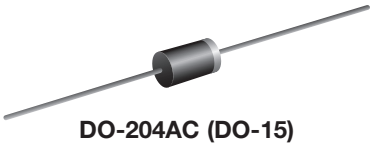
High Voltage Schottky Plastic Rectifier

High Barrier Technology for Improved High Temperature Performance



DO-204AC (DO-15)

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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	90 V, 100 V
I_{FSM}	75 A
V_F	0.65 V
I_R	10 µA
T_J max.	175 °C
Package	DO-204AC
Diode variations	Single

TYPICAL APPLICATIONS

For use in middle voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

MECHANICAL DATA

Case: DO-204AC (DO-15)
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

Note

- SB2H100 for commercial grade only

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

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

PARAMETER	SYMBOL	SB2H90	SB2H100	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_A = 25 °C	$I_{F(AV)}$	2.0		A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	75		A
Peak repetitive reverse surge current at t_p = 2.0 µs, 1 kHz	I_{RRM}	1.0		A
Critical rate of rise of reverse voltage	dV/dt	10 000		V/µs
Storage temperature range	T_{STG}	-55 to +175		°C
Maximum operating junction temperature	T_J	175		°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	SB2H90	SB2H100	UNIT
Maximum instantaneous forward voltage	I_F = 2.0 A	T_J = 25 °C	V_F (1)	0.79		V
		T_J = 125 °C		0.65		
Maximum reverse current at rated V_R		T_J = 25 °C	I_R (2)	10		μA
		T_J = 125 °C		4.0		mA

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	SYMBOL	SB2H90	SB2H100	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	45		°C/W
	$R_{\theta JL}$ (1)	14		

Note

(1) PCB 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)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
SB2H90-E3/54	0.398	54	4000	13" diameter paper tape and reel
SB2H90-E3/73	0.398	73	2000	Ammo pack packaging
SB2H90HE3/54 (1)	0.398	54	4000	13" diameter paper tape and reel
SB2H90HE3/73 (1)	0.398	73	2000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

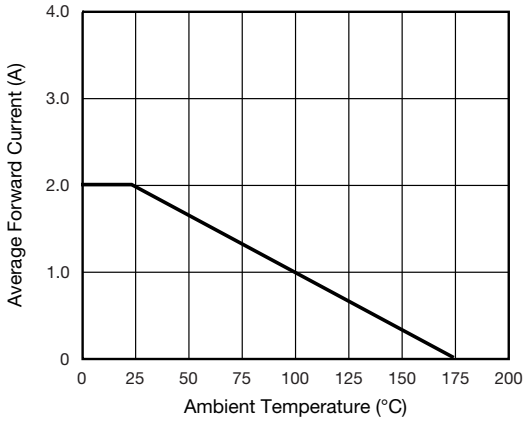


Fig. 1 - Forward Current Derating Curve

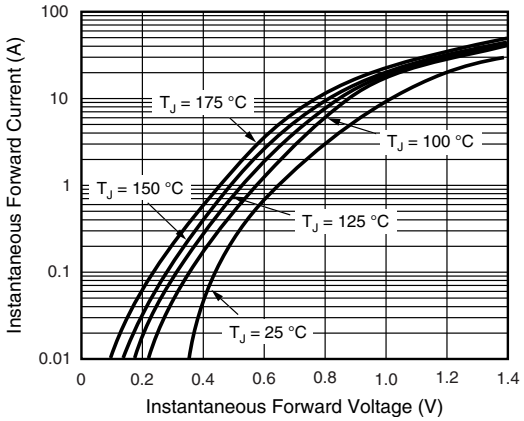


Fig. 2 - Typical Instantaneous Forward Characteristics

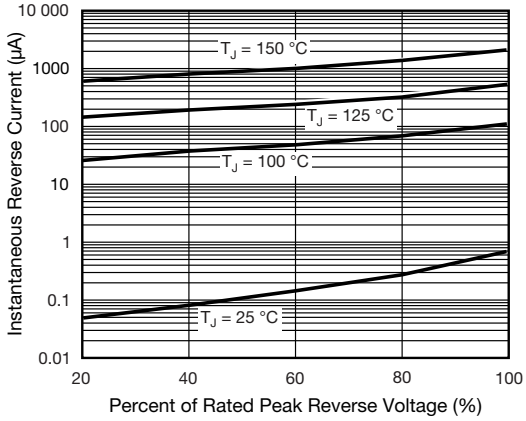


Fig. 3 - Typical Reverse Characteristics

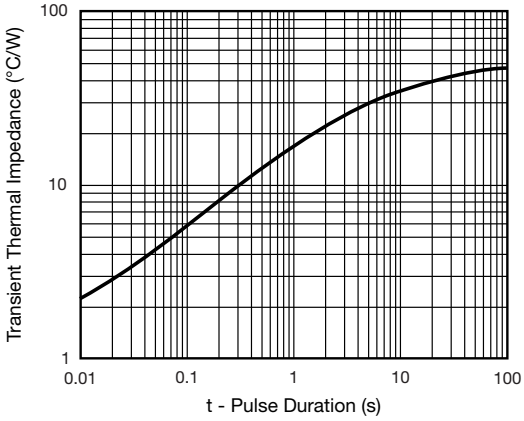


Fig. 5 - Typical Transient Thermal Impedance

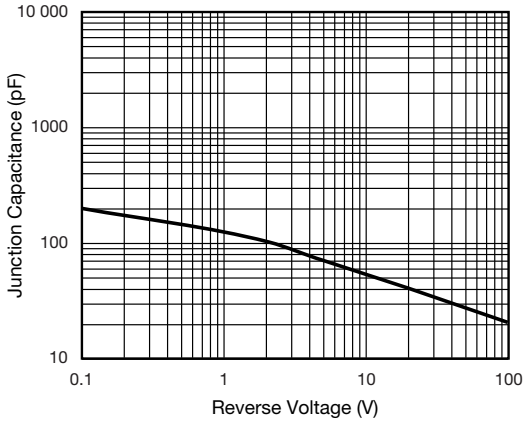
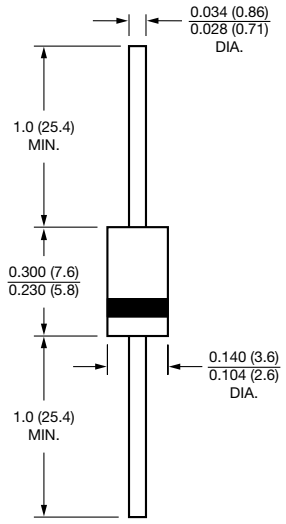


Fig. 4 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)



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