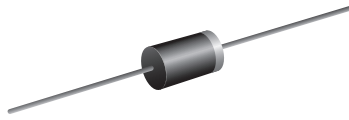




## Glass Passivated Junction Fast Switching Plastic Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Fast switching for high efficiency
- Low leakage current
- 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](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT

### TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes for consumer, automotive and telecommunication.

### MECHANICAL DATA

**Case:** DO-204AL, 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                              |
| $V_{RRM}$               | 200 V, 400 V, 600 V, 800 V, 1000 V |
| $I_{FSM}$               | 25 A                               |
| $t_{rr}$                | 150 ns, 250 ns, 500 ns             |
| $I_R$                   | 1.0 $\mu$ A                        |
| $V_F$                   | 1.3 V                              |
| $T_J$ max.              | 175 °C                             |
| Package                 | DO-204AL (DO-41)                   |
| Diode variation         | Single die                         |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                                   |                |             |          |          |          |          |      |    |
|---|----------------|-------------|----------|----------|----------|----------|------|----|
| PARAMETER   | SYMBOL         | 1N4942GP    | 1N4944GP | 1N4946GP | 1N4947GP | 1N4948GP | UNIT |    |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 200         | 400      | 600      | 800      | 1000     | V    |    |
| Maximum RMS voltage   | $V_{RMS}$      | 140         | 280      | 420      | 560      | 700      | V    |    |
| Maximum DC blocking voltage   | $V_{DC}$       | 200         | 400      | 600      | 800      | 1000     | V    |    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 55$ °C | $I_{F(AV)}$    | 1.0         |          |          |          |          |      | A  |
| Peak forward surge current 8.3 ms single half<br>sine-wave superimposed on rated load     | $I_{FSM}$      | 25          |          |          |          |          |      | A  |
| Operating junction and storage temperature range  | $T_J, T_{STG}$ | -65 to +175 |          |          |          |          |      | °C |



| ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |  |                 |          |          |          |          |          |      |    |
|--|--|-----------------|----------|----------|----------|----------|----------|------|----|
| PARAMETER  | TEST CONDITIONS  | SYMBOL          | 1N4942GP | 1N4944GP | 1N4946GP | 1N4947GP | 1N4948GP | UNIT |    |
| Maximum instantaneous forward voltage                                      | 1.0 A  | V <sub>F</sub>  | 1.3      |          |          |          |          |      | V  |
| Maximum DC reverse current at rated DC blocking voltage                    | T <sub>A</sub> = 25 °C   | I <sub>R</sub>  | 1.0      |          |          |          |          |      | μA |
|  | T <sub>A</sub> = 150 °C  |                 | 200      |          |          |          |          |      |    |
| Maximum reverse recovery time  | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A | t <sub>rr</sub> | 150      |          | 250      |          | 500      | ns   |    |
| Typical junction capacitance   | 4.0 V, 1 MHz   | C <sub>J</sub>  | 15       |          |          |          |          |      | pF |

| THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted) |                                 |          |          |          |          |          |      |      |
|---|---------------------------------|----------|----------|----------|----------|----------|------|------|
| PARAMETER   | SYMBOL                          | 1N4942GP | 1N4944GP | 1N4946GP | 1N4947GP | 1N4948GP | UNIT |      |
| Typical thermal resistance  | R <sub>θJA</sub> <sup>(1)</sup> | 55       |          |          |          |          |      | °C/W |

**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                    |
| 1N4946GP-E3/54                 | 0.336           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N4946GP-E3/73                 | 0.336           | 73                     | 3000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

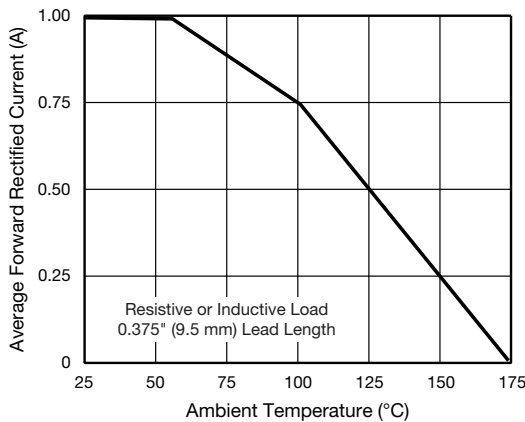


Fig. 1 - Forward Current Derating Curve

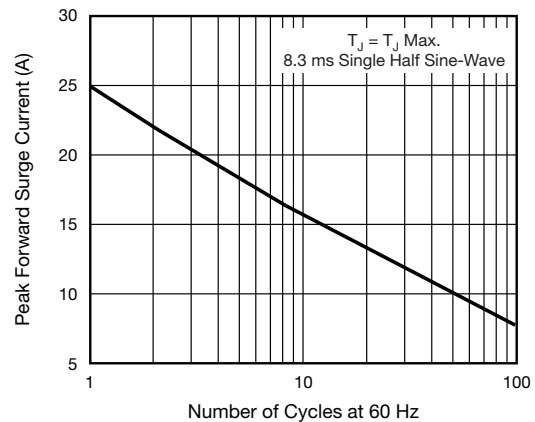


Fig. 2 - Maximum Non-repetitive Peak Forward Surge Current

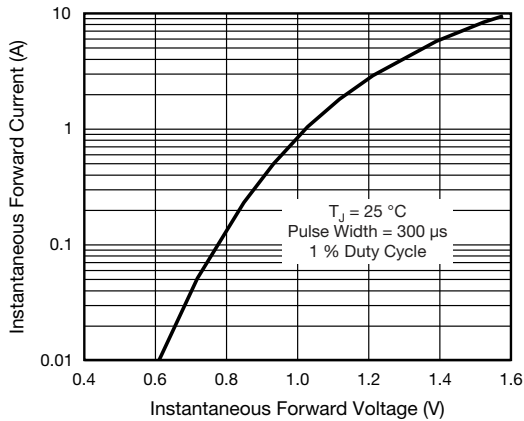


Fig. 3 - Typical Instantaneous Forward Characteristics

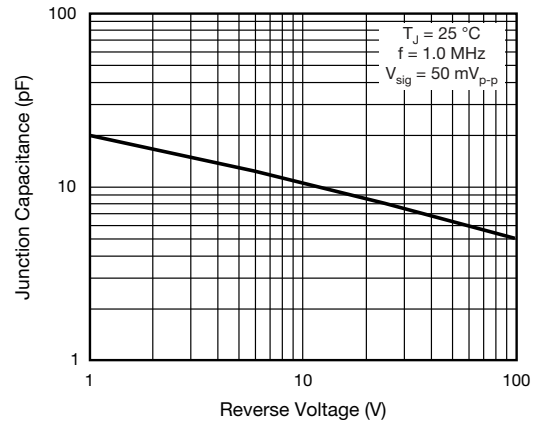


Fig. 5 - Typical Junction Capacitance

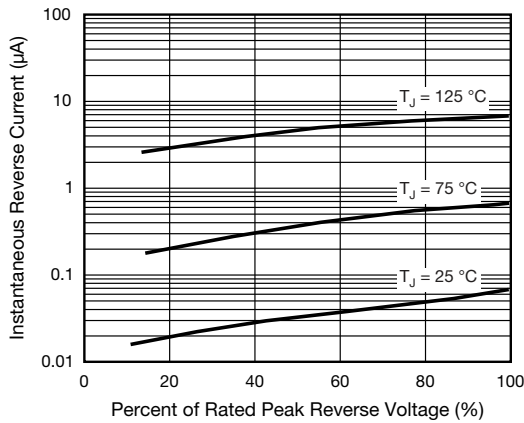


Fig. 4 - Typical Reverse Characteristics

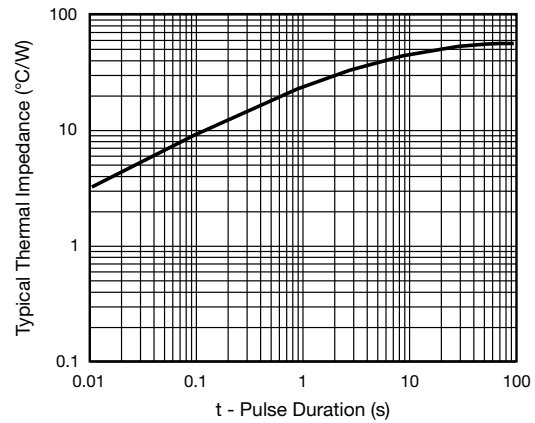
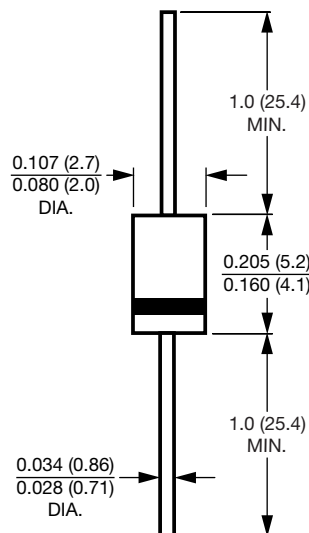


Fig. 6 - Typical Transient Thermal Impedance

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

**DO-204AL (DO-41)**



**Note**  
 • Lead diameter is  $\frac{0.026 (0.66)}{0.023 (0.58)}$  for suffix "E" part numbers



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