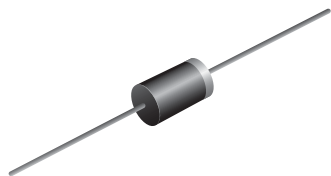


## Schottky Barrier Plastic Rectifier



DO-201AD

### 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](http://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

### 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 |
| $T_J \text{ max.}$ | 125 °C                    |
| Package            | DO-201AD                  |
| Diode variations   | Single                    |

### 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<br>at rated DC blocking voltage | $T_A = 25\text{ }^{\circ}\text{C}$  | $I_R^{(1)}$ | 2.0    |        |        | mA   |
|                                                                 | $T_A = 100\text{ }^{\circ}\text{C}$ |             | 20     |        |        |      |

#### Note

<sup>(1)</sup> Pulse test: 300  $\mu$ 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 <sub>θJA</sub> <sup>(1)</sup> | 40     |        |        | °C/W |
|                            | R <sub>θJL</sub> <sup>(1)</sup> | 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)

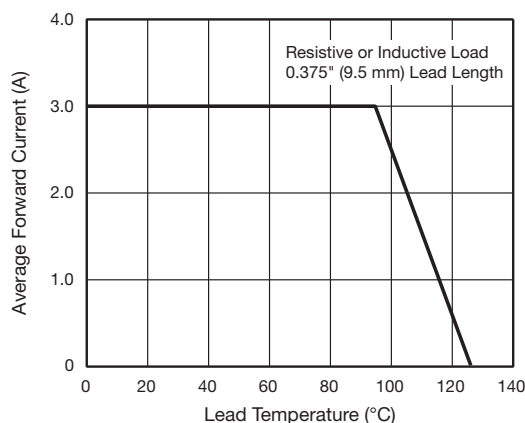


Fig. 1 - Forward Current Derating Curve

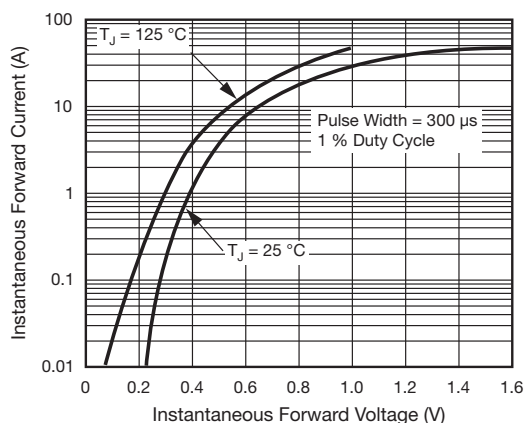


Fig. 3 - Typical Instantaneous Forward Characteristics

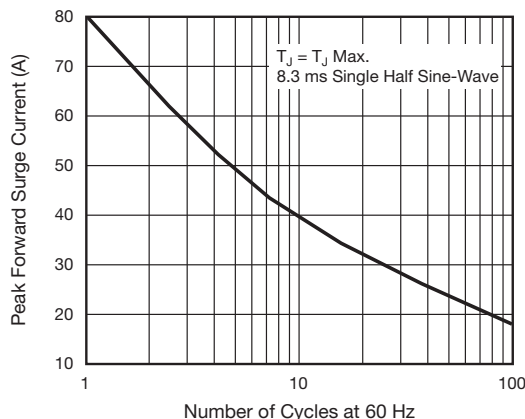


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

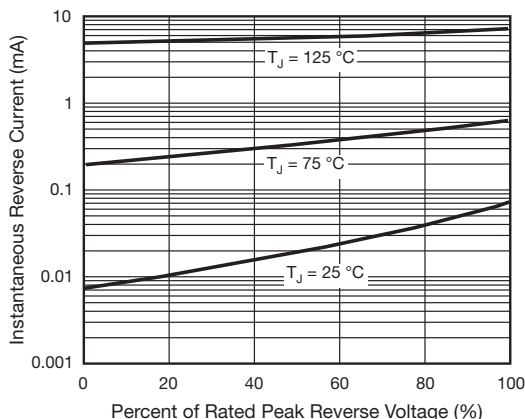


Fig. 4 - Typical Reverse Characteristics

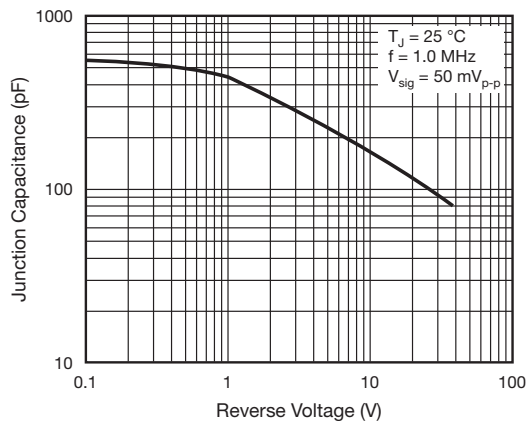


Fig. 5 - Typical Junction Capacitance

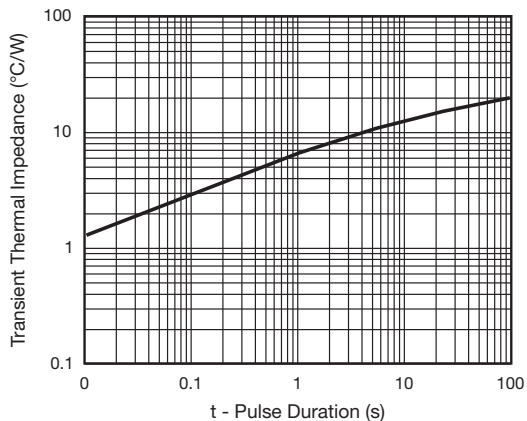
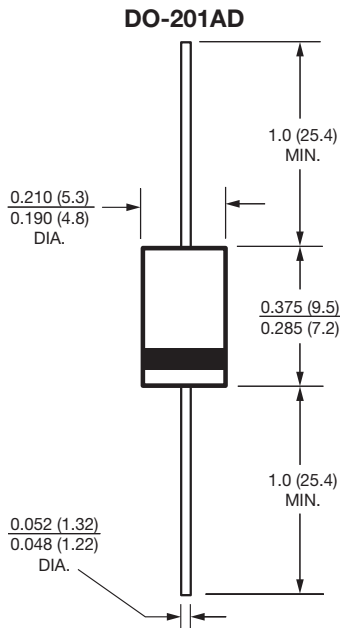


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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