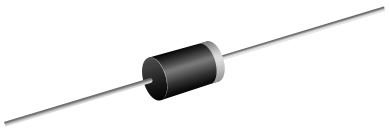
# Schottky Barrier Rectifiers



**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

| MAJOR RATINGS AND 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 |

## 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

**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 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/µs |
| 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) | at 1.0 | $V_F$ | 0.450 | 0.550 | 0.600 | V |
| Maximum instantaneous forward voltage (1) | at 3.1 | $V_F$ | 0.750 | 0.875 | 0.900 | V |
| Maximum average reverse current at rated DC blocking voltage (1) | $T_A$ = 25 °C<br>$T_A$ = 100 °C | $I_R$ | 1.0<br>10 | | | mA |
| Typical junction capacitance | at 4.0 V, 1.0 MHz | $C_J$ | 110 | | | pF |

**Note:**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

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

| ORDERING INFORMATION | | | | |
|---|---|---|---|---|
| **PREFERRED P/N** | **UNIT WEIGHT (g)** | **PREFERRED PACKAGE CODE** | **BASE QUANTITY** | **DELIVERY MODE** |
| 1N5819-E3/54 | 0.332 | 54 | 5500 | 13" Diameter Paper Tape & Reel |
| 1N5819-E3/73 | 0.332 | 73 | 3000 | Ammo Pack Packaging |

## RATINGS AND CHARACTERISTICS CURVES

($T_A$ = 25 °C unless otherwise noted)

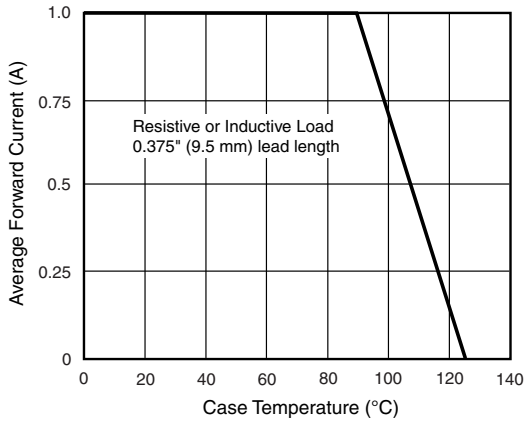



Figure 1. Forward Current Derating Curve

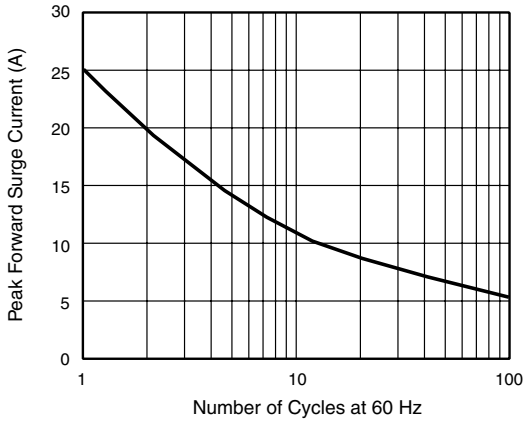



Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

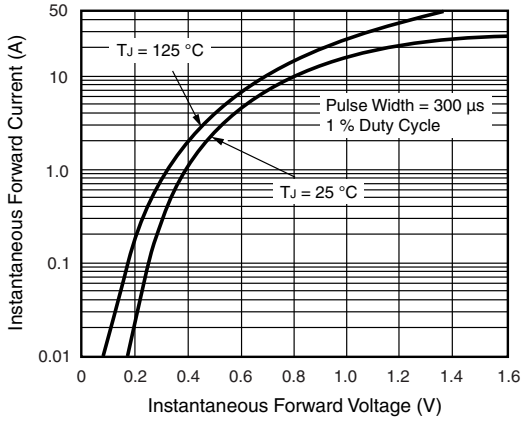



Figure 3. Typical Instantaneous Forward Characteristics

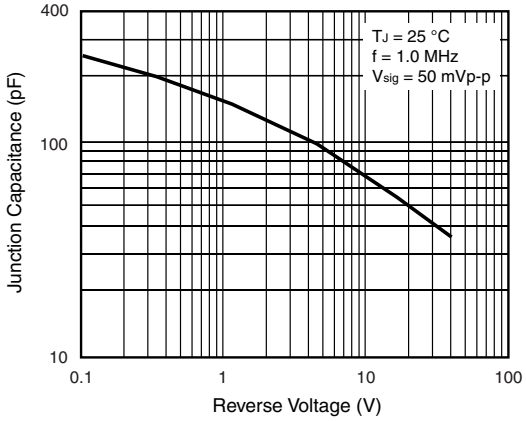



Figure 5. Typical Junction Capacitance

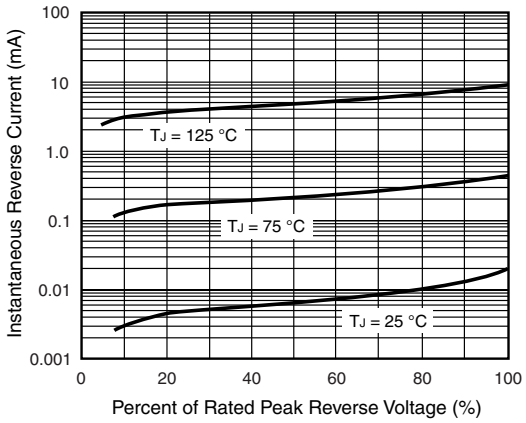



Figure 4. Typical Reverse Characteristics

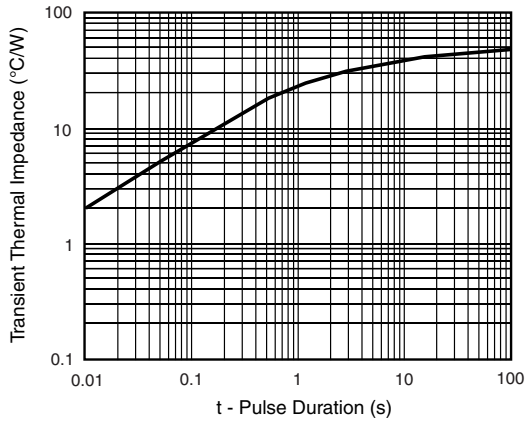
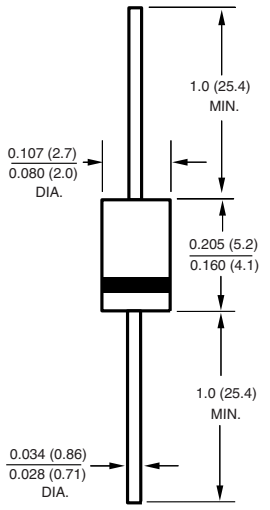



Figure 6. Typical Transient Thermal Impedance

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

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



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