

SBR540 thru SBR5200

Schottky Barrier Rectifiers

Reverse Voltage 40 to 200V Forward Current 5A

FEATURES

- * Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- * Low power loss,high efficiency
- * For use in low voltage high frequency inverters, free wheeling,and polarity protection applications
- * Guardring for over voltage protection
- * High temperature soldering guaranteed: 260°C/10 seconds at terminals

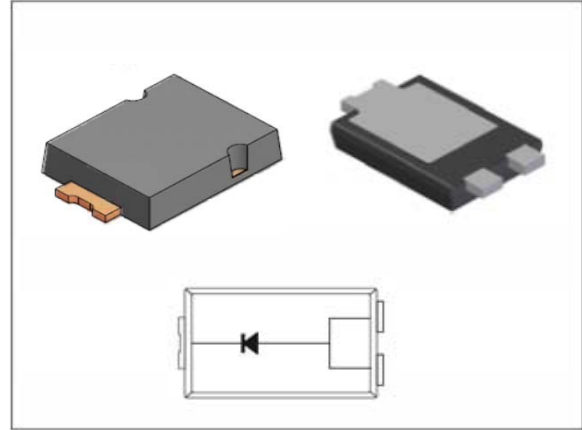
Mechanical Data

Case: JEDEC TO-277A,
 molded plastic over SKY body
 Terminals: Plated leads, solderable per
 MIL-STD-750, Method 2026
 Mounting Position: Any
 Weight: 0.108 g
 Handling precaution:None

1.Electrical Characteristic

Maximum & Thermal Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter Symbol | symbol | SBR540 | SBR545 | SBR560 | SBR5100 | SBR5150 | SBR5200 | Unit |
|--|-----------------|-------------|--------|--------|---------|---------|---------|------|
| device marking code | | S54 | S545 | S56 | S510 | S515 | S520 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 40 | 45 | 60 | 100 | 150 | 200 | V |
| Maximum RMS voltage | V_{RMS} | 28 | 31.5 | 42 | 70 | 105 | 140 | V |
| Maximum DC blocking voltage | V_{DC} | 40 | 45 | 60 | 100 | 150 | 200 | V |
| Maximum average forward rectified current at $T_c = 75^\circ\text{C}$ | $I_{F(AV)}$ | 5.0 | | | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 150 | | | | | | A |
| Typical thermal resistance (Note 1) | $R_{\theta JL}$ | 3 | | | | | | °C/W |
| | $R_{\theta JC}$ | 8 | | | | | | |
| | $R_{\theta JA}$ | 60 | | | | | | |
| Typical thermal resistance (Note 3) | $R_{\theta JA}$ | 135 | | | | | | °C/W |
| Operating junction temperature range | T_J | -55 to +150 | | | | | | °C |
| Storage temperature range | T_{STG} | -55 to +150 | | | | | | °C |



We declare that the material of product is
 Haloggen free (green epoxy compound)

Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter Symbol | symbol | SBR540 | SBR545 | SBR560 | SBR5100 | SBR5150 | SBR5200 | Unit |
|---|--------|--------|--------|--------|---------|---------|---------|------|
| Maximum instantaneous forward voltage at 5A at 25°C | V_F | 0.5 | 0.5 | 0.7 | 0.87 | | | V |
| Maximum DC reverse current $T_j = 25^\circ\text{C}$ at rated DC blocking voltage $T_j = 100^\circ\text{C}$ (note2) at rated DC blocking voltage $T_j = 125^\circ\text{C}$ (note2) | I_R | 0.3 | | | 0.015 | | | mA |
| | | 15.0 | | | 10.0 | | | |
| | | 25 | | | 20 | | | |
| Typical junction capacitance at 4.0V, 1MHz | C_J | 260 | | | | | | PF |

NOTES:

1. Polyimide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm.
2. Short duration pulse test used to minimize self-heating effect .
3. FR-4 PCB, 2oz.Copper.

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2. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1 - Forward Current Derating

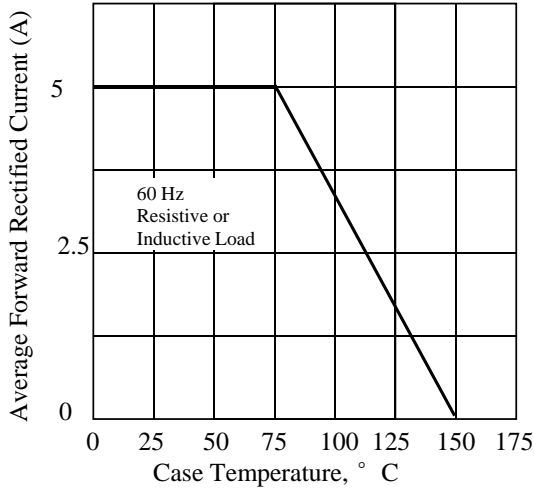


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

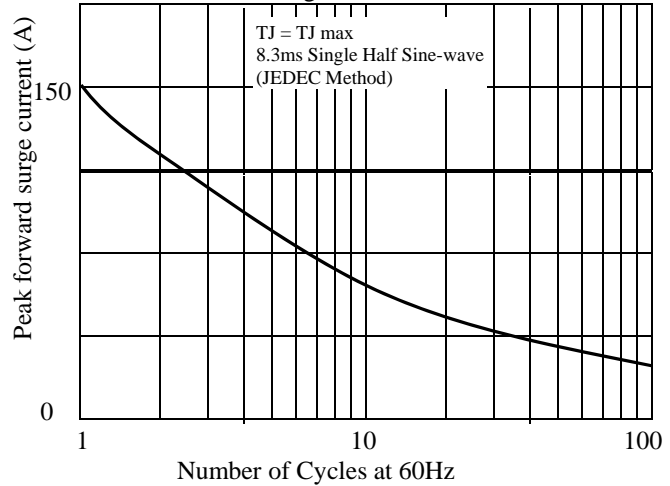


Fig. 3 - Typical Instantaneous Forward Characteristics

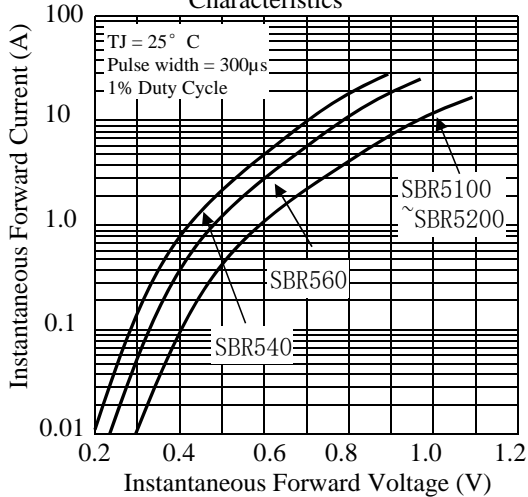


Fig. 4 - Typical Reverse Characteristics

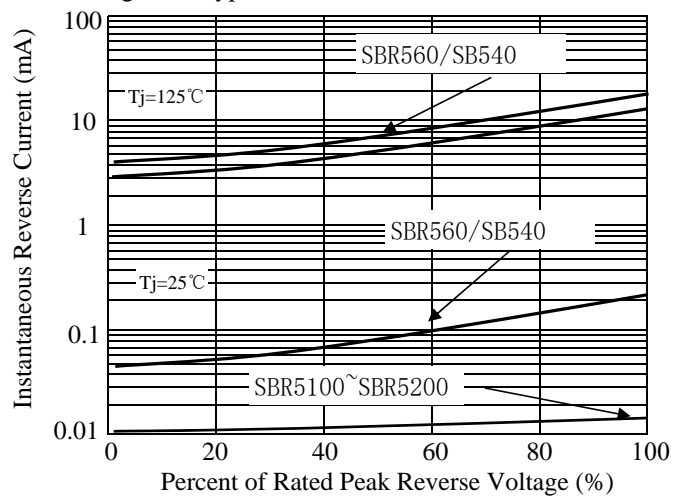


Fig. 5 - typical transient thermal impedance (Note 3)

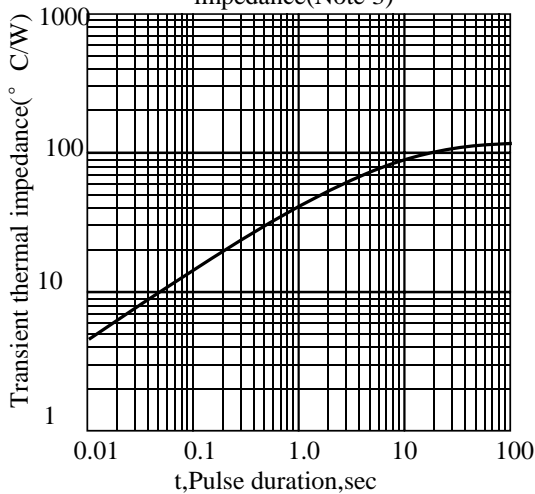
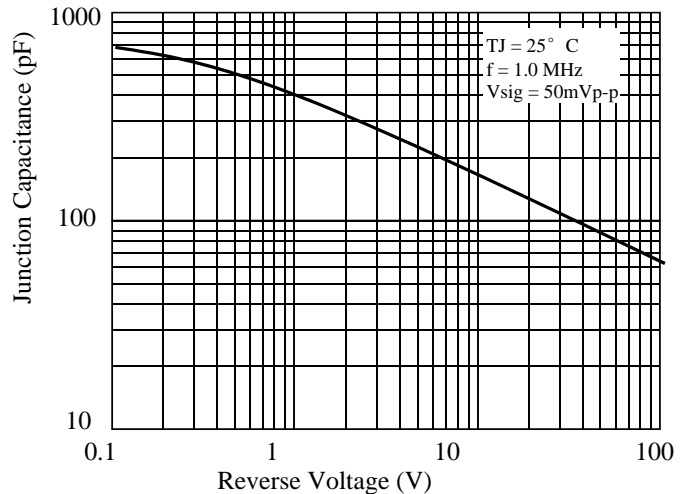


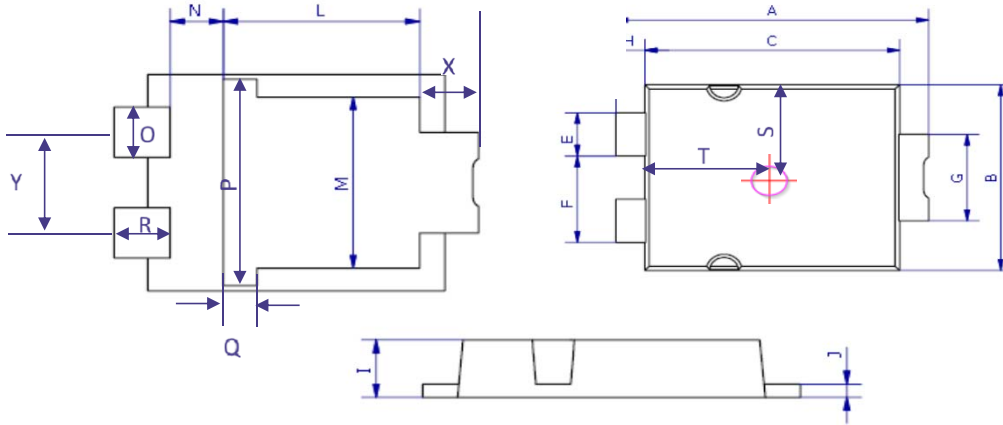
Fig. 6 - Typical Junction Capacitance



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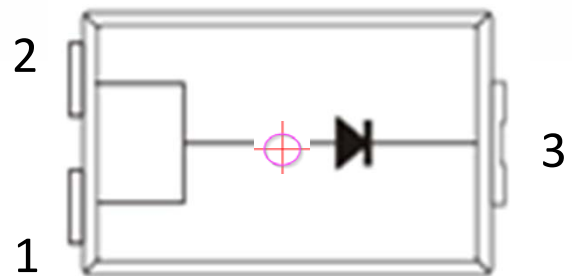
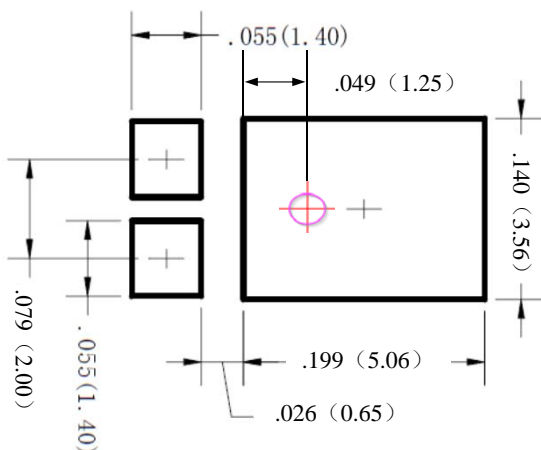
3. dimension:

TO-277A



| DIM | MILLIMETERS | | INCHES | | DIM | MILLIMETERS | | INCHES | |
|-----|-------------|------|--------|-------|-----|-------------|-----|--------|-------|
| | MIN | MAX | MIN | MAX | | MIN | MAX | MIN | MAX |
| A | 6.3 | 6.7 | 0.248 | 0.264 | X | 0.9 | 1.2 | 0.35 | 0.047 |
| B | 4.1 | 4.5 | 0.161 | 0.177 | Y | 1.9 | 2.1 | 0.075 | 0.083 |
| C | 5.1 | 5.5 | 0.201 | 0.217 | | | | | |
| E | 0.9 | 1.1 | 0.035 | 0.043 | | | | | |
| F | 1.9 | 2.1 | 0.075 | 0.083 | | | | | |
| G | 1.9 | 2.1 | 0.075 | 0.083 | | | | | |
| H | 0.50 | 0.70 | 0.020 | 0.028 | | | | | |
| I | 1.00 | 1.20 | 0.039 | 0.047 | | | | | |
| J | 0.15 | 0.35 | 0.006 | 0.014 | | | | | |
| L | 3.30 | 3.70 | 0.130 | 0.146 | | | | | |
| M | 3.20 | 3.60 | 0.126 | 0.142 | | | | | |
| N | 0.80 | 1.10 | 0.031 | 0.043 | | | | | |
| O | 0.90 | 1.10 | 0.035 | 0.043 | | | | | |
| P | 3.90 | 4.30 | 0.154 | 0.169 | | | | | |
| Q | 0.50 | 0.80 | 0.020 | 0.031 | | | | | |
| R | 0.85 | 1.15 | 0.033 | 0.045 | | | | | |
| S | 2.00 | 2.30 | 0.079 | 0.091 | | | | | |
| T | 2.50 | 2.80 | 0.098 | 0.110 | | | | | |

Mounting PAD layout



- 1: Anode
- 2: Anode
- 3: Cathode

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4. Update Record

| 版次 | 更新记录 | 更新作者 |
|----|--------------------|------|
| 1 | 第一版 | 周杰 |
| 2 | 更新产品尺寸为T0-277A | 周杰 |
| 3 | 标注外形尺寸公差 | 周杰 |
| 4 | 增加SBR540/SBR560 | 周杰 |
| 5 | 增加SBR51500/SBR5200 | 周杰 |
| 6 | 增加印字说明 | 周杰 |
| 7 | 增加SBR545 | 谭志伟 |
| 8 | 简化印字 | 谭志伟 |