

## TO-277 Plastic-Encapsulate Diodes

### Schottky Rectifier Diode

#### Features

- $I_{F(AV)}$  12A
- $V_{RRM}$  100 V
- High surge current capability
- Low peak forward voltage

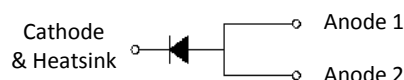
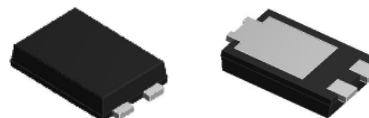
#### Applications

- Rectifier

#### Marking

- SB12100

TO-277



#### Limiting Values(Absolute Maximum Rating)

| Item                                 | Symbol      | Unit             | Test Conditions                                      | KSB12100   |
|--------------------------------------|-------------|------------------|------------------------------------------------------|------------|
| Repetitive Peak Reverse Voltage      | $V_{RRM}$   | V                |                                                      | 100        |
| Maximum RMS Voltage                  | $V_{RMS}$   | V                |                                                      | 105        |
| Average Forward Current              | $I_{F(AV)}$ | A                | 60Hz Half-sine wave, Resistance load, TL(Fig.1)      | 12         |
| Surge(Non-repetitive)Forward Current | $I_{FSM}$   | A                | 60Hz Half-sine wave, 1 cycle, $T_a=25^\circ\text{C}$ | 200        |
| Junction Temperature                 | $T_J$       | $^\circ\text{C}$ |                                                      | -55 ~ +150 |
| Storage Temperature                  | $T_{STG}$   | $^\circ\text{C}$ |                                                      | -55 ~ +150 |

#### Electrical Characteristics ( $T=25^\circ\text{C}$ Unless otherwise specified)

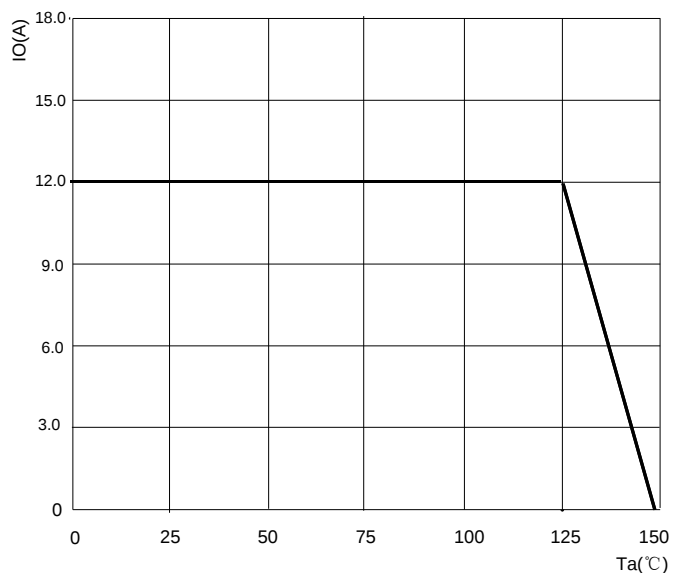
| Item                         | Symbol           | Unit               | Test Condition                        |                         | KSB12100  |           |
|------------------------------|------------------|--------------------|---------------------------------------|-------------------------|-----------|-----------|
| Peak Forward Voltage         | $V_F$            | V                  | $I_F=12.0\text{A}$                    | $T_a=25^\circ\text{C}$  | 0.76(TYP) | 0.85(MAX) |
|                              |                  |                    |                                       | $T_a=125^\circ\text{C}$ | 0.64(TYP) | 0.72(MAX) |
| Peak Reverse Current         | $I_{RRM1}$       | mA                 | $V_{RM}=V_{RRM}$                      | $T_a=25^\circ\text{C}$  | 0.02(TYP) | 0.08(MAX) |
|                              | $I_{RRM2}$       |                    |                                       | $T_a=125^\circ\text{C}$ | 10(TYP)   | 20(MAX)   |
| Thermal Resistance(Typical)  | $R_{\theta J-A}$ | $^\circ\text{C/W}$ | Between junction and ambient          |                         | 80        |           |
|                              | $R_{\theta J-L}$ |                    | Between junction and terminal         |                         | 5         |           |
| Typical junction capacitance | $C_J$            | nF                 | $V_R=4.0\text{ V}$ , $f=1\text{ MHz}$ |                         | 0.98      |           |

#### Notes:

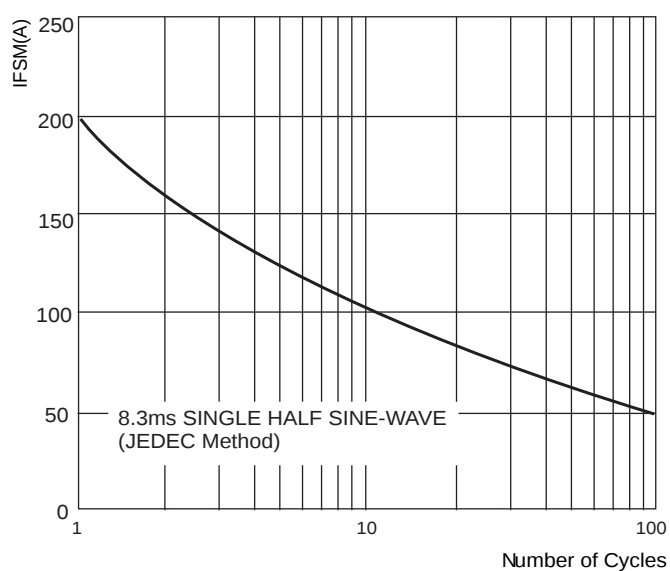
Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

## Typical Characteristics

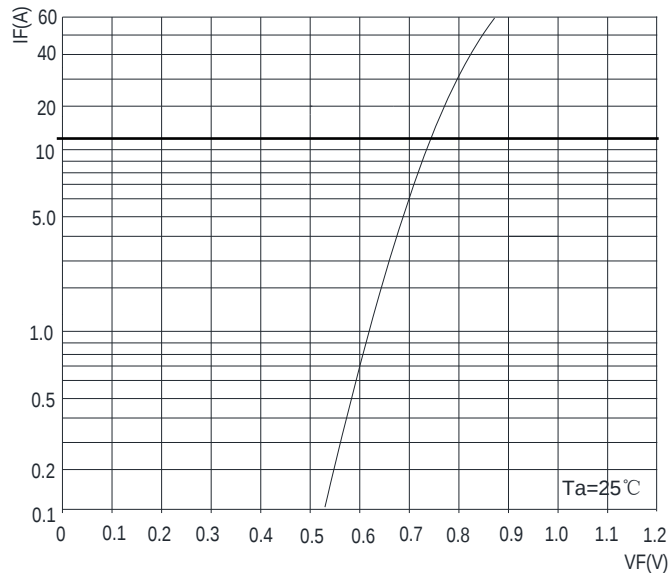
**FIG.1: FORWARD CURRENT DERATING CURVE**



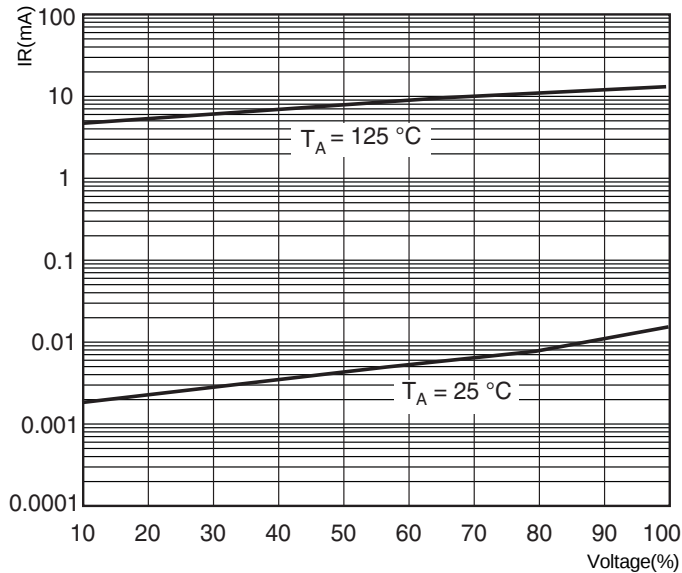
**FIG.2: MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT**



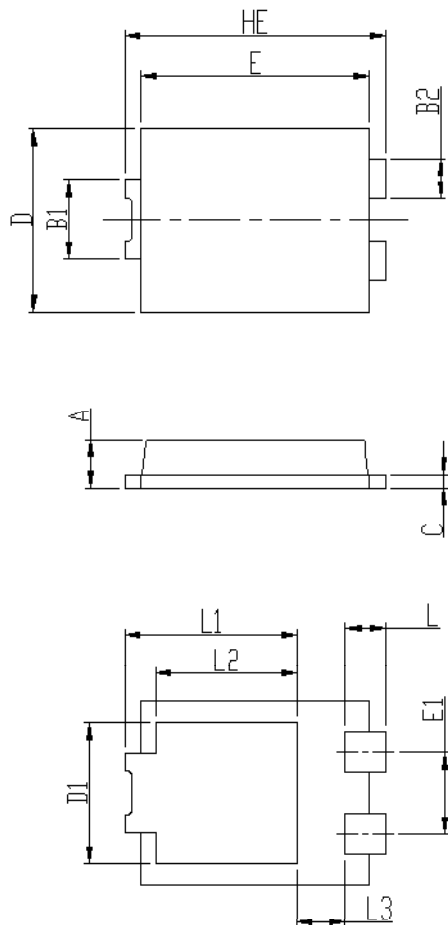
**FIG.3: INSTANTANEOUS FORWARD CHARACTERISTICS**



**FIG.4: TYPICAL REVERSE CHARACTERISTICS**

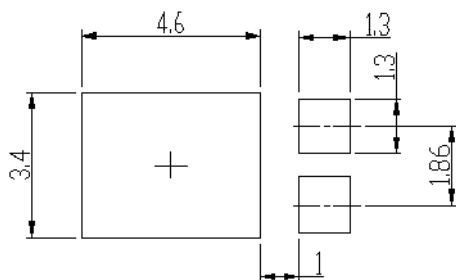


## TO- 277 Package Outline Dimensions



| DIM | Unit: mm  |     | Unit: inch |       |
|-----|-----------|-----|------------|-------|
|     | MIN       | MAX | MIN        | MAX   |
| HE  | 6.4       | 6.6 | 0.252      | 0.260 |
| E   | 5.6       | 5.8 | 0.220      | 0.228 |
| D   | 4.1       | 4.3 | 0.161      | 0.169 |
| B1  | 1.7       | 1.9 | 0.067      | 0.075 |
| B2  | 0.8       | 1   | 0.031      | 0.039 |
| A   | 1.05      | 1.2 | 0.041      | 0.047 |
| C   | 0.3       | 0.4 | 0.012      | 0.016 |
| L   | 0.85      | 1.1 | 0.033      | 0.043 |
| L1  | 4.2       | 4.4 | 0.165      | 0.173 |
| L2  | 3.52 Typ. |     | 0.139 Typ. |       |
| L3  | 1.1       | 1.4 | 0.043      | 0.055 |
| D1  | 3         | 3.3 | 0.118      | 0.130 |
| E1  | 1.86 Typ. |     | 0.073 Typ. |       |

## TO- 277 Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.