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1 Amp Schottky Barrier Rectifiers

Qualified per MIL-PRF-19500/586

Qualified Levels*:
JAN, JANTX, JANTXV
and JANS

DESCRIPTION

This 1 Amp Schottky barrier rectifier is metallurgically bonded and offers military grade qualifications for the part numbers of 1N5819-1 and 1N6761-1 for high-reliability applications. This small diode is hermetically sealed and bonded into a DO-41 glass package.

Important: For the latest information, visit our website <http://www.microsemi.com>.

FEATURES

- JEDEC registered 1N5818, 1N5819 and 1N6759 through 1N6761 numbers.
- Hermetically sealed DO-41 glass package.
- Metallurgically bonded.
- *1N5819-1 and 1N6761-1 only are available in JAN, JANTX, JANTXV and JANS qualifications per MIL-PRF-19500/586.
(See [part nomenclature](#) for all available options.)
- RoHS compliant versions available (commercial grade only).

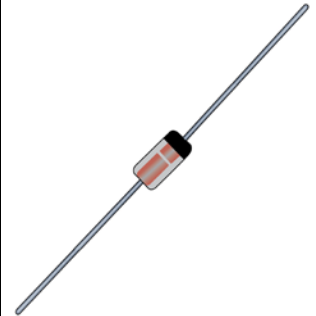
APPLICATIONS / BENEFITS

- Small size for high density mounting using flexible thru-hole leads (see package illustration).
- Low reverse (leakage) currents.
- Non-sensitive to ESD per MIL-STD-750 test method 1020 (human body model).
- Inherently radiation hard as described in Microsemi "[MicroNote 050](#)".

MAXIMUM RATINGS @ T_A = +25 °C unless otherwise specified


| Parameters/Test Conditions | Symbol | Value | Unit |
|--|------------------|----------------------------|------|
| Storage Temperature | T _{STG} | -65 to +150 | °C |
| Junction Temperature | T _J | -65 to +125 -65 to +150 | °C |
| Thermal Resistance, Junction-to-Lead @ lead length = 0.375 inch (9.52 mm) from body | R _{θJL} | 70 | °C/W |
| Thermal Resistance, Junction-to-Ambient | R _{θJA} | 220 | °C/W |
| Average Rectified Output Current ⁽¹⁾ | I _O | 1.0 | A |
| Surge Peak Forward Current | I _{FSM} | 25 | A |
| Solder Temperature @ 10 s | | 260 | °C |

NOTE: 1. T_L = 45°C for the 1N5819-1 and T_L = 55°C for the 1N6761-1.



DO-41 Package

Also available in:
DO-213AB package

(surface mount)
 [1N5819UR-1, 1N6761UR-1 and CDLL variants](#)

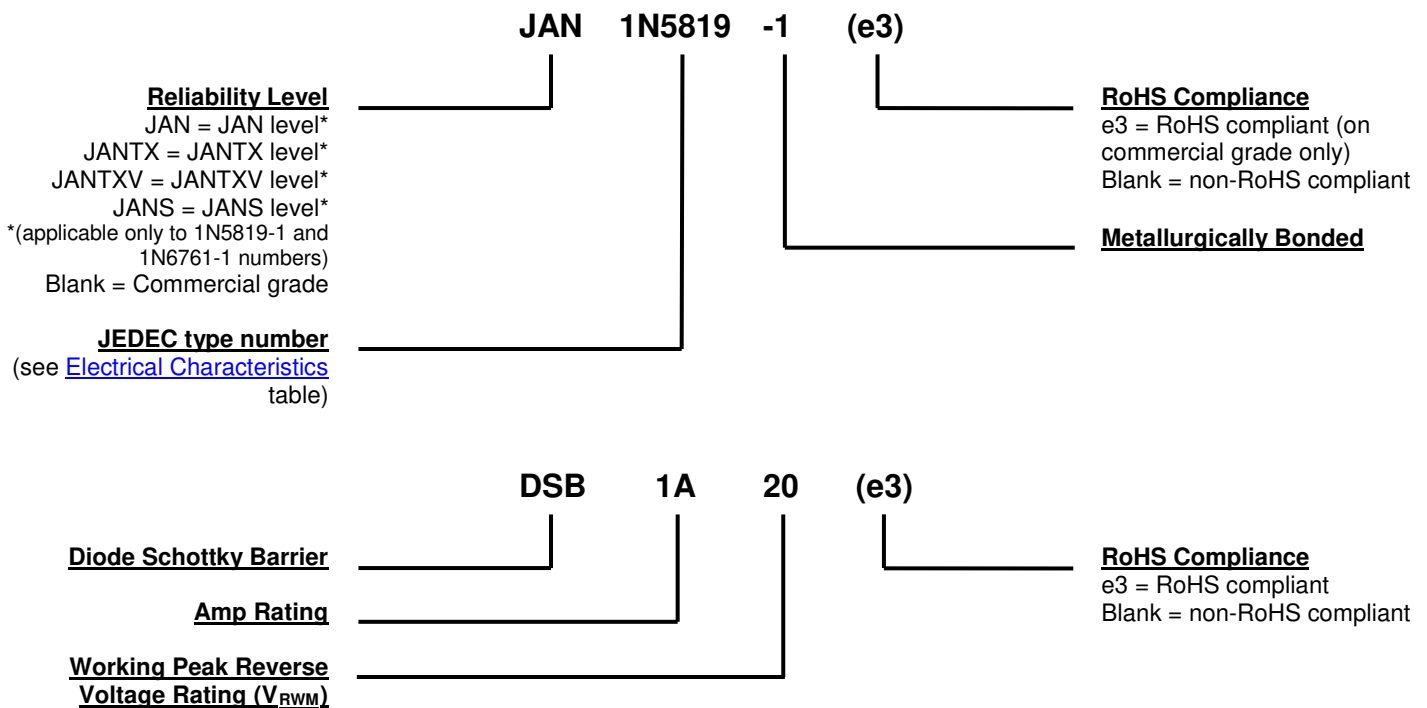
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MECHANICAL and PACKAGING

- CASE: Hermetically sealed voidless hard glass with tungsten slugs.
- TERMINALS: Tin/lead or RoHS compliant matte/tin (commercial grade only) over copper.
- MARKING: Body coated in blue with part number.
- POLARITY: Cathode indicated by band.
- TAPE & REEL option: Standard per EIA-296. Consult factory for quantities.
- WEIGHT: Approximately 340 milligrams.
- See [Package Dimensions](#) on last page.

PART NOMENCLATURE

SYMBOLS & DEFINITIONS

| Symbol | Definition |
|------------|--|
| C_T | Total Capacitance: The total small signal capacitance between the diode terminals of a complete device. |
| f | frequency |
| I_{FSM} | Surge Peak Forward Current: The forward current including all nonrepetitive transient currents but excluding all repetitive transients (ref JESD282-B) |
| I_R | Reverse Current: The dc current flowing from the external circuit into the cathode terminal at the specified voltage V_R . |
| I_O | Average Rectified Output Current: The output current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle. |
| $V_{(BR)}$ | Minimum Breakdown Voltage: The minimum voltage the device will exhibit at a specified current. |
| V_F | Forward Voltage: The positive anode-cathode voltage the device will exhibit at a specified I_F current. |
| V_R | Reverse Voltage: The dc voltage applied in the reverse direction below the breakdown region. |
| V_{RWM} | Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range excluding all transient voltages (ref JESD282-B). Also sometimes known as PIV. |

***ELECTRICAL CHARACTERISTICS @ $T_A = 25\text{ }^\circ\text{C}$ unless otherwise specified**

| TYPE NUMBER | WORKING PEAK REVERSE VOLTAGE ⁽¹⁾ | MAXIMUM FORWARD VOLTAGE | | | MAXIMUM REVERSE LEAKAGE CURRENT AT RATED VOLTAGE | | MAXIMUM CAPACITANCE @ $V_R = 5$ VOLTS $f \leq 1.0$ MHz | |
|-------------|---|-------------------------|--------------|---------------|--|-----------------------------|--|-------|
| | | V_{RWM} | $V_F @ 0.1A$ | $V_F @ 1.0 A$ | C_T | $I_{RM} @ 25^\circ\text{C}$ | $I_{RM} @ 100^\circ\text{C}$ | C_T |
| | | Volts | Volts | Volts | pF | mA | mA | pF |
| 1N5818-1* | 30 | 0.36 | 0.60 | 0.9 | 0.10 | 5.0 | | |
| †1N5819-1 | 45 | 0.34 | 0.49 | 0.8 | 0.05 | 5.0 | 70 | |
| 1N6759-1 | 60 | 0.38 | 0.69 | NA | 0.10 | 6.0 | | |
| 1N6760-1 | 80 | 0.38 | 0.69 | NA | 0.10 | 6.0 | | |
| †1N6761-1 | 100 | 0.38 | 0.69 | NA | 0.10 | 12.0 | 70 | |
| DSB1A20 | 20 | 0.36 | 0.60 | 0.9 | 0.10 | 5.0 | | |
| DSB1A30 | 30 | 0.36 | 0.60 | 0.9 | 0.10 | 5.0 | | |
| DSB1A40 | 40 | 0.36 | 0.60 | 0.9 | 0.10 | 5.0 | | |
| DSB1A50 | 50 | 0.36 | 0.60 | 0.9 | 0.10 | 5.0 | | |
| DSB1A60 | 60 | 0.38 | 0.69 | NA | 0.10 | 12.0 | | |
| DSB1A80 | 80 | 0.38 | 0.69 | NA | 0.10 | 12.0 | | |
| DSB1A100 | 100 | 0.38 | 0.69 | NA | 0.10 | 12.0 | | |

*This part number may also be ordered through the number of DSB5818.

†Also available with JAN, JANTX, JANTXV, and JANS military qualifications.

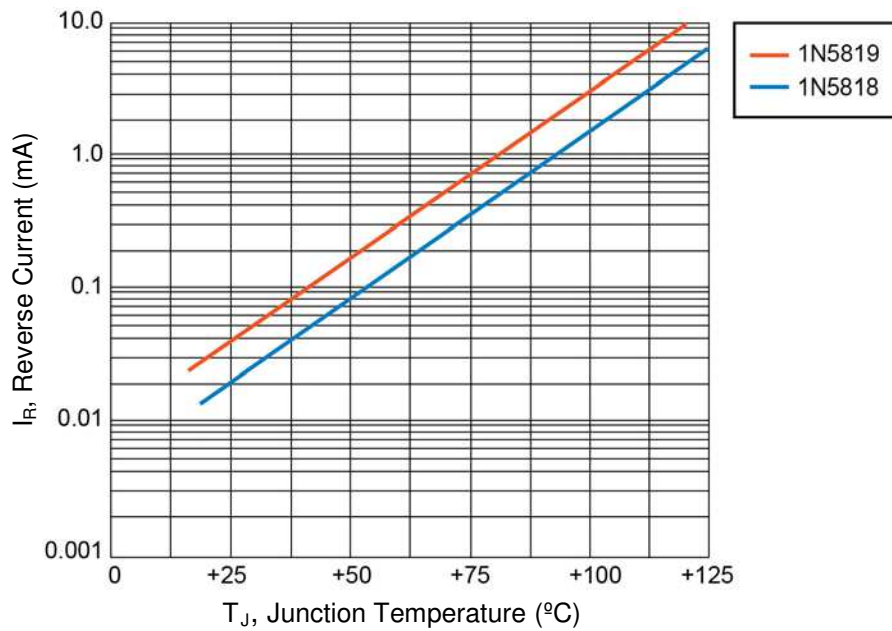
GRAPHS


FIGURE 1
Typical Reverse Leakage Current at Rated PIV (PULSED)

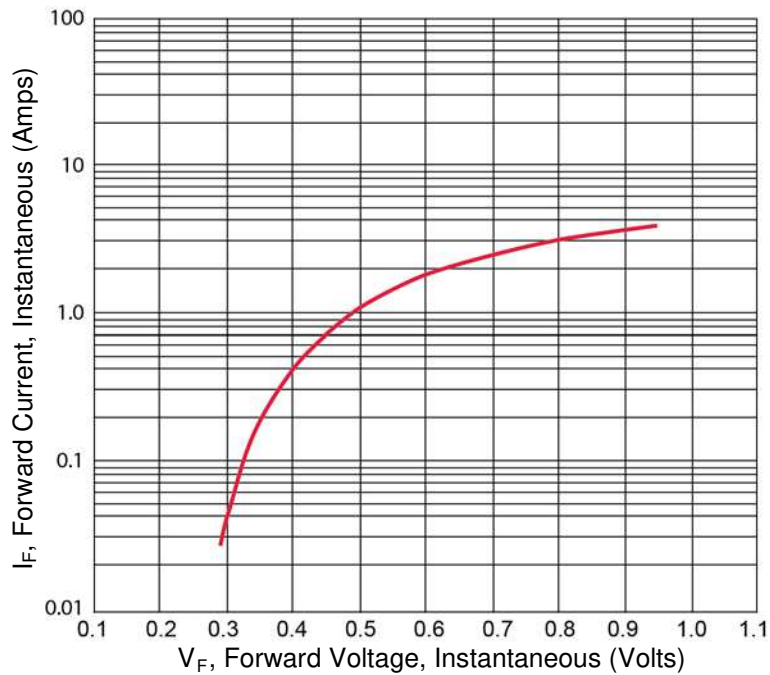
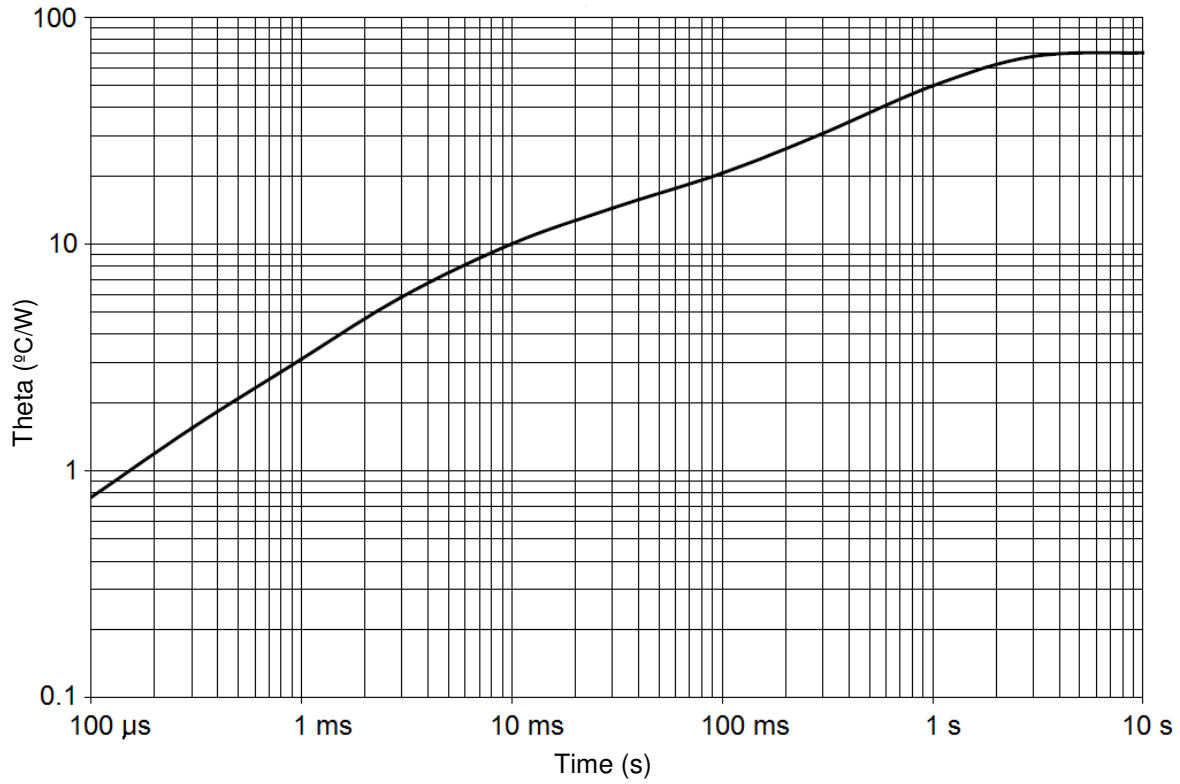
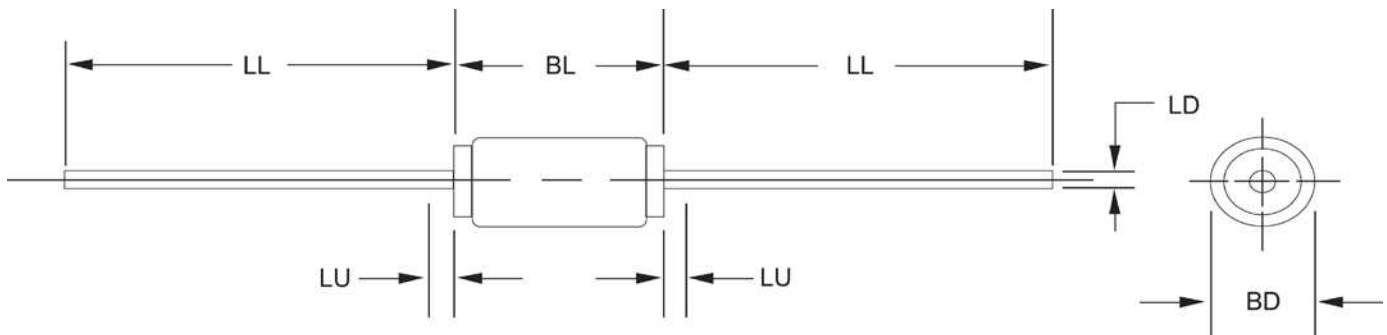


FIGURE 2
Typical Forward Voltage for 1N5819-1

GRAPHS (continued)**FIGURE 3**

Thermal impedance for 1N5819-1 and 1N6761-1 (DO-41)

PACKAGE DIMENSIONS

NOTES:

1. Dimensions are in inches. Millimeters are given for information only.
2. Package contour optional with BD and length BL. Slugs, if any, shall be included within this cylinder length but shall not be subject to minimum limit of BD.
3. Lead diameter not controlled in this zone to allow for flash, lead finish build-up, and minor irregularities other than slugs.
4. In accordance with ASME Y14.5M, diameters are equivalent to Φ x symbology.

| Ltr | DIMENSIONS | | | | Notes |
|-----------|------------|-------|-------------|------|-------|
| | INCH | | MILLIMETERS | | |
| | Min | Max | Min | Max | |
| BD | 0.080 | 0.107 | 2.03 | 2.72 | 2 |
| BL | 0.160 | 0.205 | 4.06 | 5.21 | 2 |
| LD | 0.028 | 0.034 | 0.71 | 0.86 | |
| LL | 1.000 | - | 25.40 | - | |
| LU | - | 0.050 | - | 1.27 | 3 |