

# S-SBR1045L

## Schottky Barrier Rectifiers

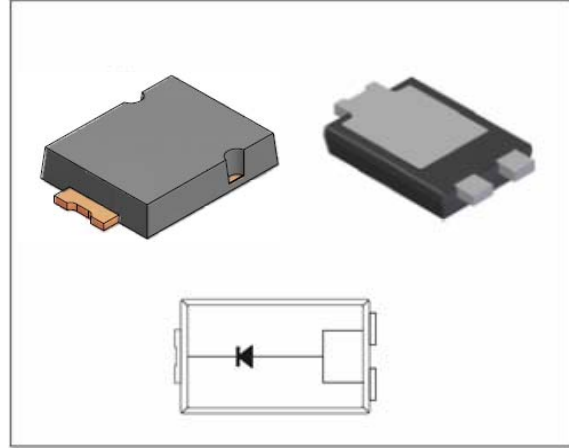
Reverse Voltage 45V Forward Current 10A

### 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
- \* S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.

### 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: 0.095 g  
Handling precaution:None



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

### 1.Electrical Characteristic

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

| Parameter Symbol                                                                                 | symbol          | S-SBR1045L  | Unit               |
|--------------------------------------------------------------------------------------------------|-----------------|-------------|--------------------|
| device marking code                                                                              |                 | S1045L      |                    |
| Maximum repetitive peak reverse voltage                                                          | $V_{RRM}$       | 45          | V                  |
| Maximum RMS voltage                                                                              | $V_{RMS}$       | 31.5        | V                  |
| Maximum DC blocking voltage                                                                      | $V_{DC}$        | 45          | V                  |
| Maximum average forward rectified current at $T_c = 75^\circ\text{C}$                            | $I_F(AV)$       | 10.0        | A                  |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$       | 300         | A                  |
| Typical thermal resistance (Note 1)                                                              | $R_{\theta JL}$ | 3           | $^\circ\text{C/W}$ |
|                                                                                                  | $R_{\theta JC}$ | 8           |                    |
|                                                                                                  | $R_{\theta JA}$ | 31          |                    |
| Typical thermal resistance (Note 2)                                                              | $R_{\theta JA}$ | 135         | $^\circ\text{C/W}$ |
| Operating junction temperature range                                                             | $T_J$           | -55 to +150 | $^\circ\text{C}$   |
| Storage temperature range                                                                        | $T_{STG}$       | -55 to +150 | $^\circ\text{C}$   |

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

| Parameter Symbol                                                                                           | symbol | S-SBR1045L | Unit |
|------------------------------------------------------------------------------------------------------------|--------|------------|------|
| Maximum instantaneous forward voltage at 10A at 25°C                                                       | $V_F$  | 0.47       | V    |
| Maximum DC reverse current $T_A = 25^\circ\text{C}$ at rated DC blocking voltage $T_j = 100^\circ\text{C}$ | $I_R$  | 0.3        | mA   |
|                                                                                                            |        | 15.0       |      |
| Typical junction capacitance at 4.0V, 1MHz                                                                 | $C_J$  | 500        | PF   |

NOTES:  
1. Polymide PCB, 2oz. Copper. Cathode pad dimensions 18.8mm x 14.4mm. Anode pad dimensions 5.6mm x 14.4mm.  
2.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 Curve

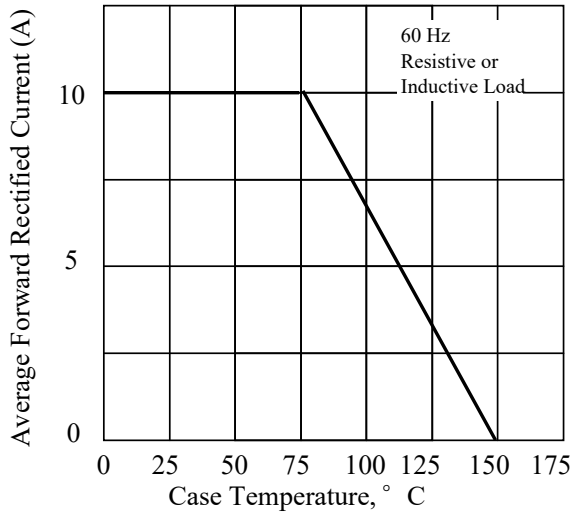


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

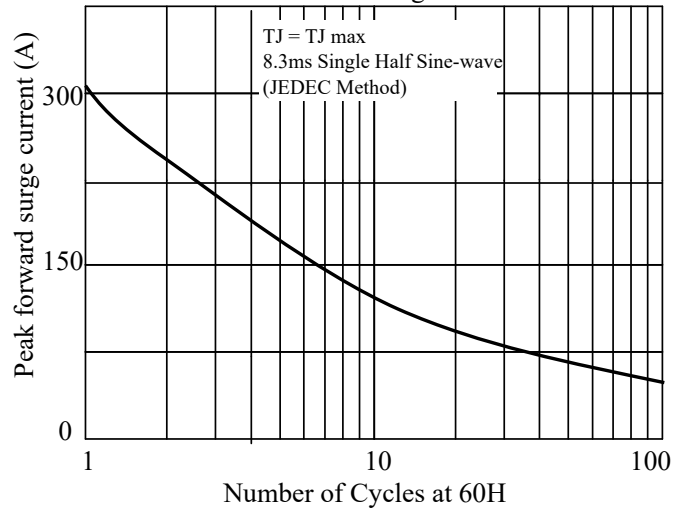


Fig 3. - Typical Instantaneous Forward Characteristics

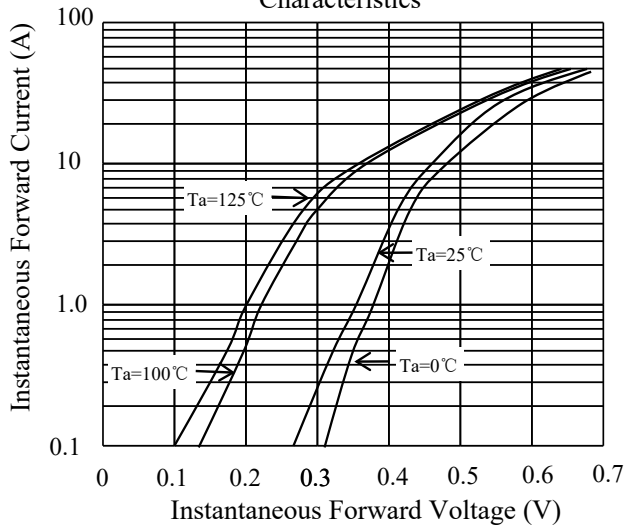


Fig 4. - Typical Reverse Characteristics

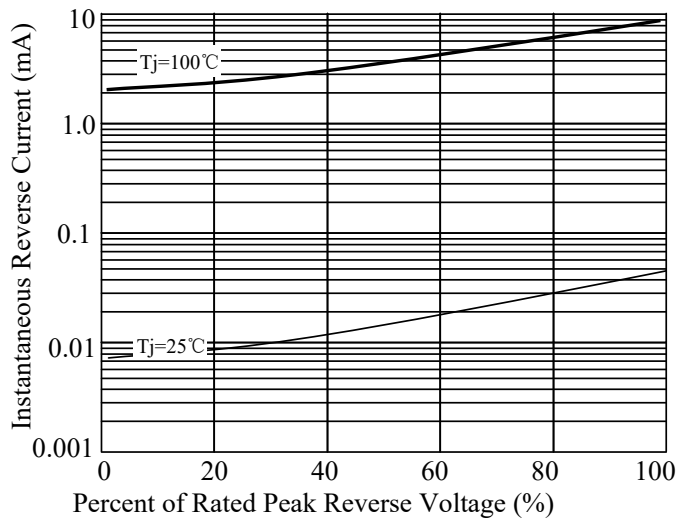


Fig 5. - typical transient thermal impedance (Note 2)

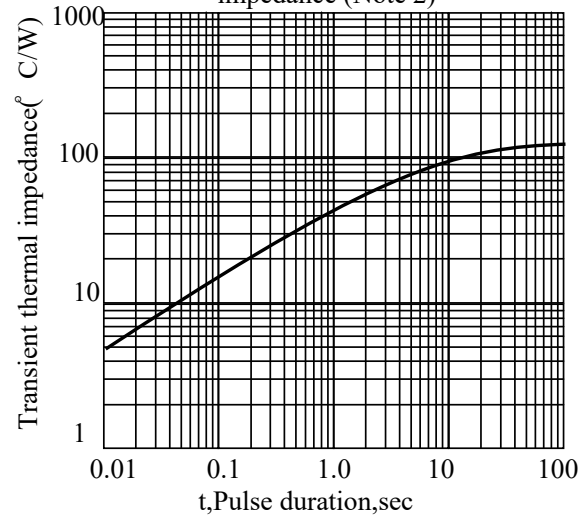
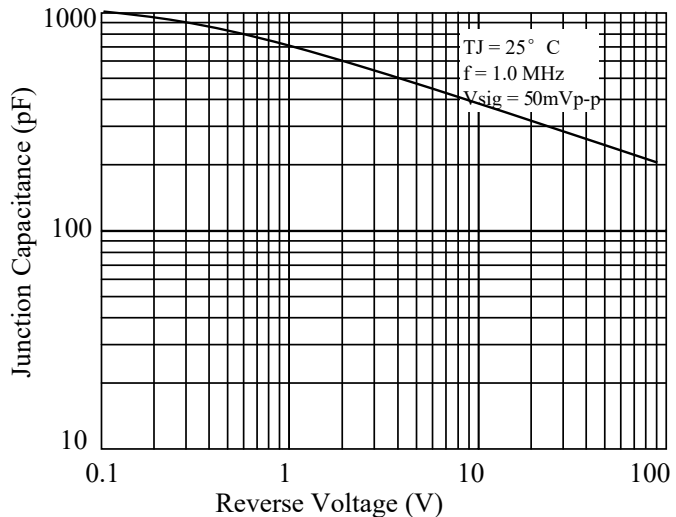


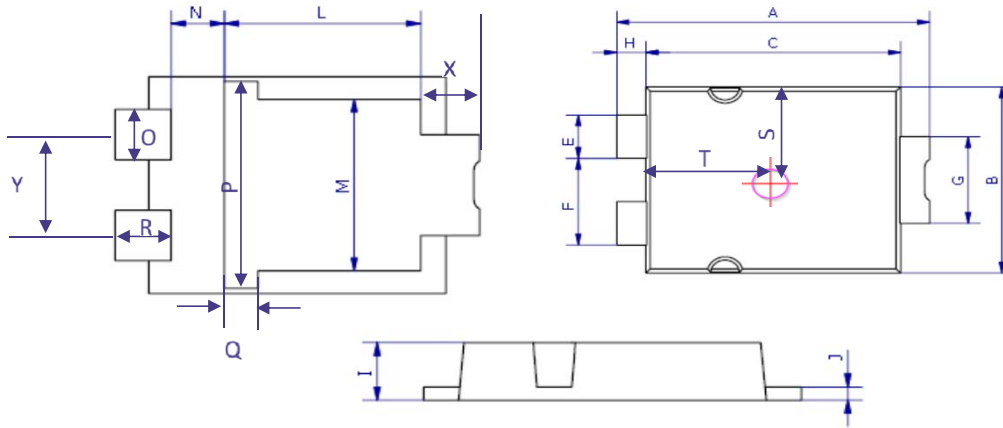
Fig 6. - Typical Junction Capacitance



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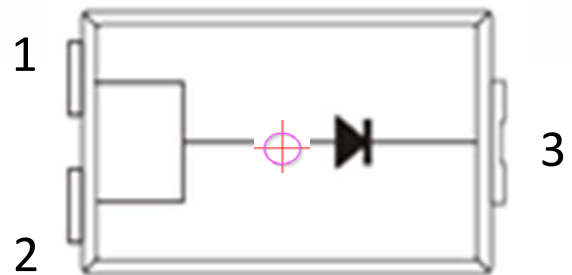
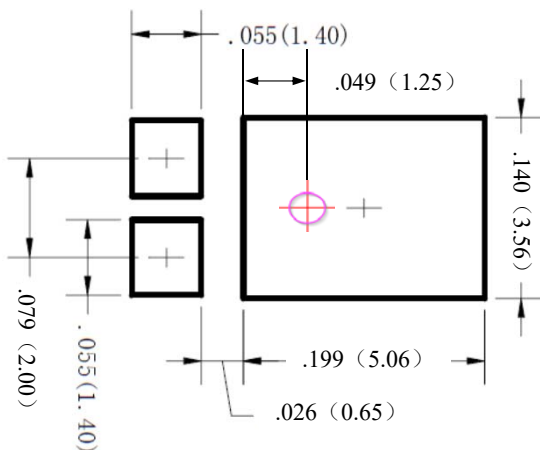
### 3. dimension:

#### 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 | 更新日期       |
|----|------------------|------|------------|
| 0  | 第一版              | 谭志伟  | 2020-11-24 |
| A  | 更新VF曲线           | 谭志伟  | 2022-09-21 |
| B  | 优化marking S1045L | 谭志伟  | 2022-12-16 |