

## Features

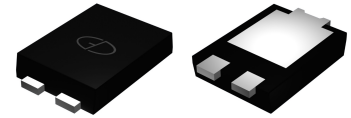
- Low profile - typical height 1.1 mm
- Low forward voltage drop
- Low leakage current
- Moisture sensitivity: level 1, per J-STD-020
- High temperature soldering guaranteed: 260°C/10 seconds
- Halogen-free according to IEC 61249-2-21 definition

## Applications

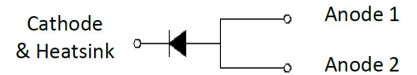
For low voltage high frequency inverters, DC/DC converters and polarity protection applications.

## Maximum Ratings (T<sub>A</sub> = 25°C unless otherwise noted)

| Parameter                                                                           | Symbol                            | Value       | Unit |
|-------------------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Maximum Repetitive Peak Reverse Voltage                                             | V <sub>RRM</sub>                  | 45          | V    |
| Maximum RMS Voltage                                                                 | V <sub>RMS</sub>                  | 31.5        | V    |
| Maximum DC Blocking Voltage                                                         | V <sub>DC</sub>                   | 45          | V    |
| Maximum Average Forward Rectified Current                                           | I <sub>F(AV)</sub>                | 15.0        | A    |
| Peak Forward Surge Current (8.3ms single half sine-wave superimposed on rated load) | I <sub>FSM</sub>                  | 300         | A    |
| Operating Junction and Storage Temperature Range                                    | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C   |



Package:  
eSGC (TO-277)



Schematic Diagram

## Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

| Parameter                                               | Test Conditions      |                       | Symbol                         | Typ. | Max. | Unit |
|---------------------------------------------------------|----------------------|-----------------------|--------------------------------|------|------|------|
| Maximum Instantaneous Forward Voltage                   | I <sub>F</sub> =1A   | T <sub>A</sub> =25°C  | V <sub>F</sub>                 | 0.30 | 0.35 | V    |
|                                                         | I <sub>F</sub> =2A   |                       |                                | 0.33 | 0.38 |      |
|                                                         | I <sub>F</sub> =15A  |                       |                                | 0.46 | 0.49 |      |
|                                                         | I <sub>F</sub> =1A   | T <sub>A</sub> =85°C  |                                | 0.23 | 0.28 |      |
|                                                         | I <sub>F</sub> =2A   |                       |                                | 0.26 | 0.32 |      |
|                                                         | I <sub>F</sub> =15A  |                       |                                | 0.44 | 0.47 |      |
|                                                         | I <sub>F</sub> =1A   | T <sub>A</sub> =125°C |                                | 0.18 | 0.22 |      |
|                                                         | I <sub>F</sub> =2A   |                       |                                | 0.22 | 0.25 |      |
|                                                         | I <sub>F</sub> =15A  |                       |                                | 0.43 | 0.46 |      |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | Rated V <sub>R</sub> | T <sub>A</sub> =25°C  | I <sub>R</sub>                 | 0.08 | 0.2  | mA   |
|                                                         |                      | T <sub>A</sub> =85°C  |                                | 3.5  | 8    |      |
|                                                         |                      | T <sub>A</sub> =125°C |                                | 25   | 35   |      |
| Typical Junction Capacitance                            | 4.0 V, 1 MHz         |                       | C <sub>J</sub>                 | 0.95 |      | nF   |
| Typical Thermal Resistance                              | Juntion to Lead      |                       | R <sub>θJL</sub> <sup>1)</sup> | 5    |      | °C/W |

Note 1) Thermal resistance R<sub>θJL</sub> is junction to lead, mounted on P.C.B with 30\*30mm copper pad area

## Ratings and Characteristics Curves ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

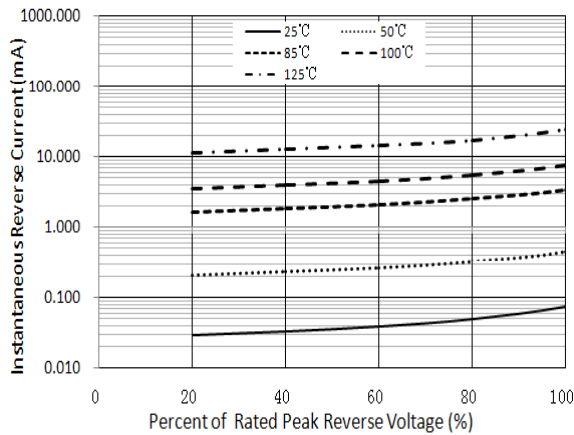


Figure 1. Typical Reverse Characteristics

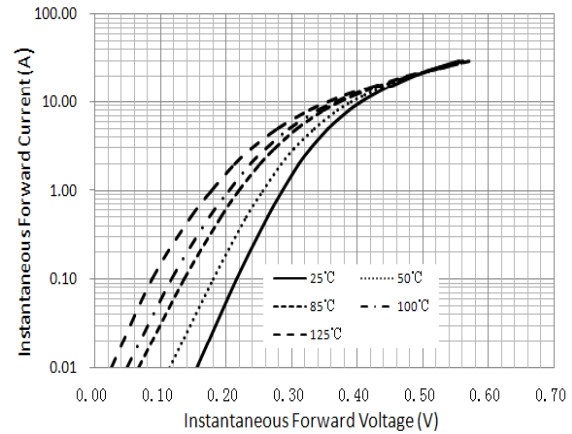


Figure 2. Typical Instantaneous Forward Characteristics

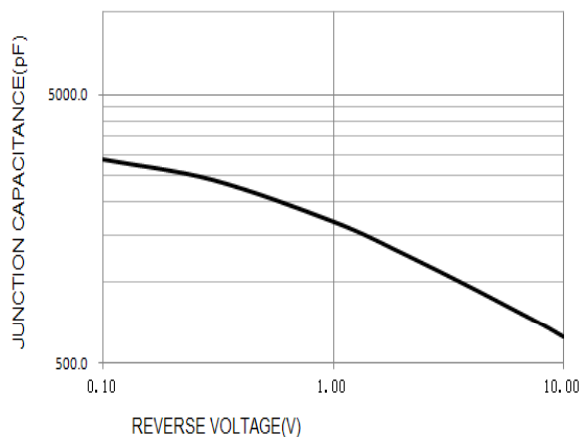


Figure 3. Typical Junction Capacitance

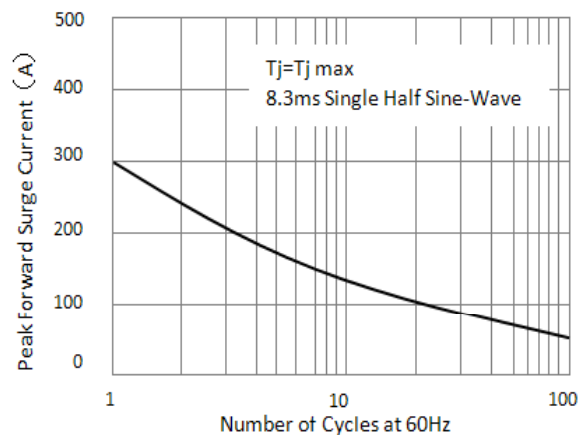


Figure 4. Maximum Non-Repetitive Peak Forward Surge Current

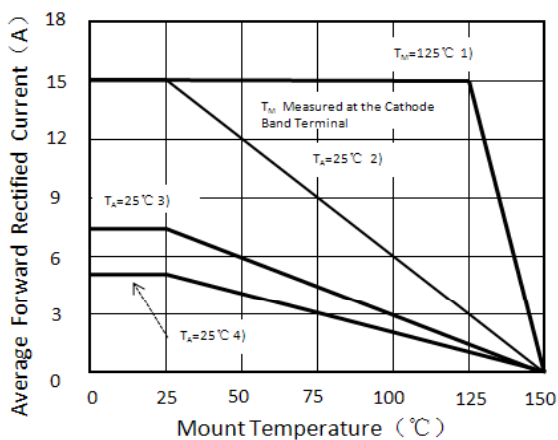
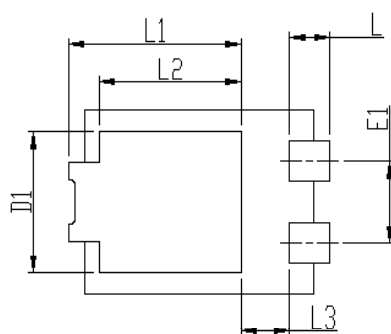
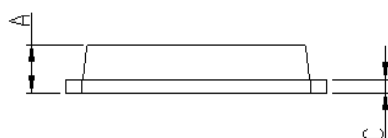
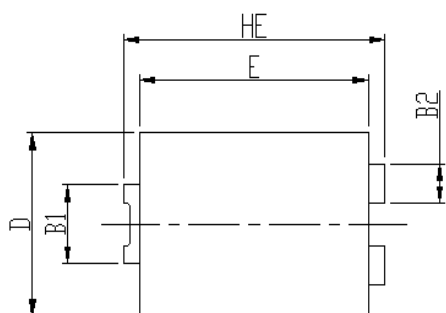


Figure 5. Forward Current Derating Curve

- 1) Mounted on P.C.B with 30\*30mm copper area
- 2) Mounted on P.C.B with 30\*30mm copper area ( $R_{\theta JA} = 28^\circ\text{C/W}$ )
- 3) Mounted on P.C.B with 30\*30mm copper area FR4 PCB ( $R_{\theta JA} = 39^\circ\text{C/W}$ )
- 4) Free air, Mounted on recommended copper area FR4 PCB ( $R_{\theta JA} = 85^\circ\text{C/W}$ )

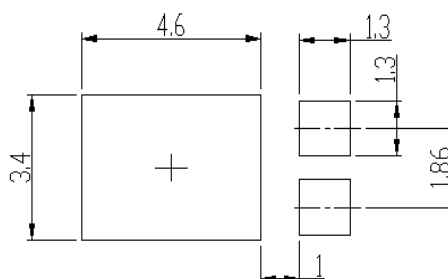
## Package Outline Dimensions

eSGC (TO-277)



| 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.  |

Soldering footprint



## Packing Information

### Packing quantities

5000 pcs/Reel, 12 mm Tape, 13" Reel

### Tape & Reel Specification

