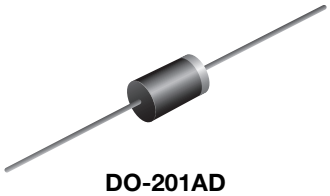
High-Voltage Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-201AD

FEATURES

- Guardring for overvoltage protection
- Low power losses and high efficiency
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- High frequency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in middle 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
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: Color band denotes the cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	5.0 A
V_{RRM}	90 V, 100 V
I_{FSM}	200 A
V_F	0.70 V
I_R	200 µA
T_J max.	175 °C

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	SB5H90	SB5H100	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	90	100	V
Working peak reverse voltage	V_{RWM}	90	100	V
Maximum DC blocking voltage	V_{DC}	90	100	V
Maximum average forward rectified current at T_C = 80 °C	$I_{F(AV)}$	5.0		A
Peak forward surge current, 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	200		A
Peak repetitive reverse surge current at t_p = 2.0 µs, 1 kHz	I_{RRM}	1.0		A
Storage temperature range	T_{STG}	- 55 to + 175		°C
Maximum operating junction temperature	T_J	175		°C

ELECTRICAL CHARACTERISTICS (T = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**SB5H90**	**SB5H100**	**UNIT**
Maximum instantaneous forward voltage	I_F = 5.0 A	T_A = 25 °C	V_F (1)	0.80		V
		T_A = 125 °C		0.70		
Maximum reverse current at rated V_R		T_A = 25 °C	I_R (2)	200		µA
		T_A = 125 °C		10		mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SB5H90**	**SB5H100**	**UNIT**
Maximum thermal resistance	$R_{\theta JA}$ (1)	25		°C/W
	$R_{\theta JL}$ (1)	8		

Note

(1) P.C.B. mounted with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PPREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SB5H100-E3/54	1.1	54	1400	13" diameter paper tape and reel
SB5H100-E3/73	1.1	73	1000	Ammo pack packaging
SB5H100HE3/54 (1)	1.1	54	1400	13" diameter paper tape and reel
SB5H100HE3/73 (1)	1.1	73	1000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

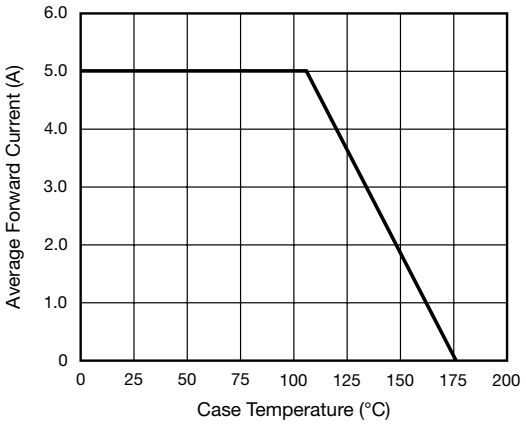


Fig. 1 - Forward Current Derating Curve

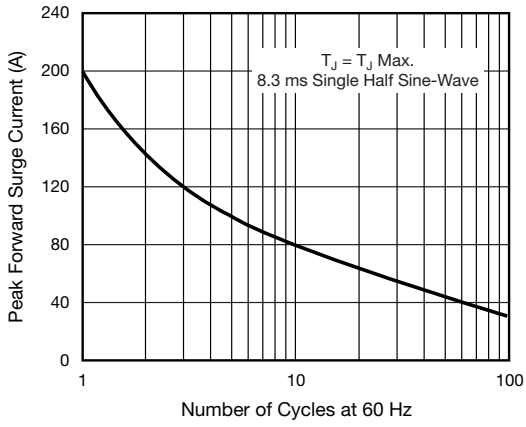


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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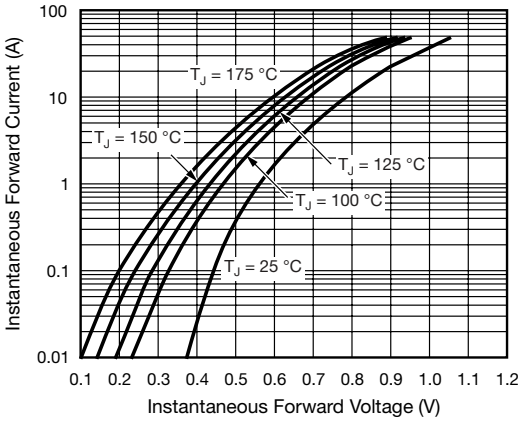


Fig. 3 - Typical Instantaneous Forward Characteristics

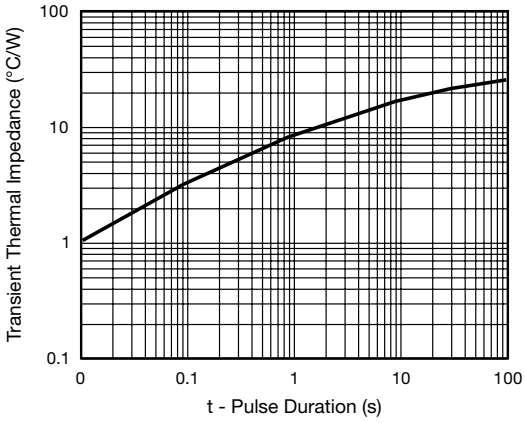


Fig. 5 - Typical Transient Thermal Impedance

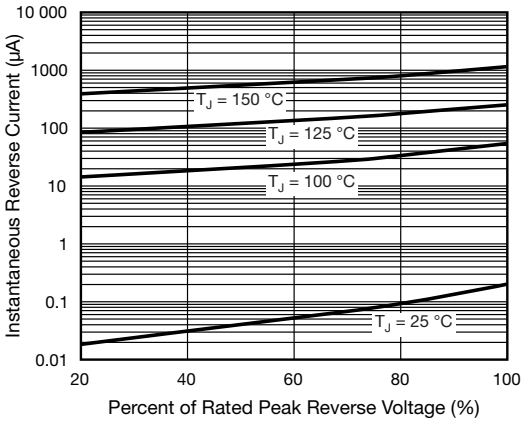


Fig. 4 - Typical Reverse Characteristics

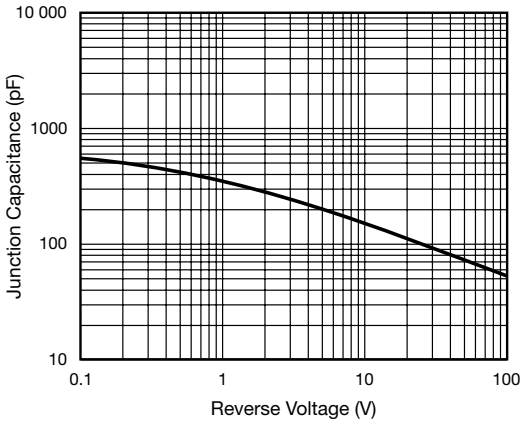
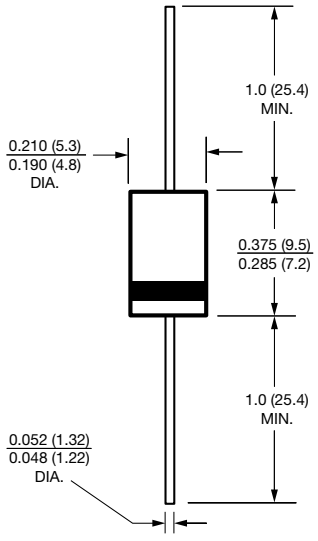


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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