

Schottky Barrier Plastic Rectifier



DO-201AD

| PRIMARY CHARACTERISTICS | |
|-------------------------|---------------------------|
| $I_{F(AV)}$ | 3.0 A |
| V_{RRM} | 20 V, 30 V, 40 V |
| I_{FSM} | 80 A |
| V_F | 0.475 V, 0.500 V, 0.525 V |
| T_J max. | 125 °C |
| Package | DO-201AD |
| Diode variations | Single |

FEATURES

- Guardring for overvoltage protection
- Very small conduction losses
- Extremely fast switching
- Low forward voltage drop
- High forward surge capability
- 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


RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-201AD

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

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | |
|--|----------------|---------------|--------|--------|------|
| PARAMETER | SYMBOL | 1N5820 | 1N5821 | 1N5822 | 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 |
| 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 $T_L = 95\text{ °C}$ | $I_{F(AV)}$ | 3.0 | | | A |
| Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 80 | | | A |
| Operating junction and storage temperature range | T_J, T_{STG} | - 65 to + 125 | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | |
|---|-----------------------|-------------|--------|--------|--------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | 1N5820 | 1N5821 | 1N5822 | UNIT |
| Maximum instantaneous forward voltage | 3.0 | $V_F^{(1)}$ | 0.475 | 0.500 | 0.525 | V |
| Maximum instantaneous forward voltage | 9.4 | $V_F^{(1)}$ | 0.850 | 0.900 | 0.950 | V |
| Maximum average reverse current at rated DC blocking voltage | $T_A = 25\text{ °C}$ | $I_R^{(1)}$ | 2.0 | | | mA |
| | $T_A = 100\text{ °C}$ | | 20 | | | |

Note

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



| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|--------------------------------|--------|--------|--------|--------------------|
| PARAMETER | SYMBOL | 1N5820 | 1N5821 | 1N5822 | UNIT |
| Typical thermal resistance | $R_{\theta JA}$ ⁽¹⁾ | 40 | | | $^\circ\text{C/W}$ |
| | $R_{\theta JL}$ ⁽¹⁾ | 10 | | | |

Note

⁽¹⁾ Thermal resistance from junction to lead vertical PCB mounted, 0.500" (12.7 mm) lead length with 2.5" x 2.5" (63.5 mm x 63.5 mm) copper pad

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| 1N5820-E3/54 | 1.08 | 54 | 1400 | 13" diameter paper tape and reel |
| 1N5820-E3/73 | 1.08 | 73 | 1000 | Ammo pack packaging |

RATINGS AND CHARACTERISTICS CURVES

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

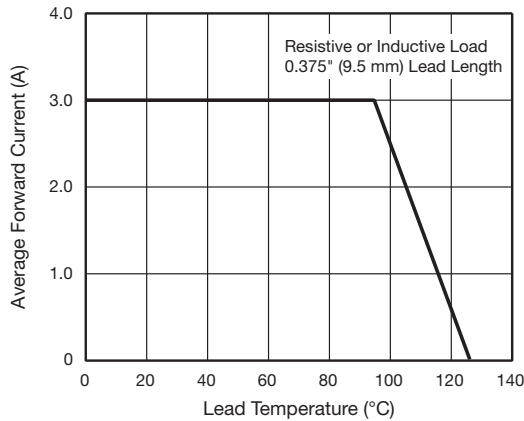


Fig. 1 - Forward Current Derating Curve

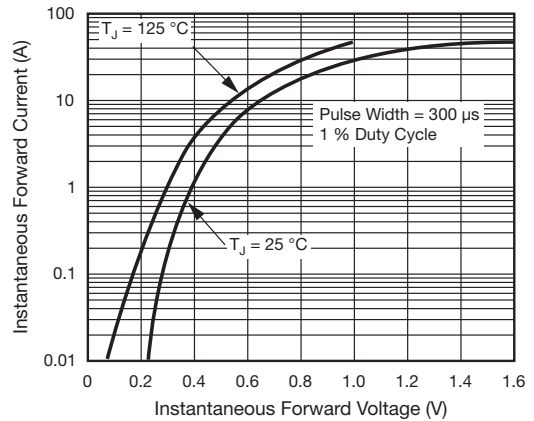


Fig. 3 - Typical Instantaneous Forward Characteristics

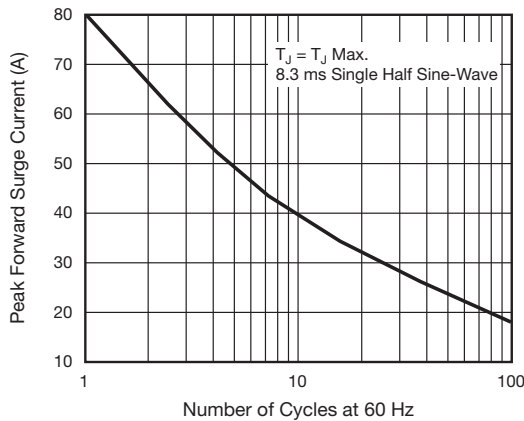


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

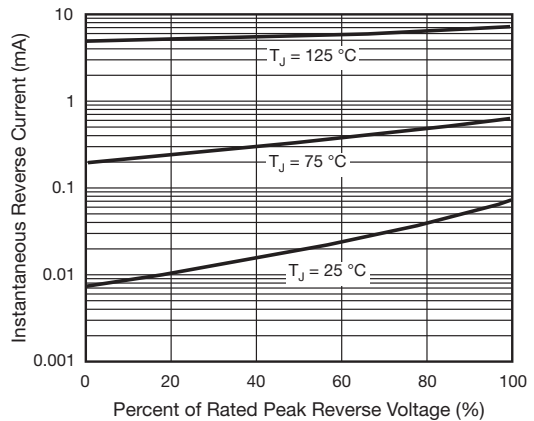


Fig. 4 - Typical Reverse Characteristics



Fig. 5 - Typical Junction Capacitance



Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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