# Miniature High Voltage Glass Passivated Plastic Rectifier

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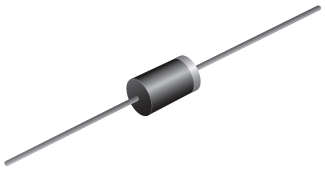


**DO-204AC (DO-15)**

## 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
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- 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, freewheeling diodes 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

**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

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 1.0 A |
| $V_{RRM}$ | 1200 V, 1400 V, 1600 V |
| $I_{FSM}$ | 30 A |
| $I_R$ | 10 µA |
| $V_F$ | 1.1 V |
| $T_J$ max. | 175 °C |
| Package | DO-204AC (DO-15) |
| Diode variations | Single die |

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

| PARAMETER | SYMBOL | GI1-1200GP | GI1-1400GP | GI1-1600GP | UNIT |
|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 1200 | 1400 | 1600 | V |
| Maximum RMS voltage | $V_{RMS}$ | 840 | 980 | 1120 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 1200 | 1400 | 1600 | 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) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **GI1-1200GP** | **GI1-1400GP** | **GI1-1600GP** | **UNIT** |
| Maximum instantaneous forward voltage | $I_F$ = 1.0 A | | $V_F$ (1) | 1.1 | | | V |
| | $I_F$ = 3.14 A | | | 1.3 | | | |
| Maximum reverse current | Rated $V_R$ | $T_A$ = 25 °C | $I_R$ (1) | 10 | | | µA |
| | | $T_A$ = 100 °C | | 100 | | | |
| Maximum reverse recovery time | $I_{FM}$ = 20 mA, $I_{RM}$ = 2 mA | | $t_{rr}$ | 25 | | | µs |
| Reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | typical | $t_{rr}$ | 0.7 | | | µs |
| | | maximum | | 1.5 | | | |
| Maximum forward recovery time | $I_{FM}$ = 20 mA | | $t_{fr}$ | 1.0 | | | 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 °C unless otherwise noted) | | | | | |
|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **GI1-1200GP** | **GI1-1400GP** | **GI1-1600GP** | **UNIT** |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 55 | | | °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** |
| GI1-1200-E3/54 | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| GI1-1200-E3/73 | 0.425 | 73 | 2000 | Ammo pack packaging |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

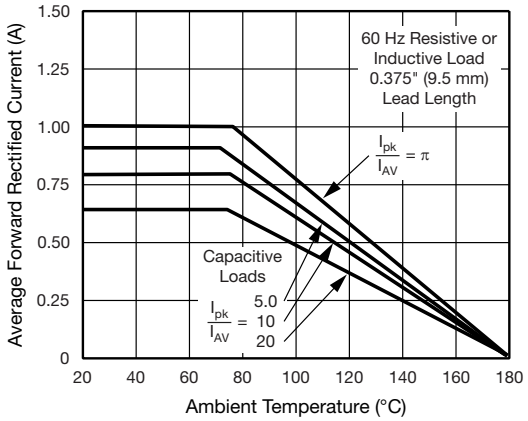



Fig. 1 - Forward Current Derating Curve

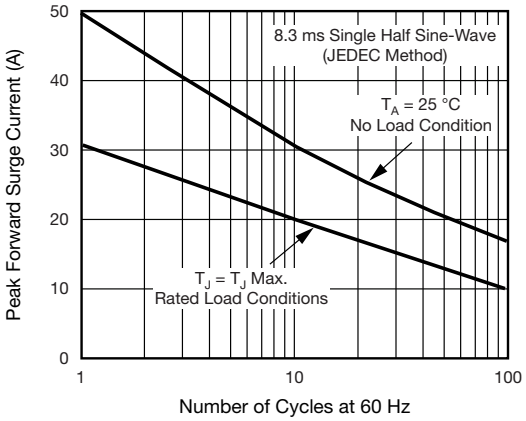



Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

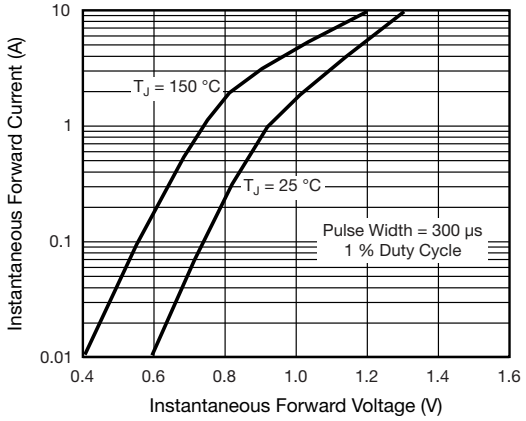



Fig. 3 - Typical Instantaneous Forward Characteristics

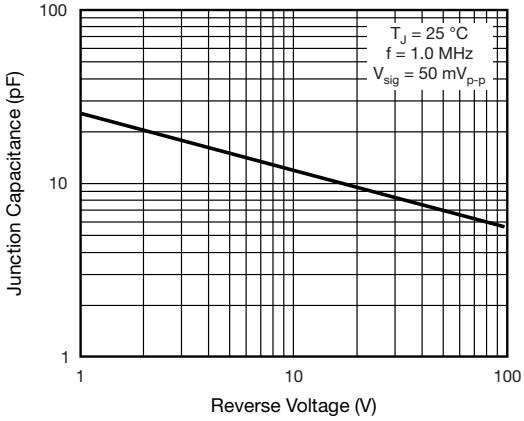



Fig. 5 - Typical Junction Capacitance

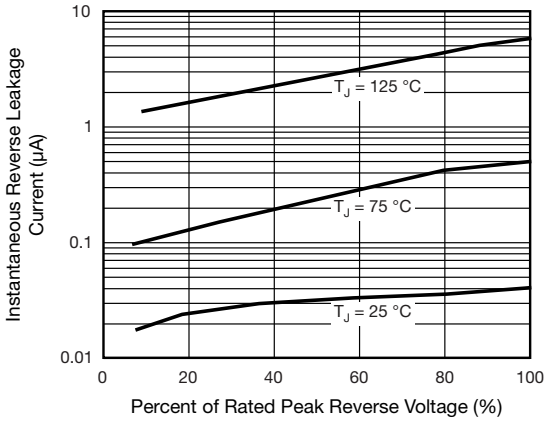
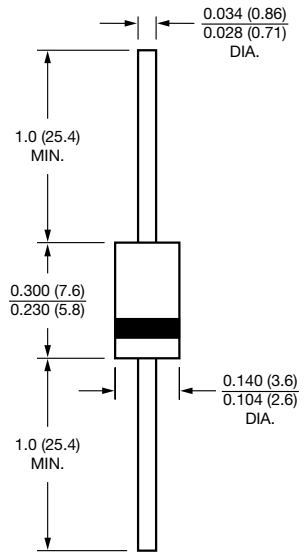



Fig. 4 - Typical Reverse Characteristics

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

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



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