

**GS8A THRU GS8M**  
General Purpose Rectifiers



**Voltage:** 50~1000 Volts

**Current:** 8.0 Amperes

**Package:** SMC

**Features**

- NH'S Standard Rectifier Chip Technology
- Low Forward Voltage Drop For High Efficiency
- Low Leakage Current For High Reliability
- High Surge Capability For High Reliability

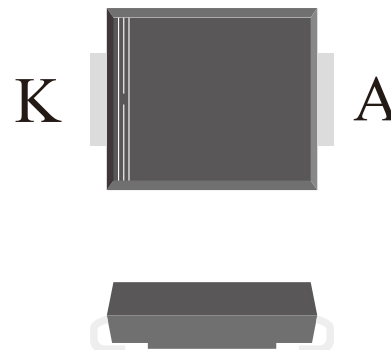
**Mechanical Data**

- **Case:** Molded With UL-94 ClassV-0 Recognized, RoHS-Compliant
- **Polarity:** Look At The Diagram And Polarity On The Right
- **Terminals:** Tin Plated Leads,Solderable Per J-STD-002 And JESD22-B102

**Typical Applications**

- Switch Mode Power Supplies (SMPS)
- Fast Chargers
- LED Driver And Monitor Lighting
- Automotive Electronics And Charging Posts

**Diagram:**



**Polarity:**



Single Phase,Half Wave,60Hz,Resistive Or Inductive Load.For Capacitive Load,Derate Current By 20%

**Maximum Ratings (Ta=25°C Unless Otherwise Specified)**

| Parameter                                 | Test Conditions                                       | Symbol      | GS 8A | GS 8B | GS 8D | GS 8G | GS 8J | GS 8K | GS 8M | Unit               |
|-------------------------------------------|-------------------------------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|--------------------|
| Maximum Repetitive Peak Reverse Voltage   |                                                       | $V_{RRM}$   | 50    | 100   | 200   | 400   | 600   | 800   | 1000  | V                  |
| Maximum RMS Voltag                        |                                                       | $V_{RMS}$   | 35    | 70    | 140   | 280   | 420   | 560   | 700   | V                  |
| Maximum DC Blocking Voltage               |                                                       | $V_{DC}$    | 50    | 100   | 200   | 400   | 600   | 800   | 1000  | V                  |
| Maximum Average Forward Rectified Current |                                                       | $I_{F(AV)}$ | 8.0   |       |       |       |       |       |       | A                  |
| Peak Forward Surge Current                | 8.3ms Single Half Sine-wave Superimposed On Rate Load | $I_{FSM}$   | 200   |       |       |       |       |       |       | A                  |
| Current Squared Time                      | $t < 8.3ms$                                           | $I^2t$      | 166.0 |       |       |       |       |       |       | A <sup>2</sup> sec |

**Electrical Characteristics (Ta=25°C Unless Otherwise Specified)**

| Parameter                                               | Test Conditions                                              | Symbol    | GS 8A    | GS 8B | GS 8D | GS 8G | GS 8J | GS 8K | GS 8M | Unit     |
|---------------------------------------------------------|--------------------------------------------------------------|-----------|----------|-------|-------|-------|-------|-------|-------|----------|
| Maximum Instantaneous Forward Voltage                   | $I_F = 8.0 A$                                                | $V_F$     | 1.1      |       |       |       |       |       |       | V        |
| Maximum DC Reverse Current at Rated DC Blocking Voltage | Ta=25°C, $V_R = V_{RRM}$<br>Ta=125°C, $V_R = V_{RRM} * 80\%$ | $I_{RRM}$ | 5<br>200 |       |       |       |       |       |       | uA<br>uA |
| Typical Junction Capacitance                            | 4 V,1MHz                                                     | $C_J$     | 50       |       |       |       |       |       |       | pF       |

**Thermal Characteristics (Ta=25°C Unless Otherwise Specified)**

| Parameter                                                   | Test Conditions                                        | Symbol           | GS<br>8A | GS<br>8B | GS<br>8D | GS<br>8G | GS<br>8J | GS<br>8K | GS<br>8M | Unit |
|-------------------------------------------------------------|--------------------------------------------------------|------------------|----------|----------|----------|----------|----------|----------|----------|------|
| Operating Junction Temperature Range                        |                                                        | T <sub>J</sub>   | -55~150  |          |          |          |          |          |          | ℃    |
| Storage Temperature Range                                   |                                                        | T <sub>STD</sub> | -55~150  |          |          |          |          |          |          |      |
| Thermal Resistance Junction To Ambient<br>With Steady-State | Still Air Environment<br>With Ta=25℃                   | R <sub>θJA</sub> | 40.0     |          |          |          |          |          |          | ℃/W  |
| Thermal Resistance Junction-Case<br>With Steady-State       | Device Mounted On<br>1 in2 FR-4 Board With 2oz. Copper | R <sub>θJC</sub> | 9.0      |          |          |          |          |          |          |      |

Notes: 1.Pulse Test: 300 Us Pulse Width,1% Duty Cycle

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Typical Characteristics Curves

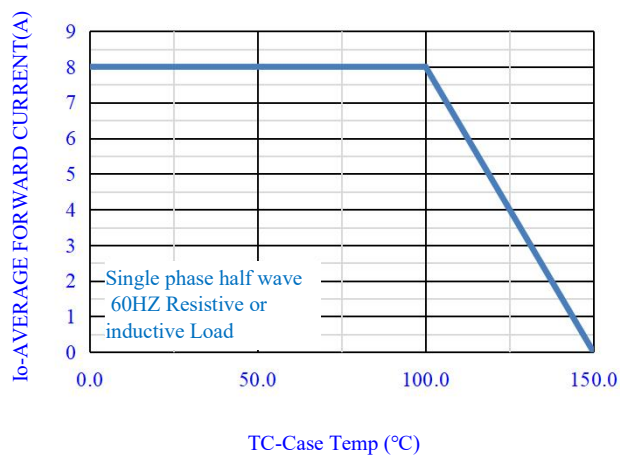


Fig.1-FORWARD CURRENT DERATING CURVE

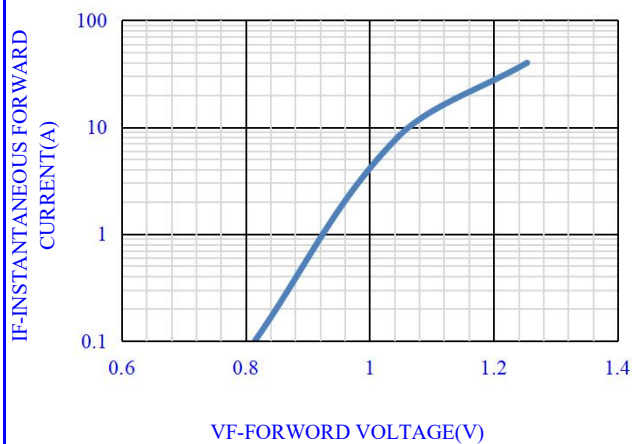


Fig.2- TYPICAL INSTANTANEOUS FORWARD

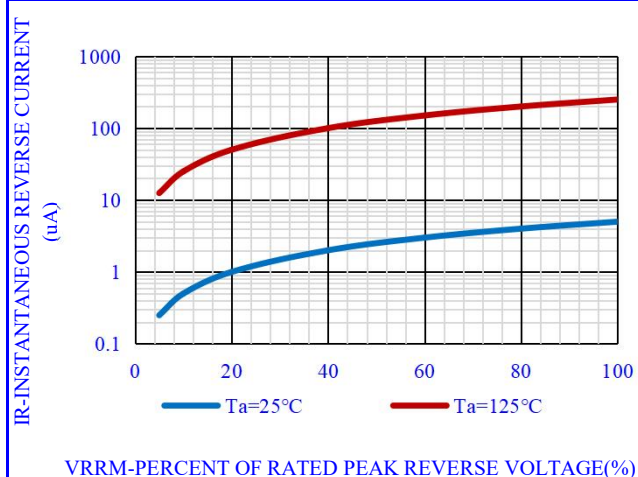


Fig.3- TYPICAL REVERSE CHARACTERISTICS

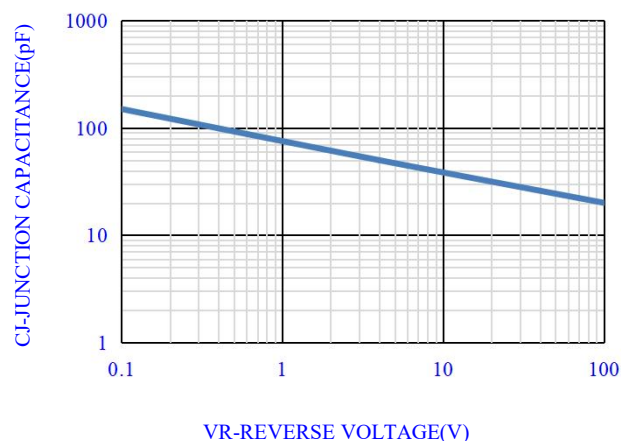


Fig.4- TYPICAL JUNCTION CAPACITANCE

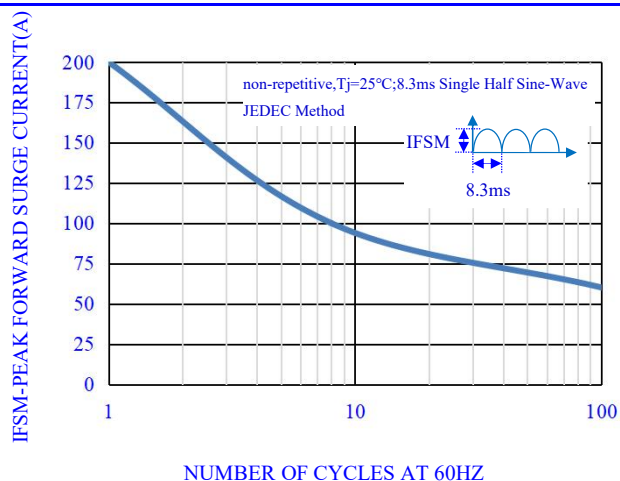
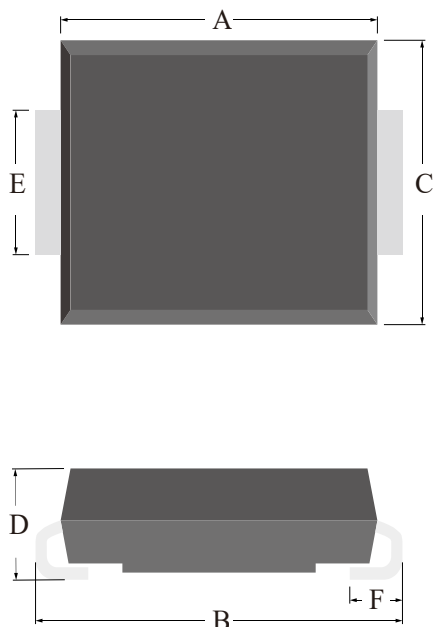


Fig.5-MAX. NON-REPETITIVE SURGE CURRENT

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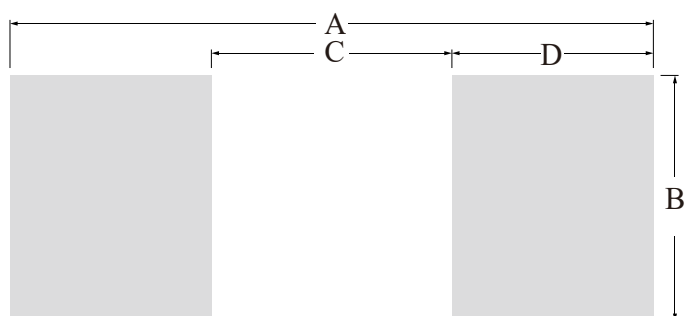
**OUTLINE DRAWINGS**



**SMC**

| OUTLINE DIMENSIONS |            |      |      |        |      |        |
|--------------------|------------|------|------|--------|------|--------|
| Dim.               | Milimeters |      |      | Inches |      |        |
|                    | Min.       | Typ. | Max. | Min.   | Typ. | Max.   |
| A                  | 6.60       | -    | 7.11 | 0.2598 | -    | 0.2799 |
| B                  | 7.75       | -    | 8.13 | 0.3051 | -    | 0.3201 |
| C                  | 5.59       | -    | 6.22 | 0.2201 | -    | 0.2449 |
| D                  | 2.00       | -    | 2.62 | 0.0787 | -    | 0.1031 |
| E                  | 2.75       | -    | 3.25 | 0.1083 | -    | 0.1280 |
| F                  | 0.76       | -    | 1.52 | 0.0299 | -    | 0.0598 |

**RECOMMENDED LAYOUT DRAWINGS**



**SMC**

| OUTLINE DIMENSIONS |            |      |      |        |        |      |
|--------------------|------------|------|------|--------|--------|------|
| Dim.               | Milimeters |      |      | Inches |        |      |
|                    | Min.       | Typ. | Max. | Min.   | Typ.   | Max. |
| A                  | -          | 9.90 | -    | -      | 0.3898 | -    |
| B                  | -          | 3.82 | -    | -      | 0.1504 | -    |
| C                  | -          | 3.84 | -    | -      | 0.1512 | -    |
| D                  | -          | 3.03 | -    | -      | 0.1193 | -    |

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MARKING



MARKING INSTRUCTION

NH=Niuhang Trademark  
FF=Product Line Code,According To Actual Changes  
YWW=Date Code,According To Actual Changes  
GS8x=Model,x=A,B,D,G,J,K,M  
White band denotes cathode

PACKING INFORMATION

| Package Type | Package Code | Product Weight<br>Approx(g/Pcs) | Package Method | Quantity<br>(Pcs/Min. Pack.) | Quantity<br>(Pcs/Inner Box) | Quantity<br>(Pcs/Carton) |
|--------------|--------------|---------------------------------|----------------|------------------------------|-----------------------------|--------------------------|
| SMC          | P1           | 0.254                           | Tape & Reel    | 3000                         | 6000                        | 48000                    |
| SMC          | P2           | 0.254                           | Tape & Reel    | 3000                         | 6000                        | 60000                    |

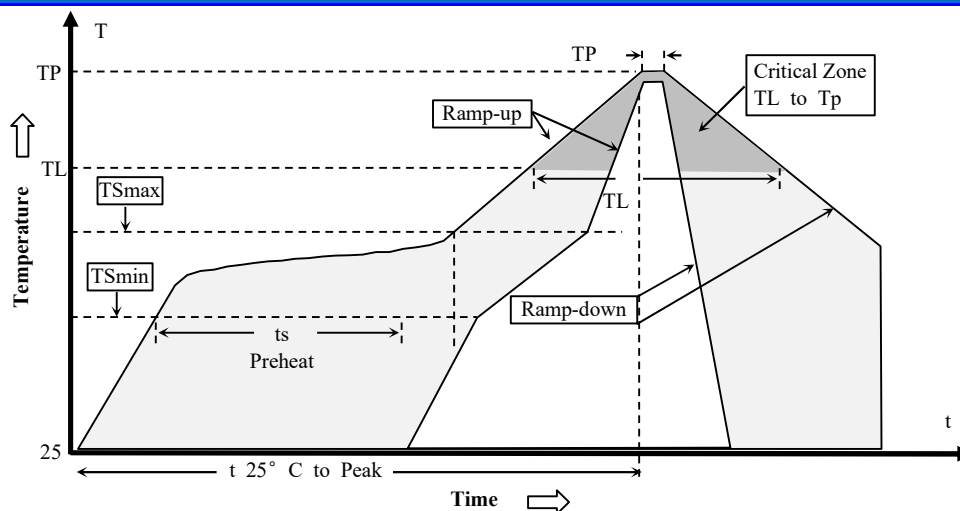
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**Recommended wave soldering condition**

| Product         | Peak Temperature | Soldering Time  |
|-----------------|------------------|-----------------|
| Pb-free devices | 260 +0/-5 °C     | 5 +1/-1 seconds |

**Recommended temperature profile for IR reflow**



| Profile feature                                                                            | Sn-Pb eutectic Assembly          | Pb-free Assembly                 |
|--------------------------------------------------------------------------------------------|----------------------------------|----------------------------------|
| Average ramp-up rate<br>(T <sub>smax</sub> to T <sub>p</sub> )                             | 3°C/second max.                  | 3°C/second max.                  |
| Preheat<br>-Temperature Min(TS min)<br>-Temperature Max(TS max)<br>-Time(ts min to ts max) | 100°C<br>150°C<br>60-120 seconds | 150°C<br>200°C<br>60-180 seconds |
| Time maintained above:<br>-Temperature (TL)<br>- Time (tL)                                 | 183°C<br>60-150 seconds          | 217°C<br>60-150 seconds          |
| Peak Temperature(TP)                                                                       | 240 +0/-5 °C                     | 260 +0/-5 °C                     |
| Time within 5°C of actual peak<br>temperature(tp)                                          | 10-30 seconds                    | 20-40 seconds                    |
| Ramp down rate                                                                             | 6°C/second max.                  | 6°C/second max.                  |
| Time 25 °C to peak temperature                                                             | 6 minutes max.                   | 8 minutes max.                   |

Note : All temperatures refer to topside of the package, measured on the package body surface.

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