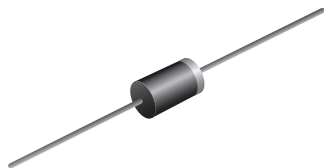




Miniature Clamper / Damper Glass Passivated Rectifier

SUPERECTIFIER®



DO-15 (DO-204AC)

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Typical I_R less than 0.1 μA
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



PRIMARY CHARACTERISTICS

| | |
|-----------------------|------------------|
| $I_{F(AV)}$ | 1.5 A |
| V_{RRM} | 1650 V |
| I_{FSM} | 40 A |
| t_{rr} | 1500 ns |
| I_R | 5.0 μA |
| V_F | 1.6 V |
| T_J max. | 175 °C |
| Package | DO-15 (DO-204AC) |
| Circuit configuration | Single |

TYPICAL APPLICATIONS

For use in high voltage rectification of power supplies, inverters, converters and freewheeling diodes specially designed for clamping circuits, horizontal deflection systems and damper applications.

MECHANICAL DATA

Case: DO-15 (DO-204AC), molded epoxy over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: color band denotes cathode end

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

| PARAMETER | SYMBOL | BY448GP | UNIT |
|---|----------------|-------------|---------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 1650 | V |
| Maximum RMS voltage | V_{RMS} | 1150 | V |
| Maximum DC blocking voltage | V_{DC} | 1650 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 50$ °C | $I_{F(AV)}$ | 1.5 | A |
| Peak forward surge current 8.3 ms single half sine wave superimposed on rated load | I_{FSM} | 40 | A |
| Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at $T_A = 100$ °C | $I_{R(AV)}$ | 50 | μA |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +175 | °C |

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

| PARAMETER | TEST CONDITIONS | SYMBOL | BY448GP | UNIT |
|---------------------------------------|--|-------------|---------|---------------|
| Maximum instantaneous forward voltage | $I_F = 3.0\text{ A}$ | $V_F^{(1)}$ | 1.6 | V |
| Maximum reverse current | $V_R = 1650\text{ V}$ | I_R | 5.0 | μA |
| | $T_A = 100\text{ }^{\circ}\text{C}$ | | 100 | |
| Maximum reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 50\text{ mA}$ | t_{rr} | 20 | μs |
| Reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | typical | 0.5 | μs |
| | | maximum | 1.5 | |
| Typical junction capacitance | 4.0 V, 1 MHz | C_J | 15 | pF |

Note

⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle

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

| PARAMETER | SYMBOL | BY448GP | UNIT |
|----------------------------|-----------------------|---------|----------------------|
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 55 | $^{\circ}\text{C/W}$ |

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 |
|---------------|-----------------|------------------------|---------------|----------------------------------|
| BY448GP-E3/54 | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| BY448GP-E3/73 | 0.425 | 73 | 2000 | Ammo pack packaging |

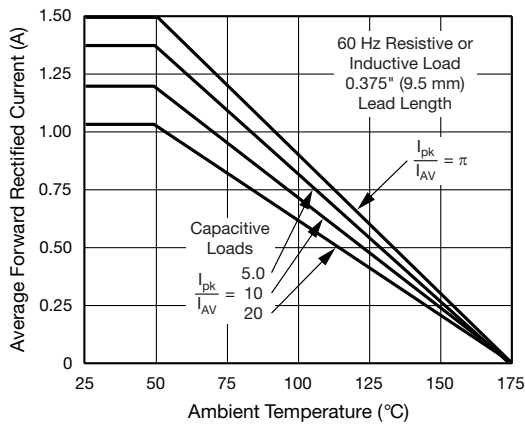
**RATINGS AND CHARACTERISTICS CURVES** ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

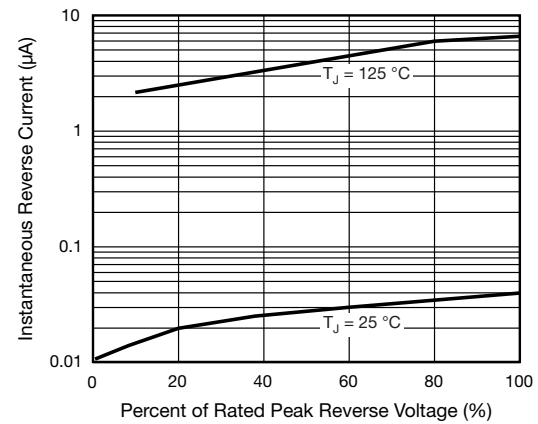


Fig. 4 - Typical Reverse Characteristics

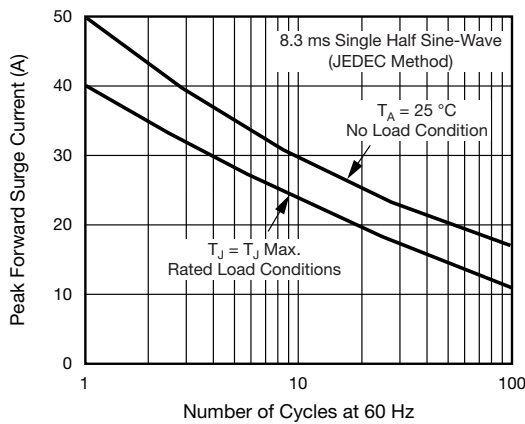


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

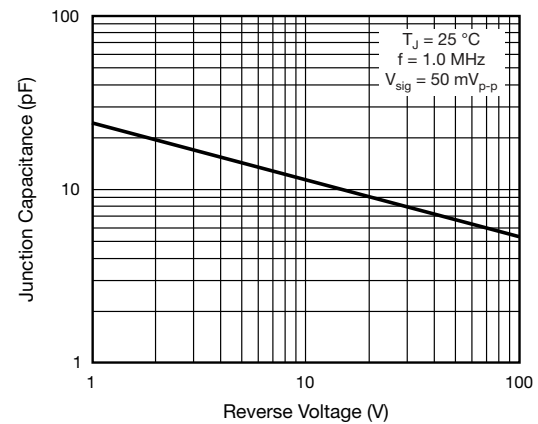


Fig. 5 - Typical Junction Capacitance

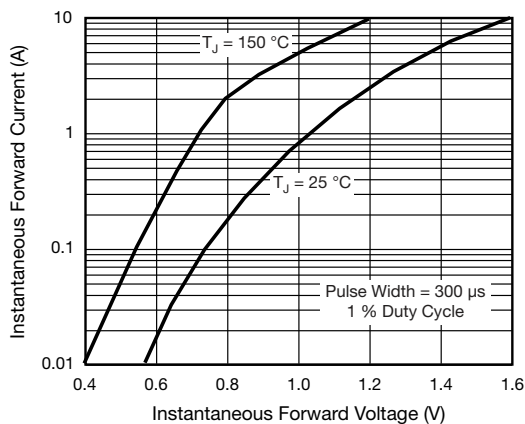
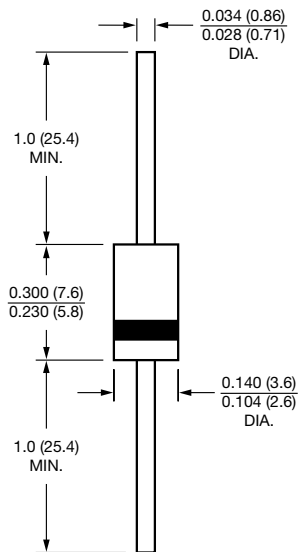


Fig. 3 - Typical Instantaneous Forward Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**DO-15 (DO-204AC)**



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