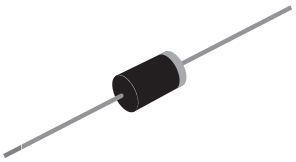
Schottky Barrier Rectifier



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 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and 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

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix for consumer grade, 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 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
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 (1)	3.0	V_F	0.475	0.500	0.525	V
Maximum instantaneous forward voltage (1)	9.4	V_F	0.850	0.900	0.950	V
Maximum average reverse current at rated DC blocking voltage (1)	T_A = 25 °C T_A = 100 °C	I_R	2.0 20			mA

Note:

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

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

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 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 °C unless otherwise noted)

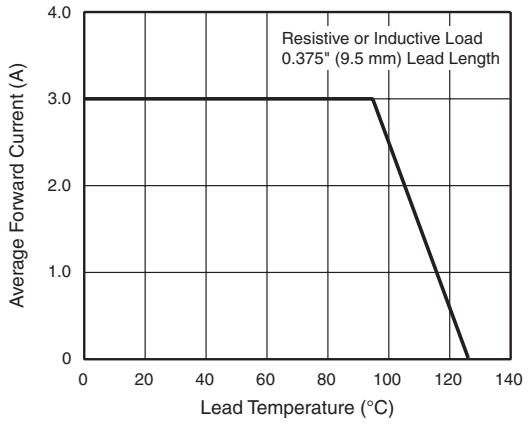


Figure 1. Forward Current Derating Curve

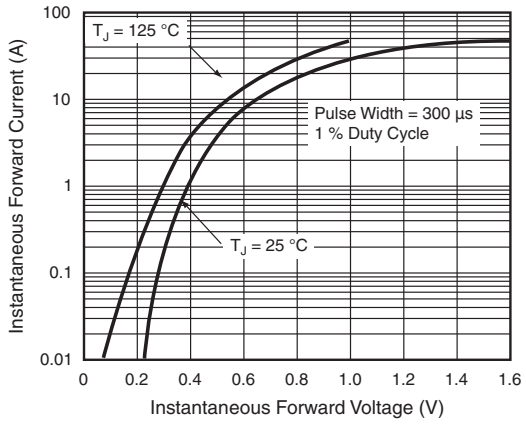


Figure 3. Typical Instantaneous Forward Characteristics

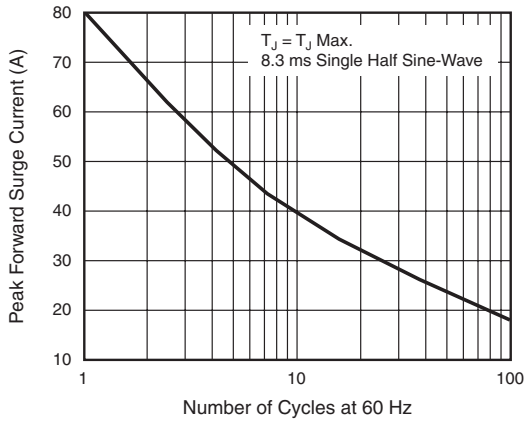


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

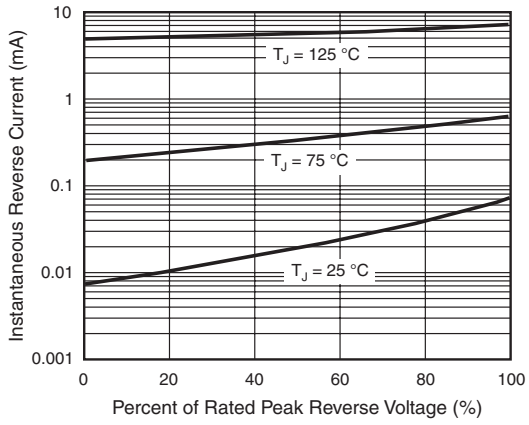


Figure 4. Typical Reverse Characteristics

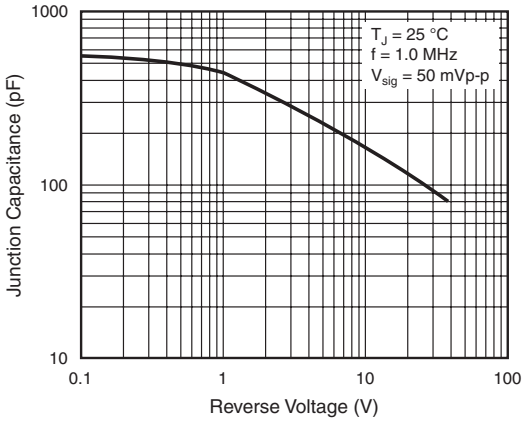


Figure 5. Typical Junction Capacitance

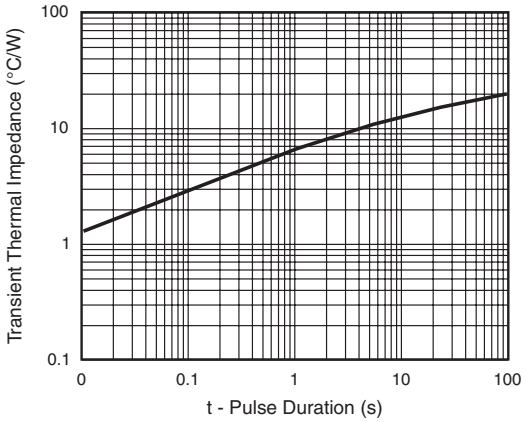
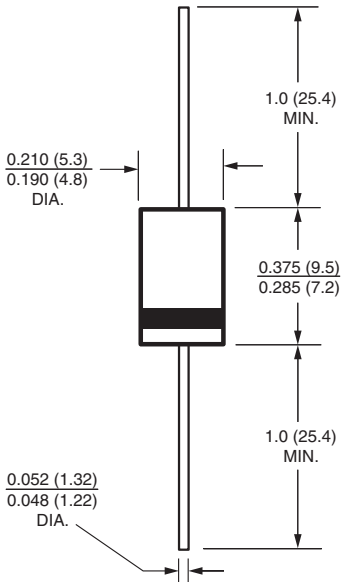


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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