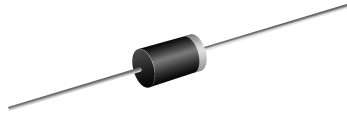


## Schottky Barrier Rectifiers


**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 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, free-wheeling, dc-to-dc converters, and polarity protection applications.

### MECHANICAL DATA

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

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade

**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                 |

| 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<br>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          | 10000         |        |        | V/ $\mu$ s |
| Storage temperature range   | $T_J, T_{STG}$ | - 65 to + 125 |        |        | °C         |



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

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

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

**Note:**

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

| <b>ORDERING INFORMATION</b> (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)

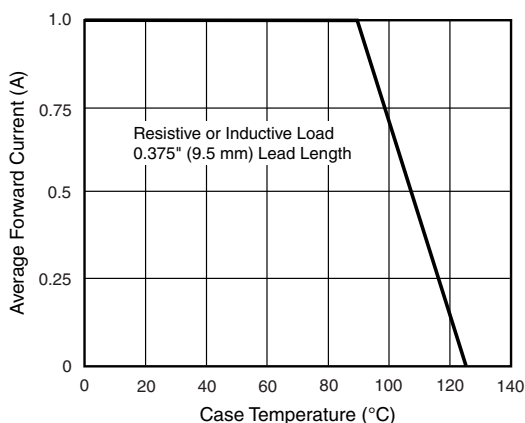


Figure 1. Forward Current Derating Curve

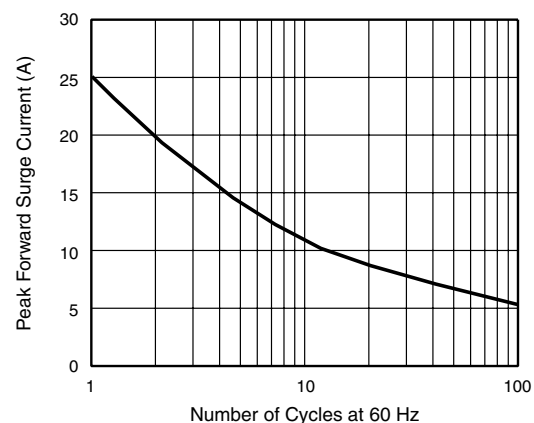


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

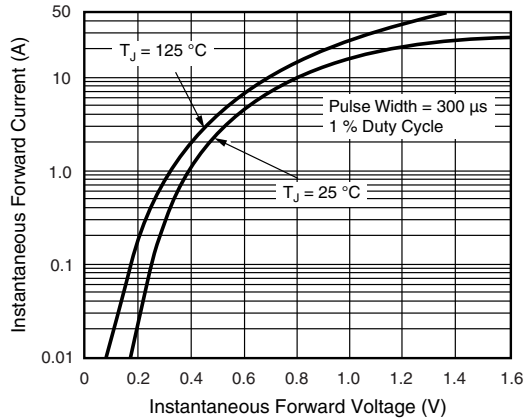


Figure 3. Typical Instantaneous Forward Characteristics

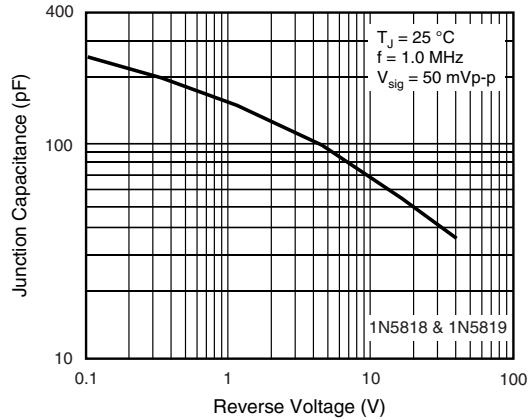


Figure 6. Typical Junction Capacitance

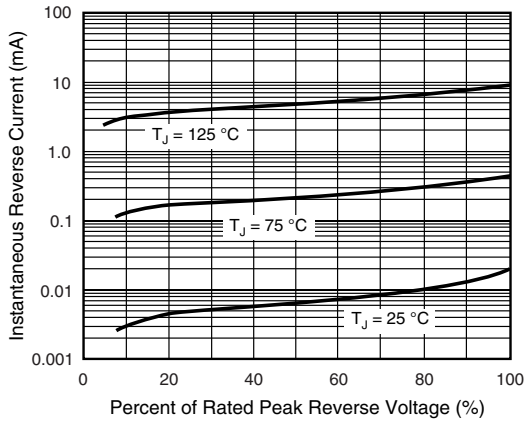


Figure 4. Typical Reverse Characteristics

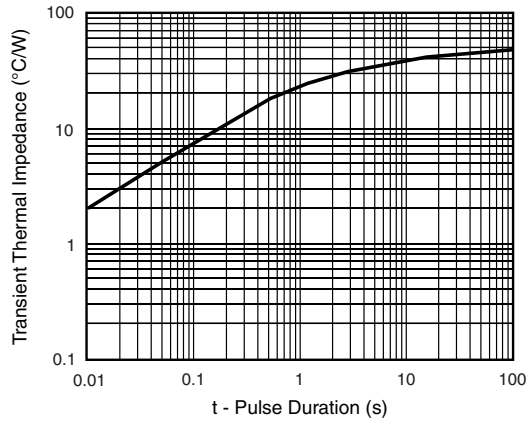


Figure 7. Typical Transient Thermal Impedance

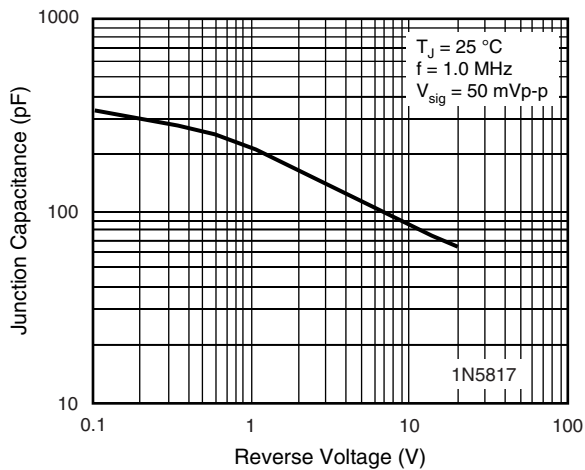
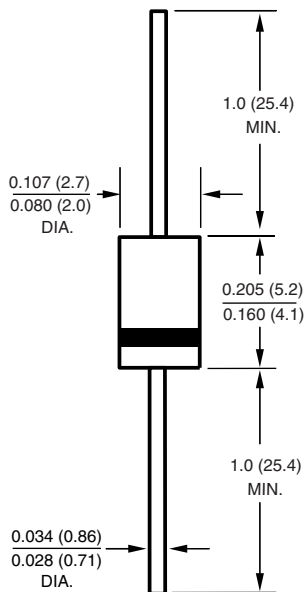


Figure 5. Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AL (DO-41)





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