

Miniature Glass Passivated Junction Rectifier



FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, I_R less than 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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC


RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in high voltage rectification of power supplies, inverters, converters and freewheeling diodes for both consumer and automotive 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

| | |
|------------------------|-------------------|
| $I_{F(AV)}$ | 1.75 A |
| V_{RRM} | 1250 V |
| I_{FSM} | 50 A |
| I_R | 5.0 μA |
| V_F at $I_F = 5.0$ A | 1.5 V |
| T_J max. | 175 °C |

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

| PARAMETER | SYMBOL | BY127MGP | UNIT |
|--|----------------|---------------|---------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 1250 | V |
| Maximum RMS voltage | V_{RMS} | 875 | V |
| Maximum DC blocking voltage | V_{DC} | 1250 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{F(AV)}$ | 1.75 | A |
| Peak forward surge current 8.3 ms single half sine wave superimposed on rated load | I_{FSM} | 50 | A |
| Maximum full load reverse current, full cycle average, 0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{R(AV)}$ | 100 | 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 | BY127MGP | UNIT |
| Maximum instantaneous forward voltage | $I_F = 5.0\text{ A}$ | $V_F^{(1)}$ | 1.5 | V |
| Maximum reverse current | $V_R = 1250\text{ V}$ $T_A = 25\text{ }^\circ\text{C}$ | I_R | 5.0 | μA |
| Typical reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $t_{rr} = 0.25\text{ A}$ | t_{rr} | 2.0 | μs |
| 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 | BY127MGP | UNIT |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 45 | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | 20 | |

Note

(1) Thermal resistance from junction to ambient and from junction to lead at 0.375" (9.5 mm) lead length, P.C.B. mounted

| ORDERING INFORMATION (Example) | | | | |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| BY127MGP-E3/54 | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| BY127MGP-E3/73 | 0.425 | 73 | 2000 | Ammo pack packaging |
| BY127MGPHE3/54 ⁽¹⁾ | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| BY127MGPHE3/73 ⁽¹⁾ | 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)

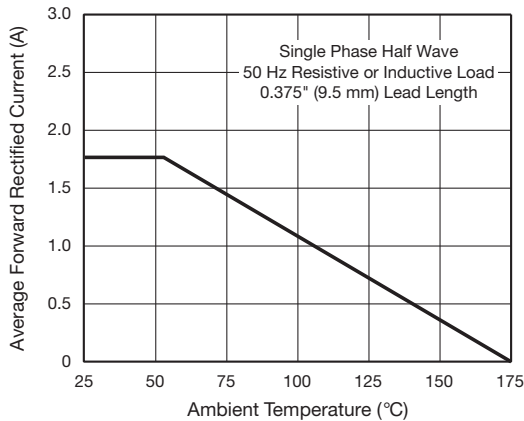


Fig. 1 - Forward Current Derating Curve

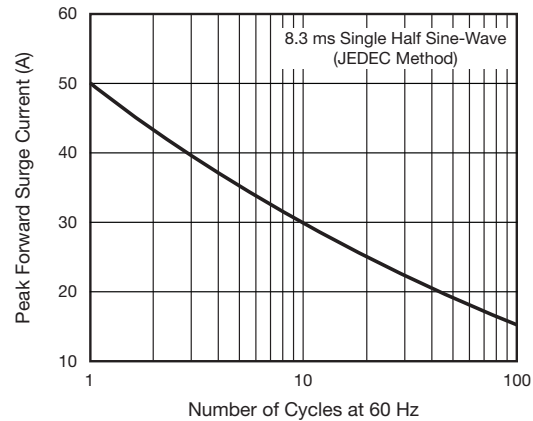


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

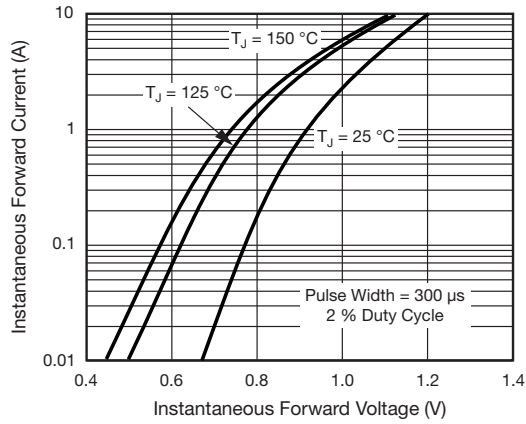


Fig. 3 - Typical Instantaneous Forward Characteristics

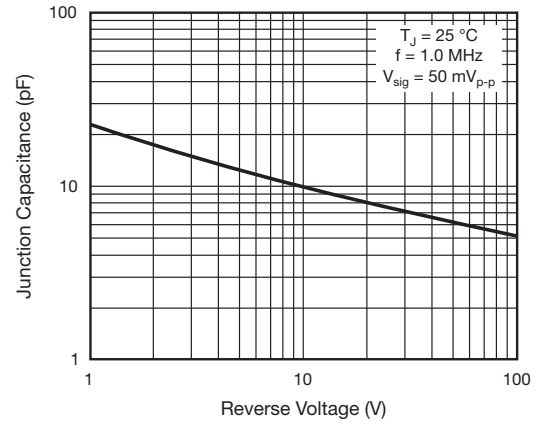


Fig. 5 - Typical Junction Capacitance

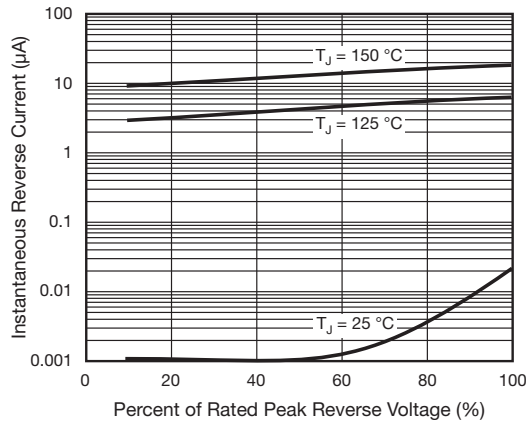


Fig. 4 - Typical Reverse Characteristics

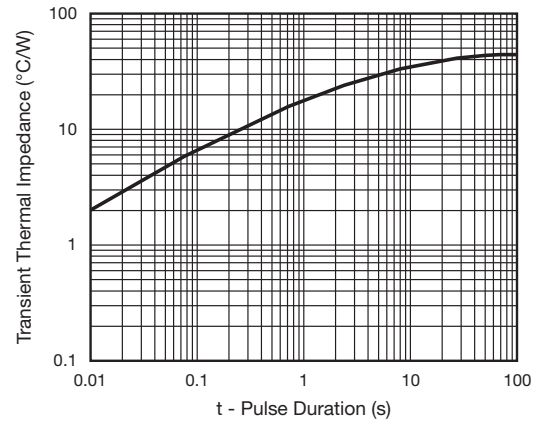
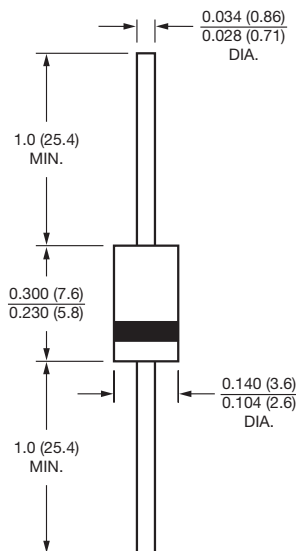


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)




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