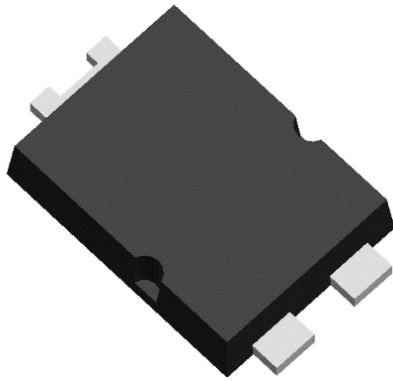


## Surface Mount Rectifier Diode

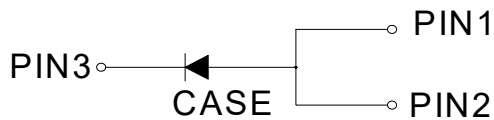


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

### Typical Applications

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.



### Mechanical Data

- **Package:** TO-277  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Color band denotes the cathode end

### ■Maximum Ratings (T<sub>j</sub>=25°C Unless otherwise specified)

| PARAMETER                                                                                     | SYMBOL           | UNIT             | MGS5M      |
|-----------------------------------------------------------------------------------------------|------------------|------------------|------------|
| Device marking code                                                                           |                  |                  | MGS5M      |
| Maximum Repetitive Peak Reverse Voltage                                                       | V <sub>RRM</sub> | V                | 1000       |
| Maximum RMS Voltage                                                                           | V <sub>RMS</sub> | V                | 700        |
| Maximum DC blocking Voltage                                                                   | V <sub>DC</sub>  | V                | 1000       |
| Average Rectified Output Current<br>@60Hz sine wave, Resistance load, T <sub>c</sub> (FIG.1)  | I <sub>O</sub>   | A                | 5.0        |
| Forward Surge Current (Non-repetitive)<br>@60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C | I <sub>FSM</sub> | A                | 140        |
| Forward Surge Current (Non-repetitive)<br>@1ms, square wave, 1 cycle, T <sub>j</sub> =25°C    |                  |                  | 240        |
| Current squared time<br>@1ms≤t≤8.3ms T <sub>j</sub> =25°C                                     | I <sup>2</sup> t | A <sup>2</sup> s | 81.34      |
| Typical Junction capacitance @4V, 1MHz                                                        | C <sub>j</sub>   | pF               | 32         |
| Storage Temperature                                                                           | T <sub>stg</sub> | °C               | -55 ~ +150 |
| Junction Temperature                                                                          | T <sub>j</sub>   | °C               | -55 ~ +150 |



## MGS5M

### ■ Electrical Characteristics (T<sub>j</sub>=25°C Unless otherwise specified)

| PARAMETER                                                 | SYMBOL            | UNIT | TEST CONDITIONS       |                                   | Min | Typ  | Max |
|-----------------------------------------------------------|-------------------|------|-----------------------|-----------------------------------|-----|------|-----|
| Instantaneous forward voltage drop per diode              | V <sub>FM</sub>   | V    | T <sub>j</sub> =25°C  | I <sub>FM</sub> =5.0A             | -   | 0.95 | 1.1 |
|                                                           |                   |      | T <sub>j</sub> =125°C |                                   | -   | 0.84 | 1.0 |
| DC reverse current at rated DC blocking voltage per diode | I <sub>RRM1</sub> | uA   | T <sub>j</sub> =25°C  | V <sub>RM</sub> =V <sub>RRM</sub> | -   | -    | 5   |
|                                                           | I <sub>RRM2</sub> |      | T <sub>j</sub> =125°C |                                   | -   | -    | 500 |

### ■ Thermal Characteristics (T<sub>j</sub>=25°C Unless otherwise specified)

| PARAMETER                  | SYMBOL                          | UNIT | MGS5M |
|----------------------------|---------------------------------|------|-------|
| Typical Thermal resistance | R <sub>θJA</sub> <sup>(1)</sup> | °C/W | 90    |
|                            | R <sub>θJC</sub> <sup>(1)</sup> |      | 10    |

### ■ Ordering Information (Example)

| PREFERRED P/N | PACKAGE CODE | UNIT WEIGHT(g)     | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|--------------------|----------------------|-------------------------|----------------------------|---------------|
| MGS5M         | F1           | Approximate 0.0821 | 5000                 | /                       | 80000                      | 13" reel      |

### ■ Characteristics (Typical)

FIG.1: I<sub>o</sub>-T<sub>c</sub> Curve

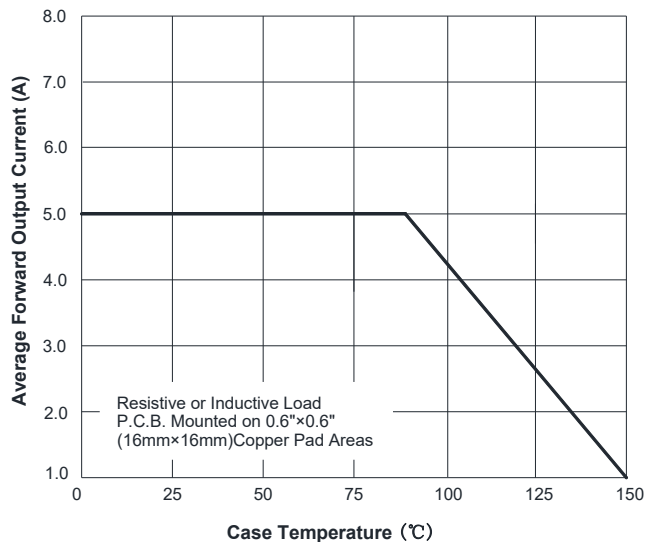


FIG2: Surge Forward Current Capability

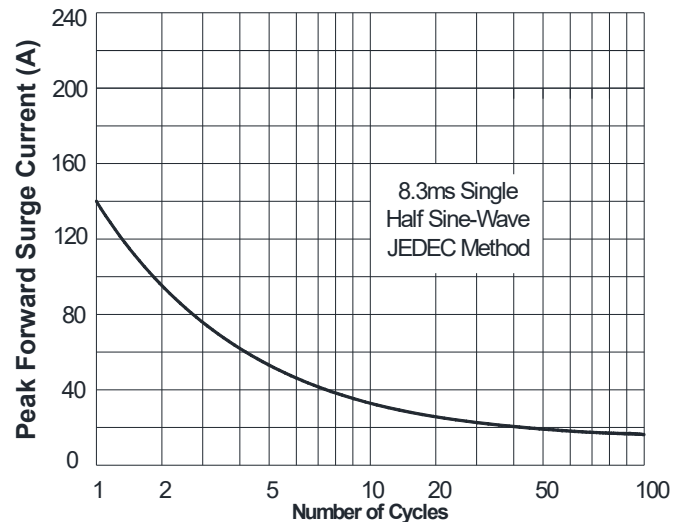


FIG.3: Typ.Forward Voltage

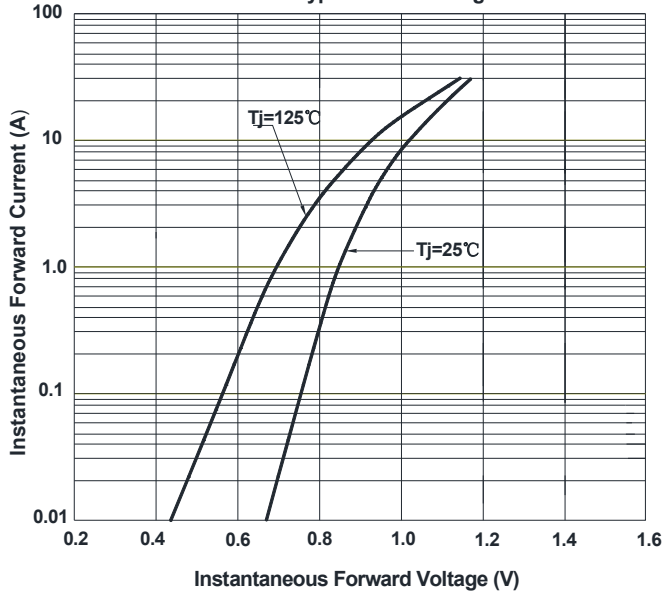
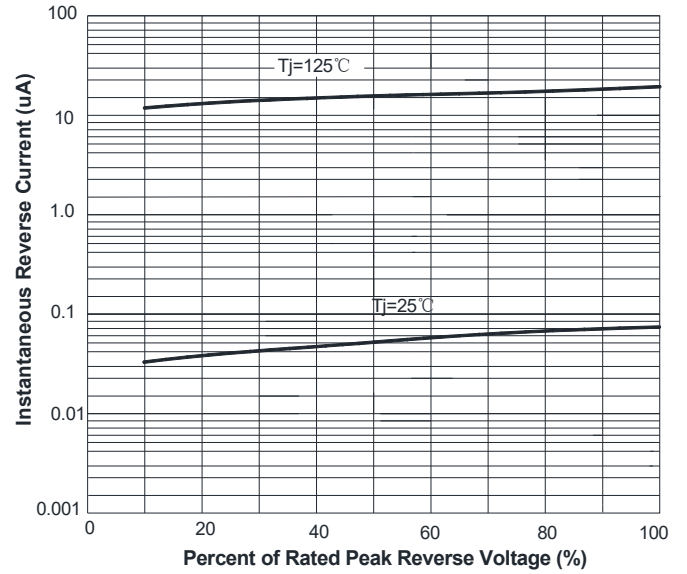
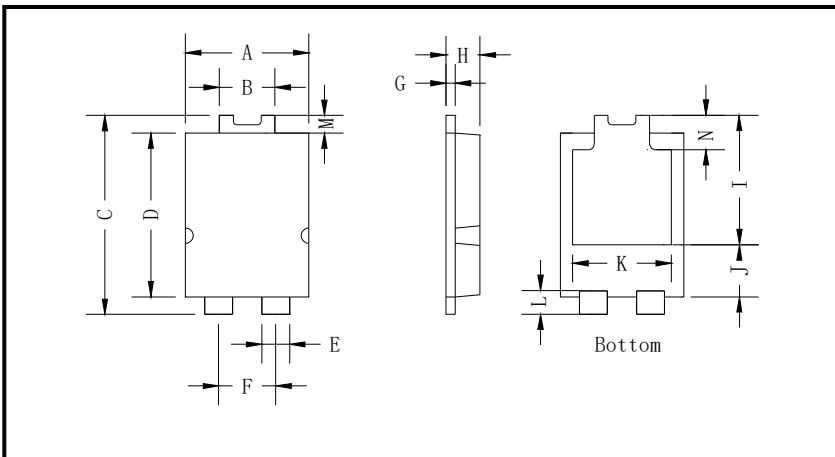


FIG.4: Typical Reverse Characteristics

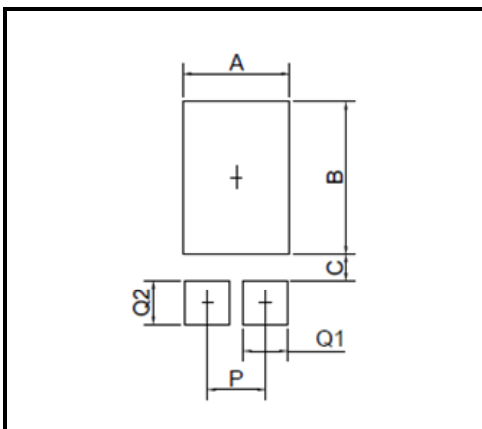


## ■ Outline Dimensions



| DIM | mm        |      |
|-----|-----------|------|
|     | MIN.      | MAX. |
| A   | 3.90      | 4.10 |
| B   | 1.70      | 1.90 |
| C   | 6.40      | 6.60 |
| D   | 5.30      | 5.50 |
| E   | 0.80      | 1.00 |
| F   | 1.85 ref. |      |
| G   | 0.35      | 0.45 |
| H   | 1.10      | 1.20 |
| I   | 4.10      | 4.50 |
| J   | 1.50      | 1.90 |
| K   | 2.90      | 3.40 |
| L   | 0.55      | 0.75 |
| M   | 0.50 ref. |      |
| N   | 1.15 ref. |      |

## ■ Suggested pad layout



| DIM | MIN.(mm) |
|-----|----------|
| A   | 3.36     |
| B   | 4.86     |
| C   | 0.85     |
| P   | 1.84     |
| Q1  | 1.40     |
| Q2  | 1.40     |



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