

Vishay General Semiconductor

Schottky Barrier Plastic Rectifier



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 <u>www.vishay.com/doc?99912</u>

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 °C unless otherwise noted)						
PARAMETER	SYMBOL	1N5820	1N5821	1N5822	UNIT	
Maximum repetitive peak reverse voltage	V_{RRM}	V _{RRM} 20 30 40		40	V	
Maximum RMS voltage	V _{RMS}	MS 14 21 28		28	V	
Maximum DC blocking voltage	V_{DC}	20 30 40		40	V	
Non-repetitive peak reverse voltage	V _{RSM}	V _{RSM} 24 36 48		48	V	
Maximum average forward rectified current at 0.375" (9.5 mm) lead length at $T_L = 95^{\circ}\text{C}$	I _{F(AV)}	3.0			А	
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	80			А	
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 _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	T _A = 25 °C	I _R (1)	2.0			- mA
at rated DC blocking voltage	T _A = 100 °C	IR (''	20			

Note

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



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THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	OL 1N5820 1N5821 1N5822		UNIT	
Typical thermal resistance	R _{0JA} (1)	40			°C/W
	R ₀ 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 °C unless otherwise noted)

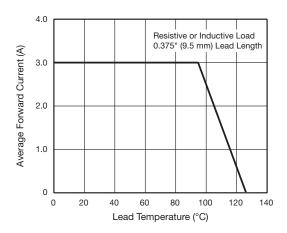


Fig. 1 - Forward Current Derating Curve

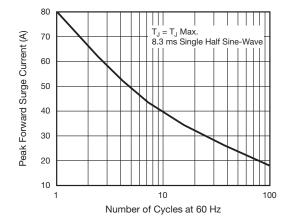


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

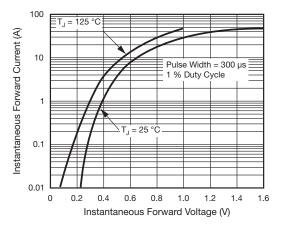


Fig. 3 - Typical Instantaneous Forward Characteristics

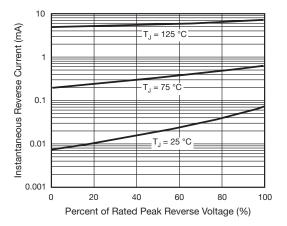


Fig. 4 - Typical Reverse Characteristics



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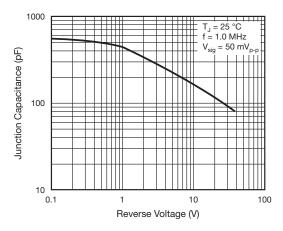


Fig. 5 - Typical Junction Capacitance

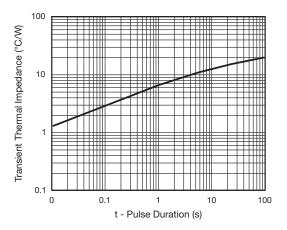
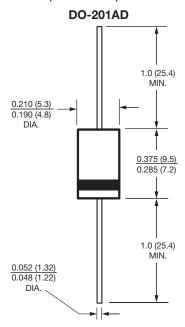


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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