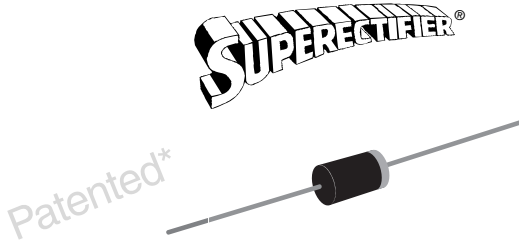


Glass Passivated Junction Rectifier



* Glass-plastic encapsulation technique is covered by Patent No. 3,996,602, and brazed-lead assembly by Patent No. 3,930,306

DO-204AC (DO-15)

FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, I_R less than $0.1 \mu A$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip $260^\circ C$, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

MECHANICAL DATA

Case: DO-204AC, molded epoxy over glass body

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

| PRIMARY CHARACTERISTICS | |
|-------------------------|-----------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 200 V to 1000 V |
| I_{FSM} | 50 A |
| I_R | $0.5 \mu A$ |
| V_F | 1.2 V |
| T_J max. | $175^\circ C$ |

| MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted) | | | | | | | | |
|---|----------------|---------------|----------|----------|----------|----------|------|------------|
| PARAMETER | SYMBOL | 1N5614GP | 1N5616GP | 1N5618GP | 1N5620GP | 1N5622GP | UNIT | |
| Maximum repetitive peak reverse voltage ⁽¹⁾ | V_{RRM} | 200 | 400 | 600 | 800 | 1000 | V | |
| Maximum RMS voltage | V_{RMS} | 140 | 280 | 420 | 560 | 700 | V | |
| Maximum DC blocking voltage ⁽¹⁾ | V_{DC} | 200 | 400 | 600 | 800 | 1000 | V | |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 55^\circ C$ | $I_{F(AV)}$ | 1.0 | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load ⁽¹⁾ | I_{FSM} | 50 | | | | | | A |
| Operating junction and storage temperature range ⁽¹⁾ | T_J, T_{STG} | - 65 to + 175 | | | | | | $^\circ C$ |

Note:

(1) JEDEC registered values

1N5614GP thru 1N5622GP

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|---|---|----------|-----------|----------|----------|----------|----------|---------------|
| PARAMETER | TEST CONDITIONS | SYMBOL | 1N5614GP | 1N5616GP | 1N5618GP | 1N5620GP | 1N5622GP | UNIT |
| Minimum reverse breakdown voltage ⁽¹⁾ | 50 μA | V_{BR} | 220 | 440 | 660 | 880 | 1100 | V |
| Maximum instantaneous forward voltage ⁽¹⁾ | 1.0 A | V_F | 1.2 | | | | | V |
| Maximum DC reverse current at rated DC blocking voltage ⁽¹⁾ | $T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$ | I_R | 0.5 25 | | | | | μA |
| Maximum reverse recovery time ⁽¹⁾ | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | t_{rr} | 2.0 | | | | | μs |
| Maximum junction capacitance | at 12 V, 1 MHz | C_J | 45 | 35 | 25 | 20 | 15 | pF |

Note:

(1) JEDEC registered values

| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|--|-----------------|----------|----------|----------|----------|----------|------|--------------------|
| PARAMETER | SYMBOL | 1N5614GP | 1N5616GP | 1N5618GP | 1N5620GP | 1N5622GP | UNIT | |
| Typical thermal resistance ⁽¹⁾ | $R_{\theta JA}$ | 45 | | | | | | $^\circ\text{C/W}$ |

Note:

(1) Thermal resistance from junction to ambient 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 |
| 1N5618GP-E3/54 | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| 1N5618GP-E3/73 | 0.425 | 73 | 2000 | Ammo pack packaging |
| 1N5618GPHE3/54 ⁽¹⁾ | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| 1N5618GPHE3/73 ⁽¹⁾ | 0.425 | 73 | 2000 | Ammo pack packaging |

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

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

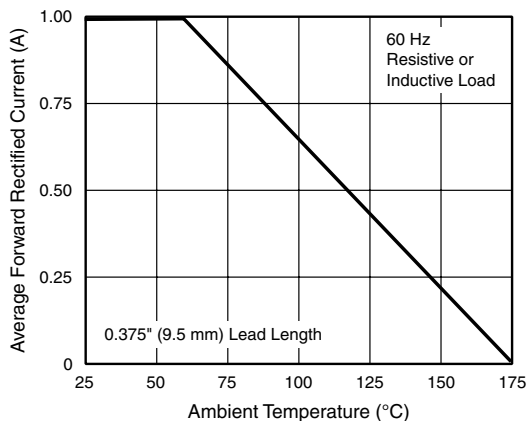


Figure 1. Forward Current Derating Curve

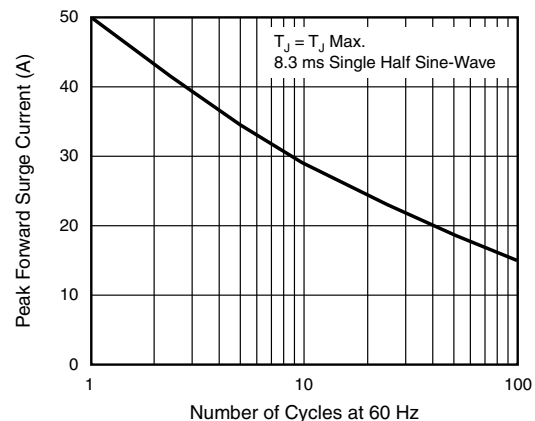


Figure 2. Maximum Non-repetitive Peak Forward Surge Current

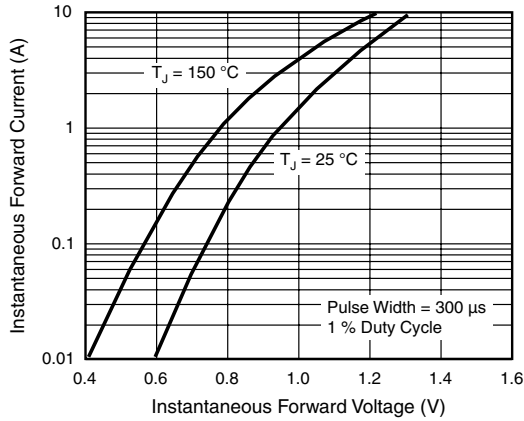


Figure 3. Typical Instantaneous Forward Characteristics

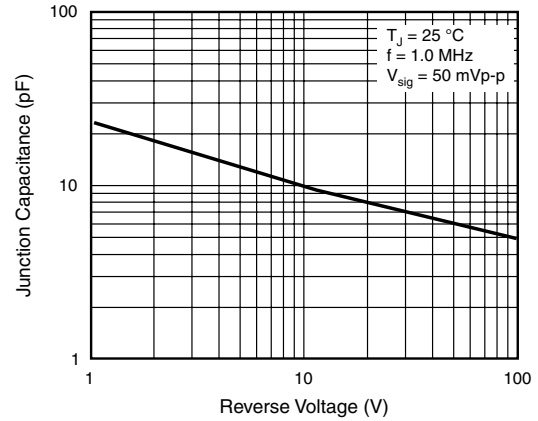


Figure 5. Typical Junction Capacitance

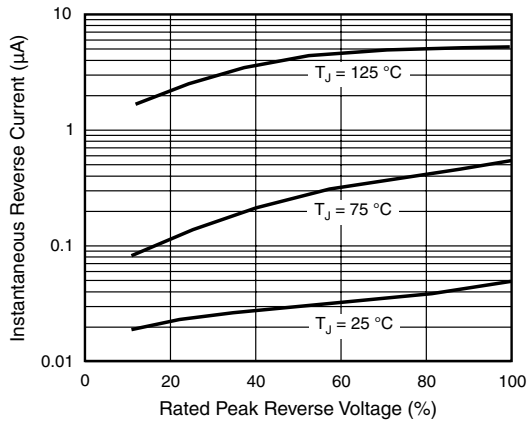
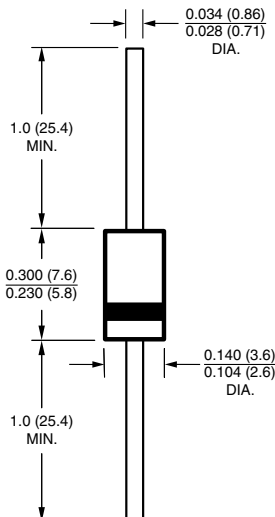


Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.