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APD Semiconductor, Inc.

**SBR10U40CT**
**SBR10U40CTF**
**SBR10U40CTI**
**SBR10U40CTB**

# 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

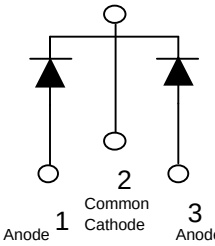
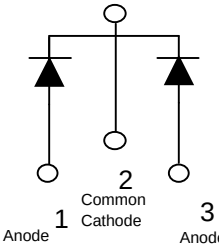
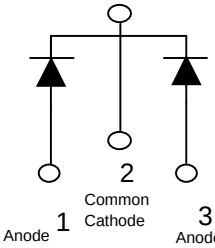
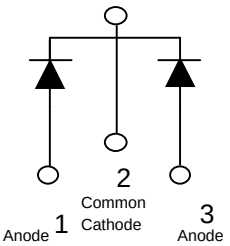
| Characteristics | Values | Units |
|---|---|---|
| $I_{F(AV)}$ Rectangular Waveform | 10 | A |
| $V_{RRM}$ | 40 | V |
| $V_F$@5A, Tj=125$^O$C | 0.35 | V, typ |
| Tj (operating/storage) | -65 to 150 | $^O$C |

**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$^O$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 |

## Maximum Ratings and Electrical Characteristics

(at 25$^{O}$C unless otherwise specified)

| | SYMBOL | | | UNITS |
|---|---|---|---|---|
| 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$^{O}$C<br>$I_F$ = 10A; $T_J$ = 25$^{O}$C<br>$I_F$ = 5A; $T_J$= 125$^{O}$C | $V_F$ | Typ<br>---<br>---<br>--- | Max<br>0.44<br>0.52<br>0.38 | Volts |
| Maximum Instantaneous Reverse Current at Rated $V_{RM}$<br>$T_J$ = 25$^{O}$C<br>$T_J$ = 125$^{O}$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 | | $^{O}$C/W |
| Operating and Storage Junction Temperature | $T_J$ | -65 to +150 | | $^{O}$C |

NOTE: Dice are available for customer applications.

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

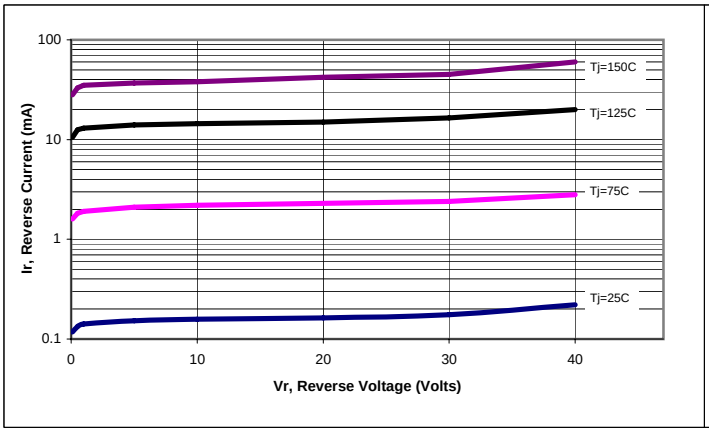



**Figure 1: Typical Reverse Current**

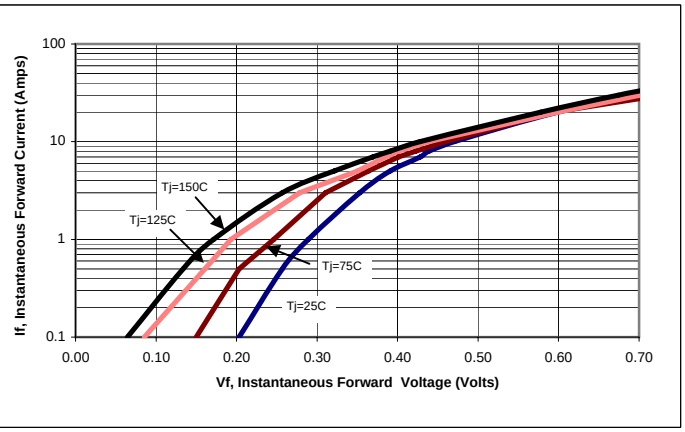



**Figure 2: Typical Forward Voltage**

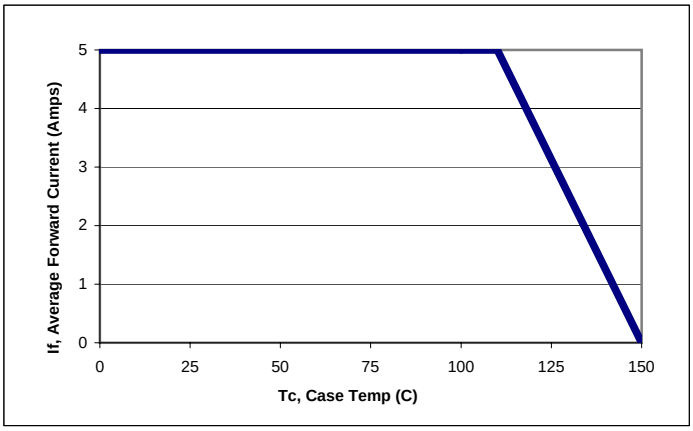



**Figure 3: Current Derating, Case**



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