

## Schottky Barrier 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
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, freewheeling, dc-to-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
$T_J$ max.	125 °C

### MAXIMUM RATINGS ( $T_A = 25$ °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 $T_L = 95$ °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 ( $T_A = 25$ °C unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	1N5820	1N5821	1N5822	UNIT
Maximum instantaneous forward voltage	3.0	V <sub>F</sub> <sup>(1)</sup>	0.475	0.500	0.525	V
Maximum instantaneous forward voltage	9.4	V <sub>F</sub> <sup>(1)</sup>	0.850	0.900	0.950	V
Maximum average reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(1)</sup>	2.0			mA
	T <sub>A</sub> = 100 °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 P.C.B. 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)

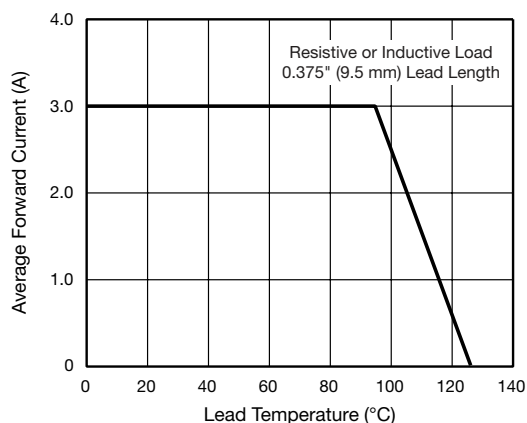


Fig. 1 - Forward Current Derating Curve

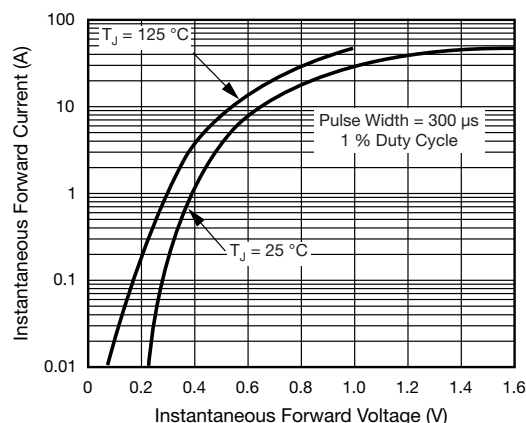


Fig. 3 - Typical Instantaneous Forward Characteristics

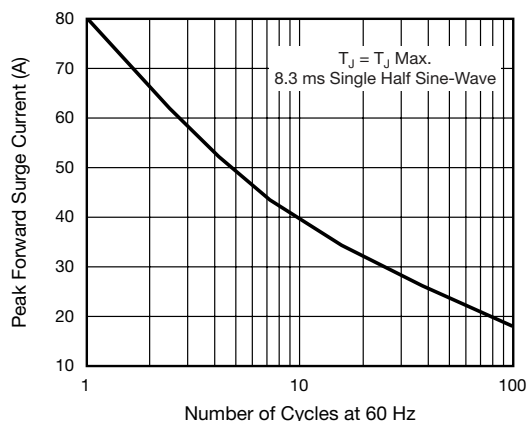


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

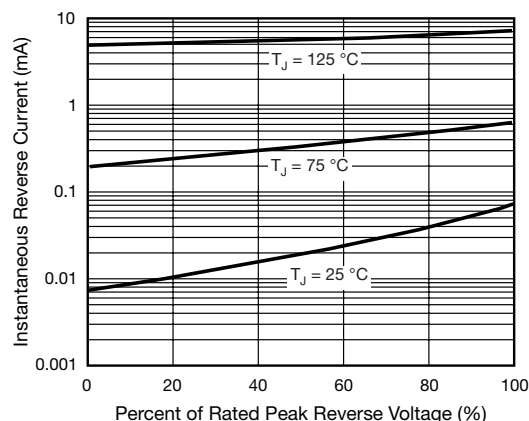


Fig. 4 - Typical Reverse Characteristics

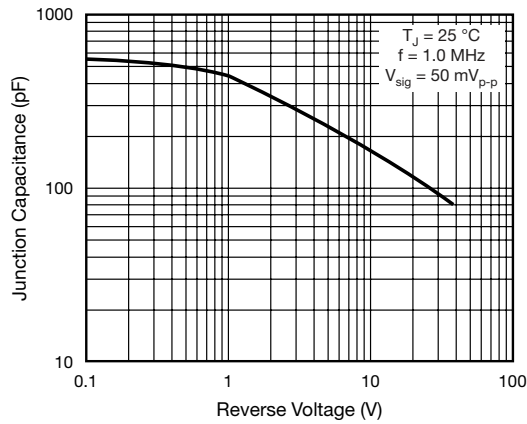


Fig. 5 - Typical Junction Capacitance

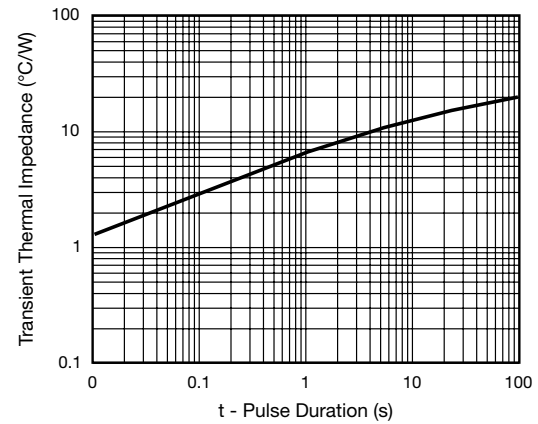
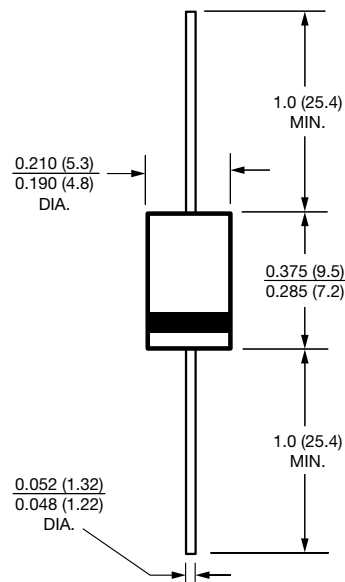


Fig. 6 - Typical Transient Thermal Impedance

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### DO-201AD





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