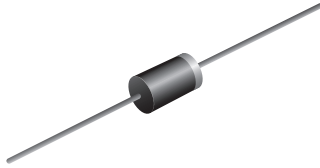


Glass Passivated Junction Plastic Rectifier

SUPERECTIFIER®

DO-204AC (DO-15)

FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Low leakage current, typical I_R less than $0.1 \mu A$
- High forward surge capability
- Solder dip $275 \text{ }^\circ\text{C}$ max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

| PRIMARY CHARACTERISTICS | |
|-------------------------|------------------------------|
| $I_{F(AV)}$ | 1.5 A |
| V_{RRM} | 50 V to 1000 V |
| I_{FSM} | 50 A |
| I_R | $5.0 \mu A$ |
| V_F | 1.4 V |
| T_J max. | $175 \text{ }^\circ\text{C}$ |
| Package | DO-204AC (DO-15) |
| Diode variations | Single die |

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
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

| MAXIMUM RATINGS ($T_A = 25 \text{ }^\circ\text{C}$ unless otherwise noted) ⁽¹⁾ | | | | | | | | | | | |
|--|----------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------------|
| PARAMETER | SYMBOL | 1N53 91GP | 1N53 92GP | 1N53 93GP | 1N53 94GP | 1N53 95GP | 1N53 96GP | 1N53 97GP | 1N53 98GP | 1N53 99GP | UNIT |
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 140 | 210 | 280 | 350 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 70 \text{ }^\circ\text{C}$ | $I_{F(AV)}$ | 1.5 | | | | | | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave super-imposed on rated load | I_{FSM} | 50 | | | | | | | | | A |
| Maximum full load reverse current, full cycle average 0.375" (9.5 mm) lead length at $T_A = 70 \text{ }^\circ\text{C}$ | $I_{R(AV)}$ | 300 | | | | | | | | | μA |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +175 | | | | | | | | | $^\circ\text{C}$ |

Note

⁽¹⁾ JEDEC® registered values



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

| PARAMETER | TEST CONDITIONS | | SYMBOL | 1N53 91GP | 1N53 92GP | 1N53 93GP | 1N53 94GP | 1N53 95GP | 1N53 96GP | 1N53 97GP | 1N53 98GP | 1N53 99GP | UNIT |
|---|--|----------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|------|
| Maximum instantaneous forward voltage | 1.5 A | $T_A = 70\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | 1.4 | | | | | | | | V | |
| Maximum DC reverse current at rated DC blocking voltage | $T_A = 25\text{ }^\circ\text{C}$ | | $I_R^{(1)}$ | 5.0 | | | | | | | | μA | |
| | $T_A = 150\text{ }^\circ\text{C}$ | | | 300 | | | | | | | | | |
| 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) JEDEC registered values

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

| PARAMETER | SYMBOL | 1N53 91GP | 1N53 92GP | 1N53 93GP | 1N53 94GP | 1N53 95GP | 1N53 96GP | 1N53 97GP | 1N53 98GP | 1N53 99GP | UNIT |
|----------------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------------------|
| Typical thermal resistance | $R_{\theta JA}^{(1)}$ | 45 | | | | | | | | | $^\circ\text{C/W}$ |

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 |
|----------------|-----------------|------------------------|---------------|----------------------------------|
| 1N5397GP-E3/54 | 0.425 | 54 | 4000 | 13" diameter paper tape and reel |
| 1N5397GP-E3/73 | 0.425 | 73 | 2000 | Ammo pack packaging |

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

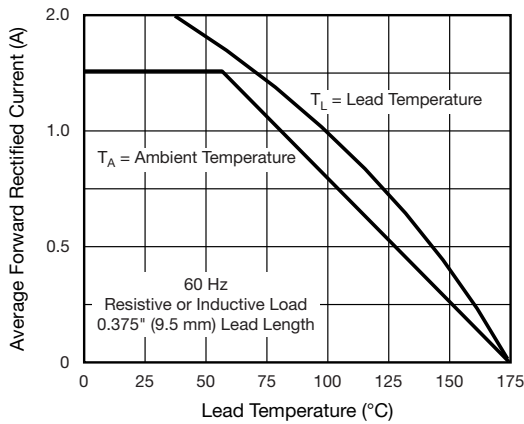


Fig. 1 - Forward Current Derating Curve

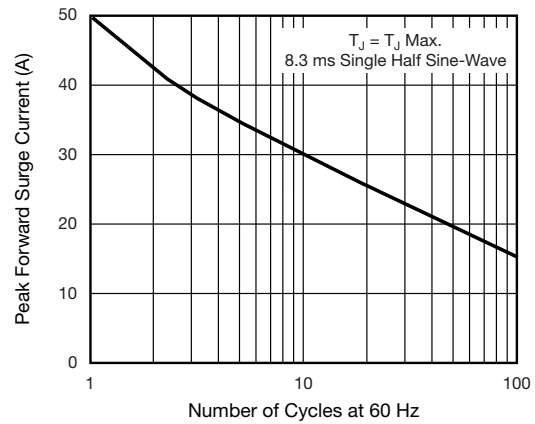


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

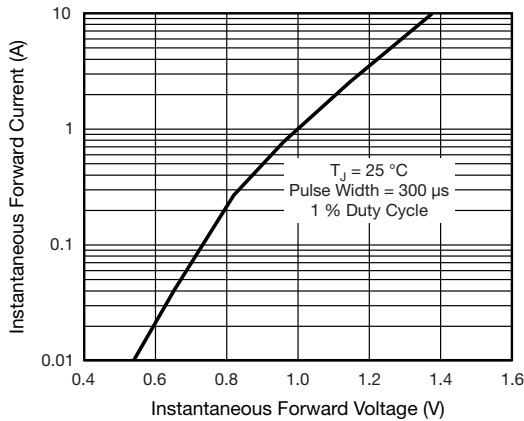


Fig. 3 - Typical Instantaneous Forward Characteristics

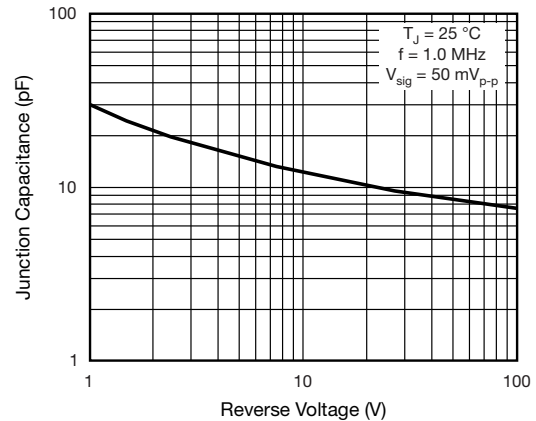


Fig. 5 - Typical Junction Capacitance

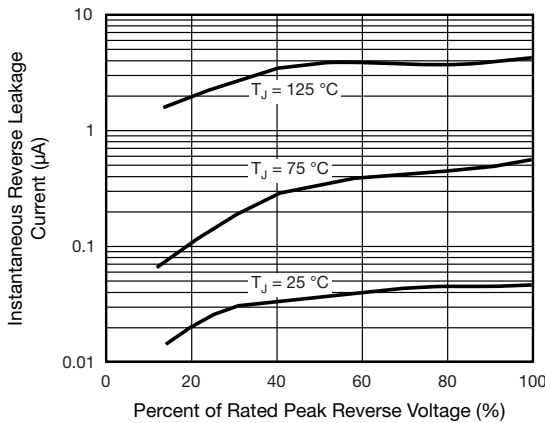


Fig. 4 - Typical Reverse Characteristics

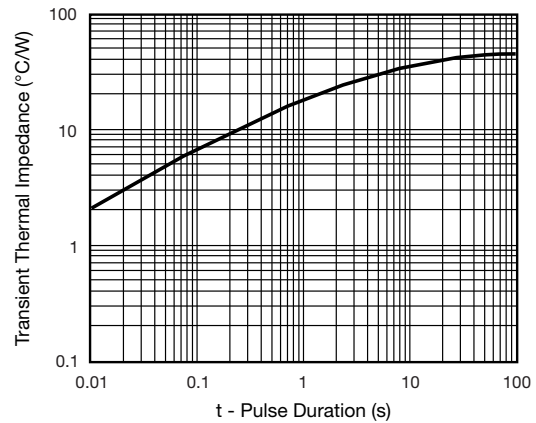
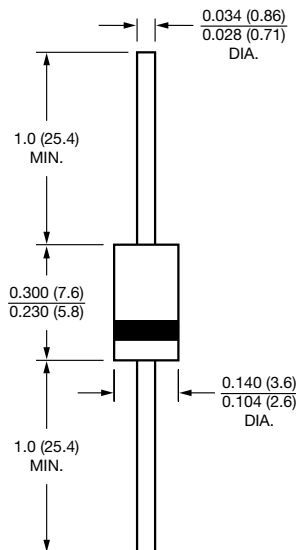


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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