

Glass Passivated Junction Plastic Rectifier



FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, 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-B102
- 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 general purpose rectification of power supplies, inverters, converters and freewheeling diodes for both consumer and automotive applications.

MECHANICAL DATA

Case: DO-201AD, 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 | |
|-------------------------|-------------------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 200 V to 1300 V |
| I_{FSM} | 100 A |
| I_R | 5.0 μA |
| V_F | 1.1 V |
| T_J max. | 175 °C |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | | |
|---|----------------|---------------|---------|---------|---------|---------|---------------|
| PARAMETER | SYMBOL | BY251GP | BY252GP | BY253GP | BY254GP | BY255GP | UNIT |
| Maximum non repetitive peak reverse voltage | V_{RSM} | 220 | 440 | 660 | 880 | 1430 | V |
| Maximum repetitive peak reverse voltage | V_{RRM} | 200 | 400 | 600 | 800 | 1300 | V |
| Maximum RMS voltage | V_{RMS} | 140 | 280 | 420 | 560 | 910 | V |
| Maximum DC blocking voltage | V_{DC} | 200 | 400 | 600 | 800 | 1300 | V |
| Maximum average forward rectified current 10 mm lead length at $T_A = 55\text{ °C}$ | $I_{F(AV)}$ | 3.0 | | | | | A |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 100 | | | | | A |
| Maximum full load reverse current, full cycle average 10 mm lead length at $T_A = 55\text{ °C}$ | $I_{R(AV)}$ | 100 | | | | | μA |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 175 | | | | | °C |

BY251GP thru BY255GP

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|---|----------|---------|---------|---------|---------|---------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | BY251GP | BY252GP | BY253GP | BY254GP | BY255GP | UNIT |
| Maximum instantaneous forward voltage | 3.0 A | V_F | | | 1.1 | | | V |
| Maximum reverse current at rated DC blocking voltage | $T_A = 25\text{ }^\circ\text{C}$ | I_R | | | 5.0 | | | μA |
| Maximum reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ V}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | | | 3.0 | | | μs |
| Typical junction capacitance | 4.0 V, 1 MHz | C_J | | | 40 | | | pF |

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | |
|--|-----------------------|---------|---------|---------|---------|---------|--------------------|
| PARAMETER | SYMBOL | BY251GP | BY252GP | BY253GP | BY254GP | BY255GP | UNIT |
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | | | 20 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}^{(1)}$ | | | 10 | | | |

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 |
| BY253GP-E3/54 | 1.28 | 54 | 1400 | 13" diameter paper tape and reel |
| BY253GP-E3/73 | 1.28 | 73 | 1000 | Ammo pack packaging |
| BY253GPHE3/54 ⁽¹⁾ | 1.28 | 54 | 1400 | 13" diameter paper tape and reel |
| BY253GPHE3/73 ⁽¹⁾ | 1.28 | 73 | 1000 | Ammo pack packaging |

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

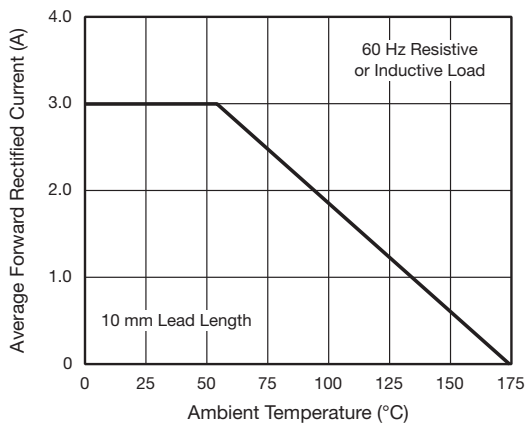


Fig. 1 - Forward Current Derating Curve

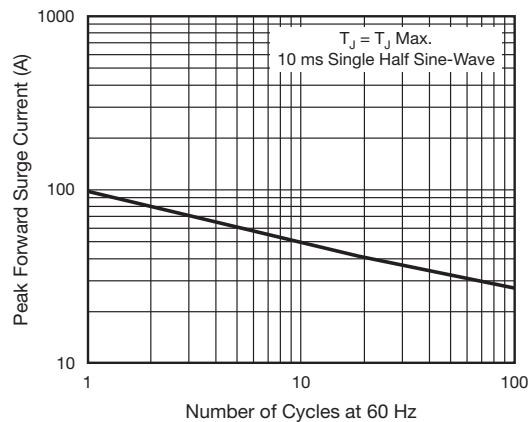


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

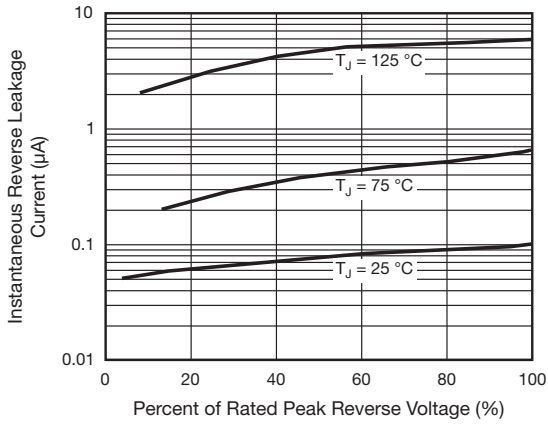


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

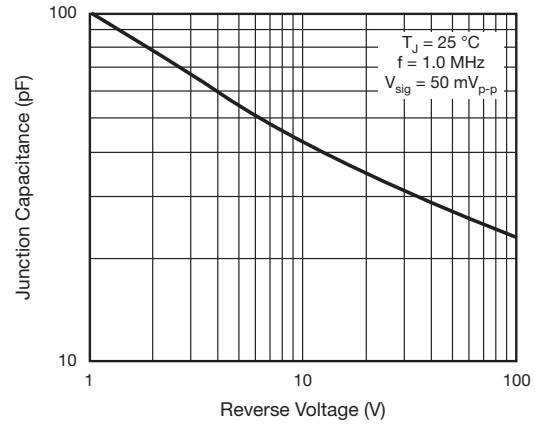


Fig. 5 - Typical Junction Capacitance

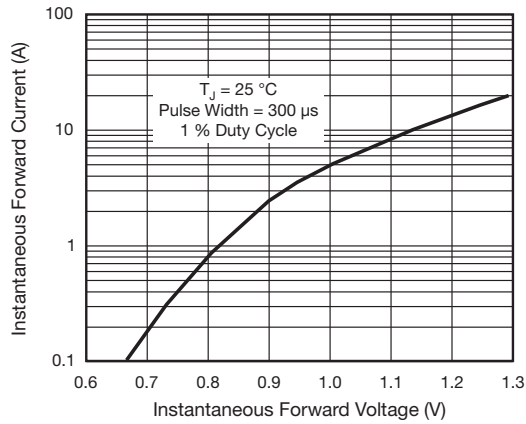
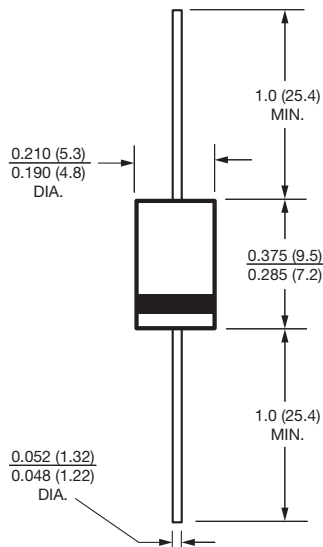


Fig. 4 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)
DO-201AD





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