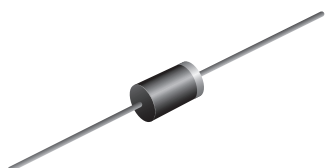


## Glass Passivated Junction Fast Switching Rectifier

**SUPERECTIFIER®**

**DO-204AC (DO-15)**

### FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For general purpose of medium frequency rectification.

### MECHANICAL DATA

**Case:** DO-204AC, molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade  
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102  
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

### PRIMARY CHARACTERISTICS

|                 |                                                 |
|-----------------|-------------------------------------------------|
| $I_{F(AV)}$     | 1.0 A                                           |
| $V_{RRM}$       | 50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$       | 30 A                                            |
| $t_{rr}$        | 750 ns                                          |
| $I_R$           | 10 $\mu$ A                                      |
| $V_F$           | 1.2 V                                           |
| $T_J$ max.      | 175 °C                                          |
| Package         | DO-204AC (DO-15)                                |
| Diode variation | Single die                                      |

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

| PARAMETER                                                                              | SYMBOL         | GI810         | GI811 | GI812 | GI814 | GI816 | GI817 | GI818 | UNIT |
|----------------------------------------------------------------------------------------|----------------|---------------|-------|-------|-------|-------|-------|-------|------|
| Maximum repetitive peak reverse voltage                                                | $V_{RRM}$      | 50            | 100   | 200   | 400   | 600   | 800   | 1000  | V    |
| Maximum RMS voltage                                                                    | $V_{RMS}$      | 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 0.375" (9.5 mm) lead length at $T_A = 75$ °C | $I_{F(AV)}$    | 1.0           |       |       |       |       |       |       | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load     | $I_{FSM}$      | 30            |       |       |       |       |       |       | A    |
| Operating junction and storage temperature range                                       | $T_J, T_{STG}$ | - 65 to + 175 |       |       |       |       |       |       | °C   |

### ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)

| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                                                |                         |                 |       |       |       |       |       |       |       |      |
|----------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------|-----------------|-------|-------|-------|-------|-------|-------|-------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                |                         | SYMBOL          | GI810 | GI811 | GI812 | GI814 | GI816 | GI817 | GI818 | UNIT |
| Maximum instantaneous forward voltage                                      | 1.0 A                                                          |                         | V <sub>F</sub>  | 1.2   |       |       |       |       |       |       | V    |
| Maximum DC reverse current at rated DC blocking voltage                    |                                                                | T <sub>A</sub> = 25 °C  | I <sub>R</sub>  | 10    |       |       |       |       |       |       | μA   |
|                                                                            |                                                                | T <sub>A</sub> = 100 °C |                 | 100   |       |       |       |       |       |       |      |
| Maximum reverse recovery time                                              | I <sub>F</sub> = 1.0 A, V <sub>R</sub> = 30 V, dI/dt = 50 A/μs |                         | t <sub>rr</sub> | 750   |       |       |       |       |       |       | ns   |
| Typical junction capacitance                                               | 4.0 V, 1 MHz                                                   |                         | C <sub>J</sub>  | 25    |       |       |       |       |       |       | pF   |

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                  | SYMBOL                | GI810 | GI811 | GI812 | GI814 | GI816 | GI817 | GI818 | UNIT                        |
|----------------------------|-----------------------|-------|-------|-------|-------|-------|-------|-------|-----------------------------|
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 45    |       |       |       |       |       |       | $^{\circ}\text{C}/\text{W}$ |

**Note**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

**ORDERING INFORMATION** (Example)

| PREFERRED P/N              | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
|----------------------------|-----------------|------------------------|---------------|----------------------------------|
| GI816-E3/54                | 0.425           | 54                     | 4000          | 13" diameter paper tape and reel |
| GI816-E3/73                | 0.425           | 73                     | 2000          | Ammo pack packaging              |
| GI816HE3/54 <sup>(1)</sup> | 0.425           | 54                     | 4000          | 13" diameter paper tape and reel |
| GI816HE3/73 <sup>(1)</sup> | 0.425           | 73                     | 2000          | Ammo pack packaging              |

**Note**

(1) AEC-Q101 qualified

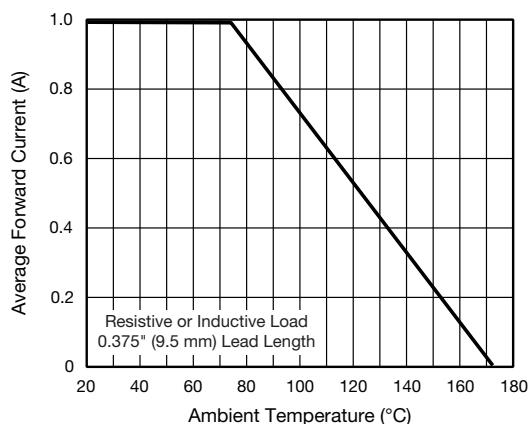
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

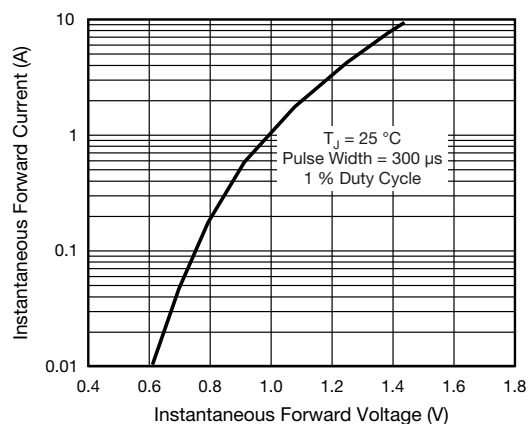


Fig. 3 - Typical Instantaneous Forward Characteristics

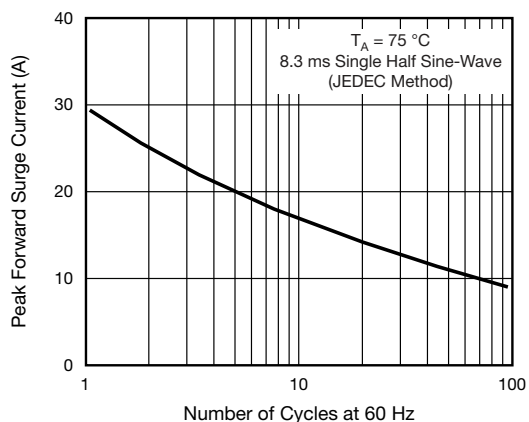


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

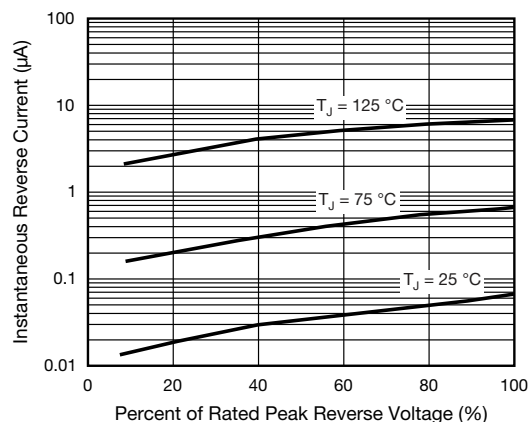


Fig. 4 - Typical Reverse Characteristics

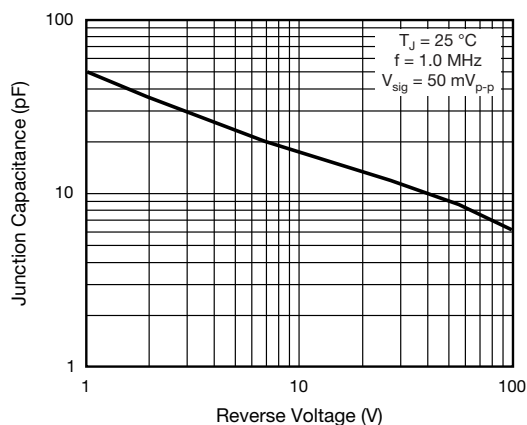


Fig. 5 - Typical Junction Capacitance

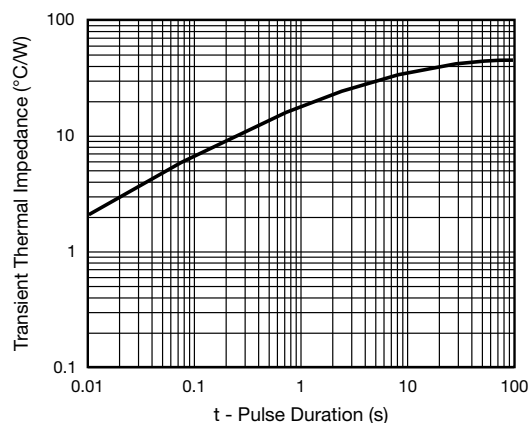
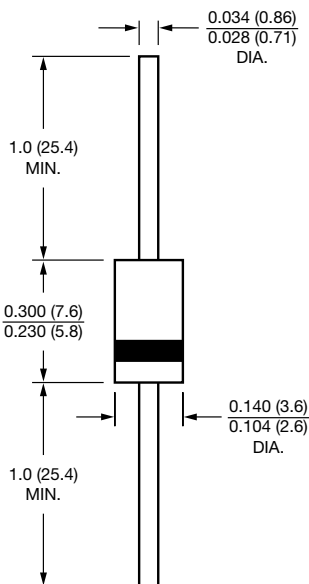


Fig. 6 - Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-204AC (DO-15)**




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