

## Schottky Barrier Plastic Rectifier


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

### FEATURES

- Guardring for overvoltage protection
- Very small conduction losses
- Extremely fast switching
- Low forward voltage drop
- High frequency operation
- 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 low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

### MECHANICAL DATA

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

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 the cathode end

| PRIMARY CHARACTERISTICS |                        |
|-------------------------|------------------------|
| $I_{F(AV)}$             | 1.0 A                  |
| $V_{RRM}$               | 20 V, 30 V, 40 V       |
| $I_{FSM}$               | 25 A                   |
| $V_F$                   | 0.45 V, 0.55 V, 0.60 V |
| $T_J$ max.              | 125 °C                 |
| Package                 | DO-204AL               |
| Diode variations        | Single                 |

| MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)                                   |                |               |        |        |            |
|---|----------------|---------------|--------|--------|------------|
| PARAMETER   | SYMBOL         | 1N5817        | 1N5818 | 1N5819 | UNIT       |
| Maximum repetitive peak reverse voltage   | $V_{RRM}$      | 20            | 30     | 40     | V          |
| Maximum RMS voltage   | $V_{RMS}$      | 14            | 21     | 28     | V          |
| Maximum DC blocking voltage   | $V_{DC}$       | 20            | 30     | 40     | V          |
| Maximum non-repetitive peak reverse voltage   | $V_{RSM}$      | 24            | 36     | 48     | V          |
| Maximum average forward rectified current at 0.375" (9.5 mm) lead length at $T_L = 90$ °C | $I_{F(AV)}$    | 1.0           |        |        | A          |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load       | $I_{FSM}$      | 25            |        |        | A          |
| Voltage rate of change (rated $V_R$ )   | dV/dt          | 10 000        |        |        | V/ $\mu$ s |
| Operating junction and storage temperature range  | $T_J, T_{STG}$ | - 65 to + 125 |        |        | °C         |

| ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted) |                 |             |        |        |        |      |
|--|-----------------|-------------|--------|--------|--------|------|
| PARAMETER  | TEST CONDITIONS | SYMBOL      | 1N5817 | 1N5818 | 1N5819 | UNIT |
| Maximum instantaneous forward voltage                              | 1.0             | $V_F^{(1)}$ | 0.450  | 0.550  | 0.600  | V    |
| Maximum instantaneous forward voltage                              | 3.1             | $V_F^{(1)}$ | 0.750  | 0.875  | 0.900  | V    |
| Maximum average reverse current at rated DC blocking voltage       | $T_A = 25$ °C   | $I_R^{(1)}$ | 1.0    |        |        | mA   |
|  | $T_A = 100$ °C  |             | 10     |        |        |      |
| Typical junction capacitance                                       | 4.0 V, 1.0 MHz  | $C_J$       | 125    | 110    |        | pF   |

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle



| THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |        |        |        |                    |
|--|-----------------------|--------|--------|--------|--------------------|
| PARAMETER  | SYMBOL                | 1N5817 | 1N5818 | 1N5819 | UNIT               |
| Typical thermal resistance   | $R_{\theta JA}^{(1)}$ | 50     |        |        | $^\circ\text{C/W}$ |
|  | $R_{\theta JL}^{(1)}$ | 15     |        |        |                    |

**Note**

(1) Thermal resistance from junction to lead vertical PCB mounted, 0.375" (9.5 mm) lead length with 1.5" x 1.5" (38 mm x 38 mm) copper pads

| ORDERING INFORMATION (Example) |                 |                        |               |                                  |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                  | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| 1N5819-E3/54                   | 0.332           | 54                     | 5500          | 13" diameter paper tape and reel |
| 1N5819-E3/73                   | 0.332           | 73                     | 3000          | Ammo pack packaging              |

**RATINGS AND CHARACTERISTICS CURVES**

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

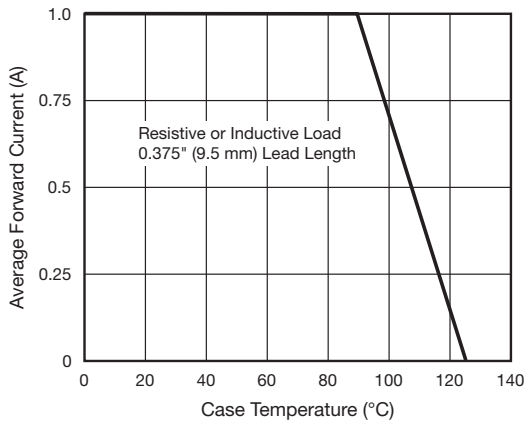


Fig. 1 - Forward Current Derating Curve

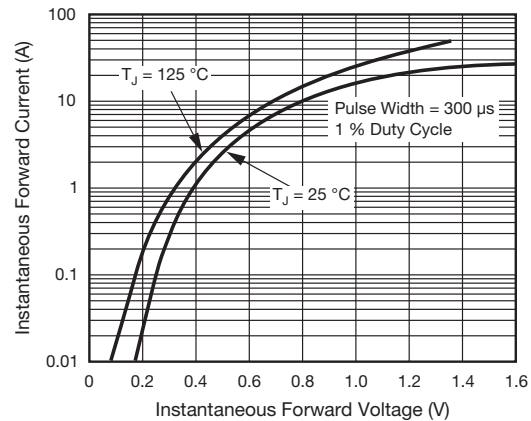


Fig. 3 - Typical Instantaneous Forward Characteristics

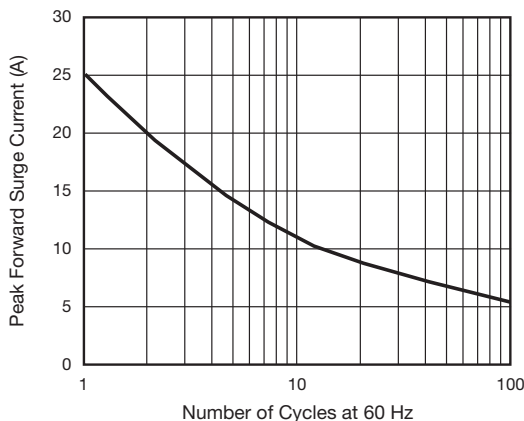


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

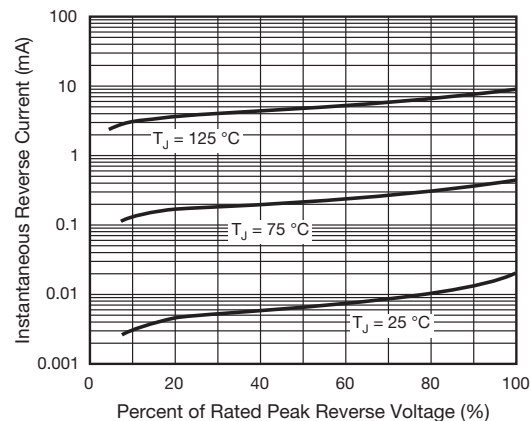


Fig. 4 - Typical Reverse Characteristics

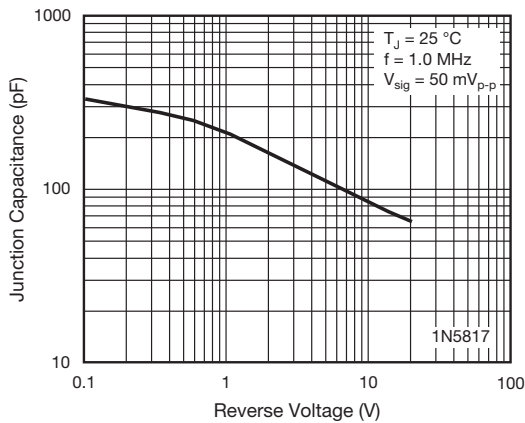


Fig. 5 - Typical Junction Capacitance



Fig. 7 - Typical Transient Thermal Impedance

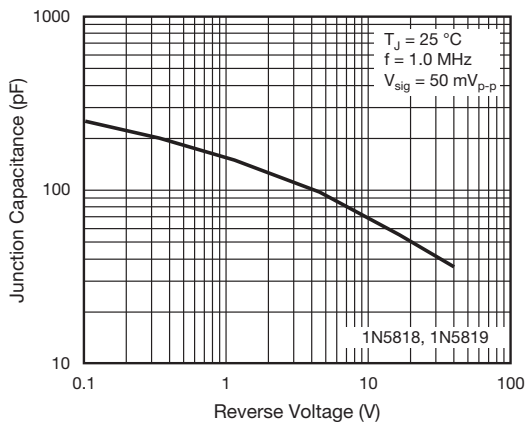
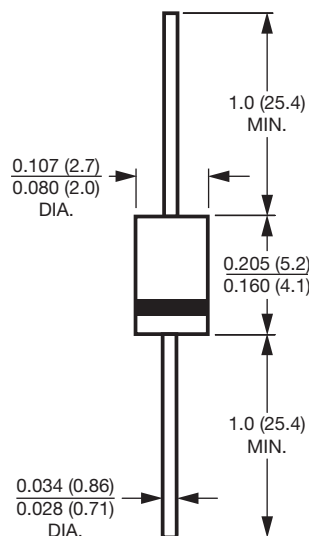


Fig. 6 - Typical Junction Capacitance

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

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





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