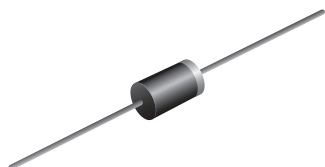


Miniature Clamper/Damper Glass Passivated Fast Rectifier

SUPERECTIFIER®



DO-204AC (DO-15)

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
- Meets environmental standard MIL-S-19500
- 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



RoHS
COMPLIANT

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-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 | |
|-------------------------|------------------|
| $I_{F(AV)}$ | 1.5 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-204AC (DO-15) |
| Diode variation | Single die |

| 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** ($T_A = 25^\circ\text{C}$ 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 |
| | $T_A = 100^\circ\text{C}$ | | 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** ($T_A = 25^\circ\text{C}$ 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 |
| BY448GPHE3/54 ⁽¹⁾ | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| BY448GPHE3/73 ⁽¹⁾ | 0.425 | 73 | 2000 | Ammo pack packaging |

Note

(1) AEC-Q101 qualified

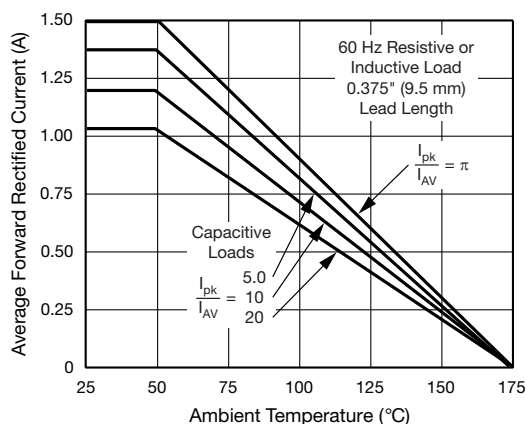
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

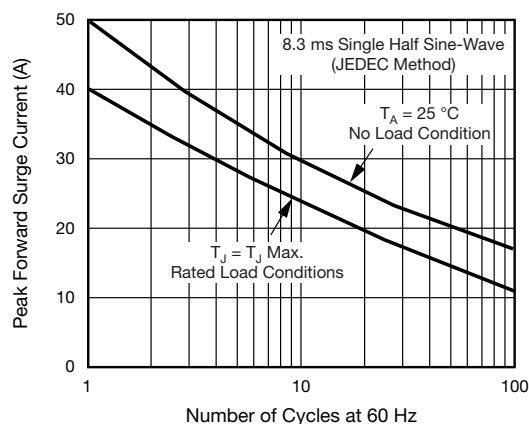


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

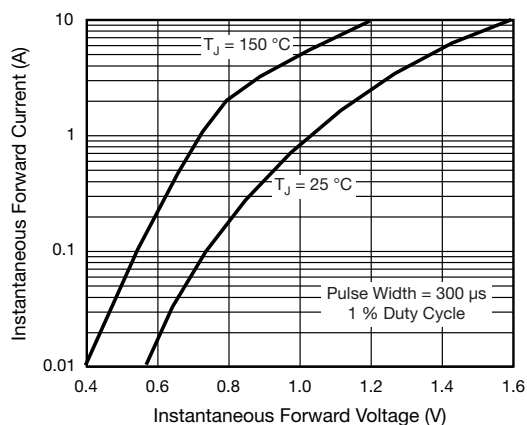


Fig. 3 - Typical Instantaneous Forward Characteristics

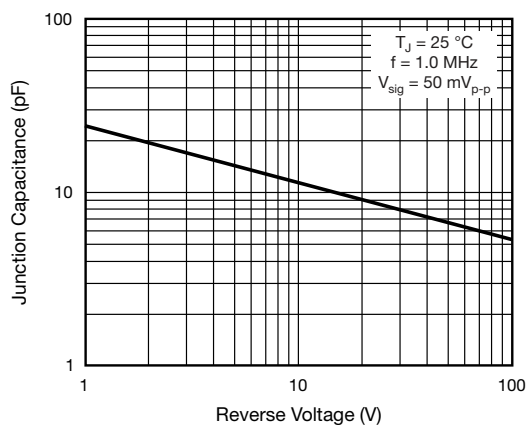


Fig. 5 - Typical Junction Capacitance

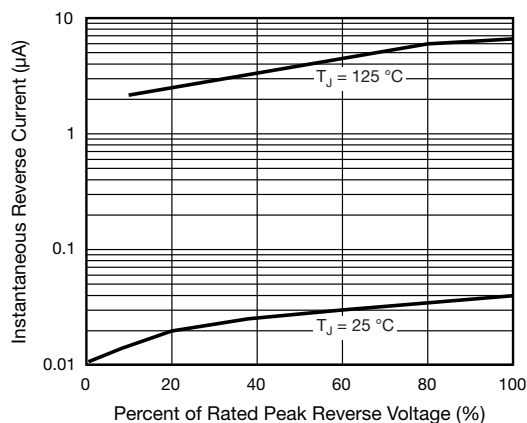
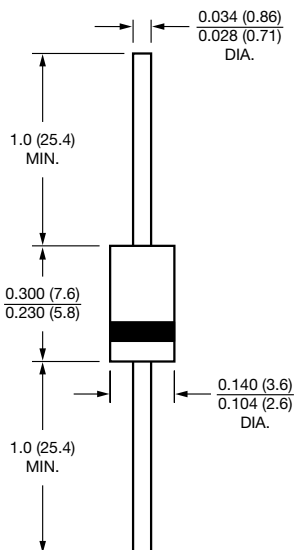


Fig. 4 - Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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