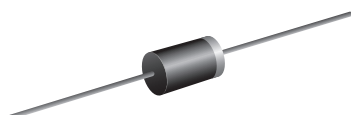


Schottky Barrier Plastic Rectifier



DO-41 (DO-204AL)

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



TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: DO-41 (DO-204AL)

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-41 (DO-204AL) |
| Circuit configuration | 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/μs |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +125 | | | °C |

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

| 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

⁽¹⁾ Pulse test: 300 μs 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 | | | °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)

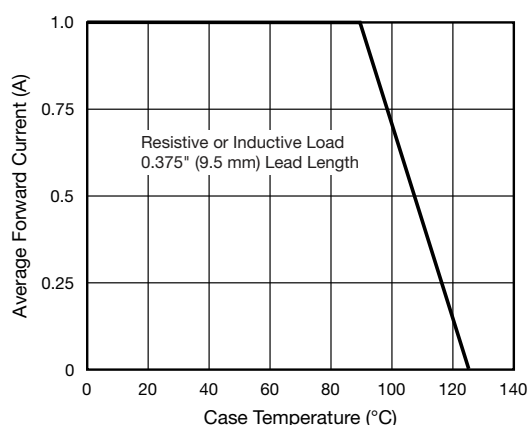


Fig. 1 - Forward Current Derating Curve

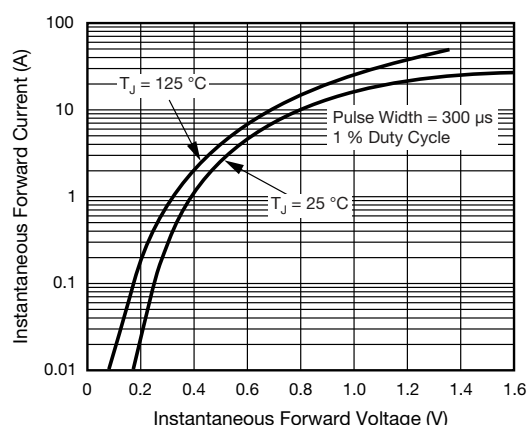


Fig. 3 - Typical Instantaneous Forward Characteristics

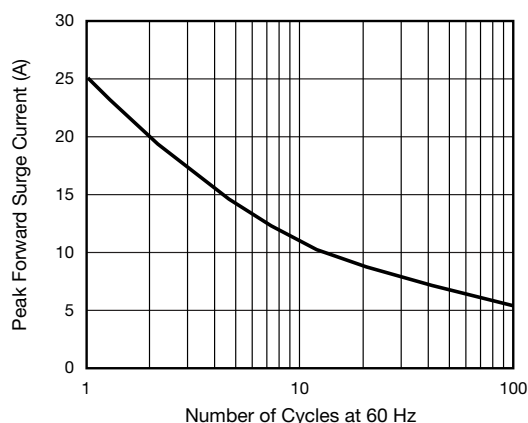


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

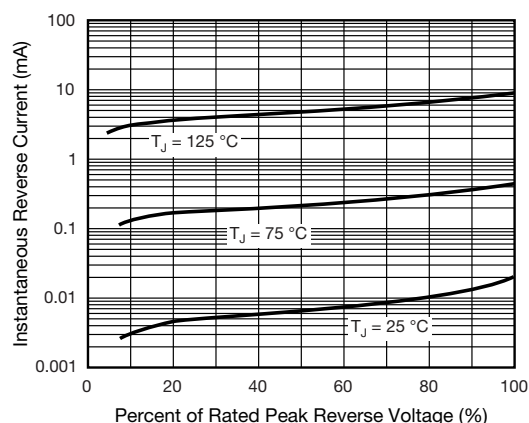


Fig. 4 - Typical Reverse Characteristics

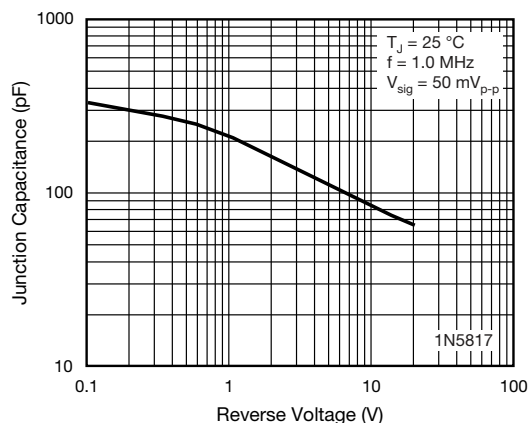


Fig. 5 - Typical Junction Capacitance

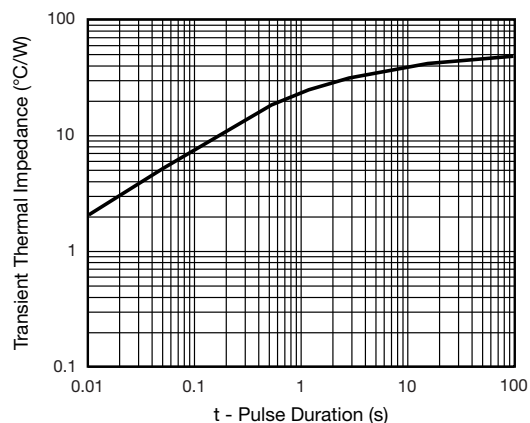


Fig. 7 - Typical Transient Thermal Impedance

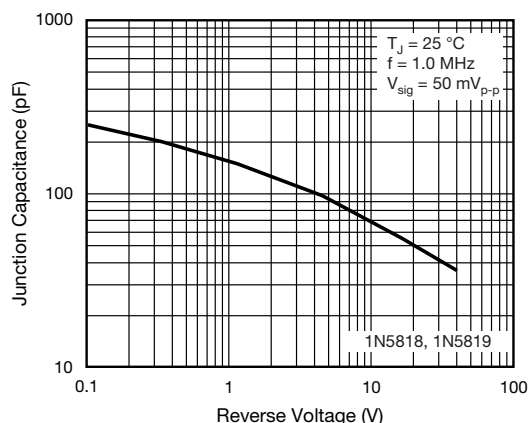
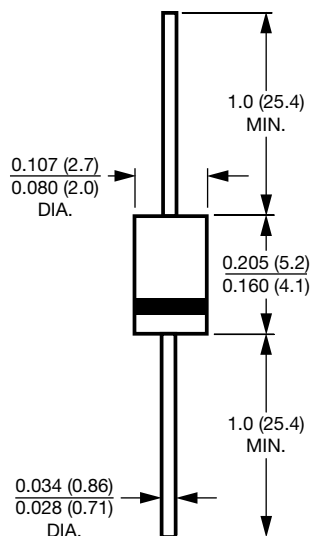


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)




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