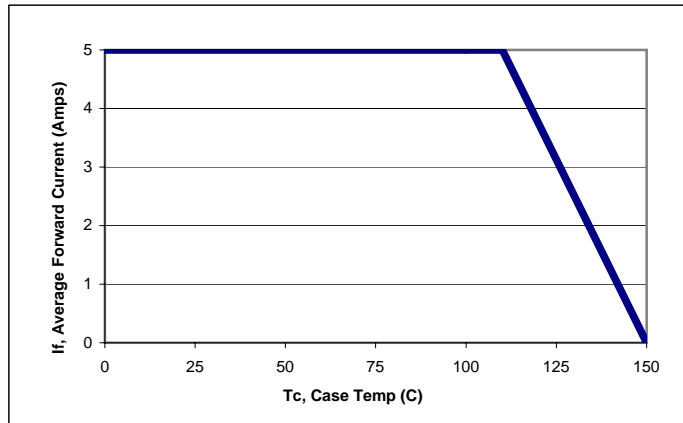
\* Pulse width < 300 uS, Duty cycle < 2%



**Figure 1: Typical Reverse Current**



**Figure 2: Typical Forward Voltage**



**Figure 3: Current Derating, Case**

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