Surface Mount Schottky Barrier Rectifier

DO-214AC (SMA)

FEATURES

- Low profile package
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb

e3

RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

Note
- These devices are not AEC-Q101 qualified

MECHANICAL DATA

Case: DO-214AC (SMA)
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

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$I_{F(AV)}$	1.0 A
V_{RRM}	20 V to 60 V
I_{FSM}	30 A
V_F	0.52 V, 0.75 V
T_J max.	125 °C, 150 °C

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

PARAMETER	SYMBOL	B120	B130	B140	B150	B160	UNIT
Device marking code		B12	B13	B14	B15	B16	
Maximum repetitive peak reverse voltage	V_{RRM}	20	30	40	50	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	1.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30					A
Voltage rate of change (rated V_R)	dV/dt	10 000					V/µs
Operating junction temperature range	T_J	- 65 to + 125			- 65 to + 150		°C
Storage temperature range	T_{STG}	- 65 to + 150					°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	TEST CONDITIONS		SYMBOL	B120	B130	B140	B150	B160	UNIT
Maximum instantaneous forward voltage	1.0 A		V_F [1]		0.52			0.75	V
Maximum reverse current at rated V_R	T_A = 25 °C		I_R [2]			0.2			mA
	T_A = 100 °C				6.0			5.0	

Notes

[1] Pulse test: 300 µs pulse width, 1 % duty cycle

[2] Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	B120	B130	B140	B150	B160	UNIT
Typical thermal resistance	$R_{\theta JA}$ [1]			95			°C/W
	$R_{\theta JL}$ [1]			30			

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)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
B140-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
B140-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES
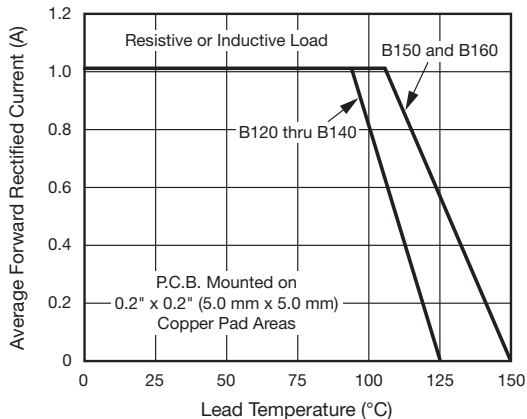
(T_A = 25 °C unless otherwise noted)

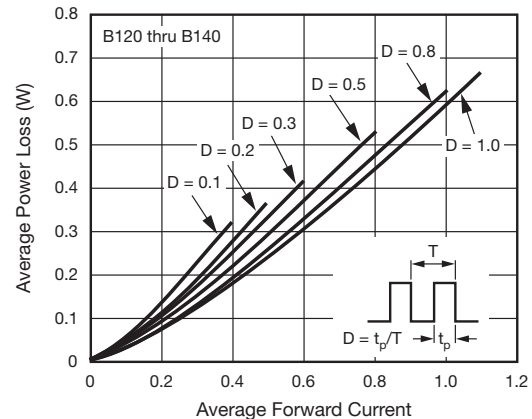Fig. 1 - Maximum Forward Current Derating Curve
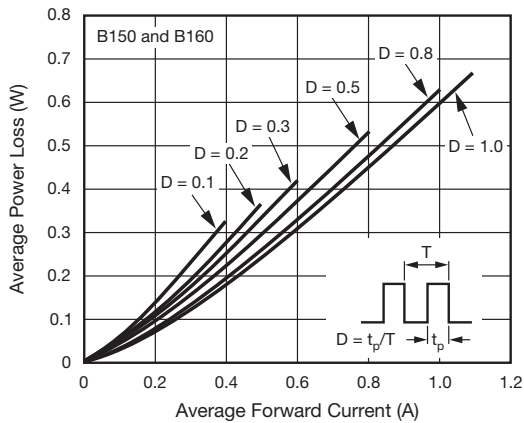

Fig. 2 - Forward Power Loss Characteristics

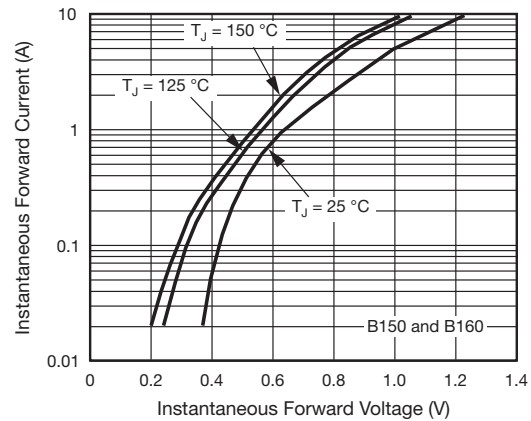Fig. 3 - Forward Power Loss Characteristics
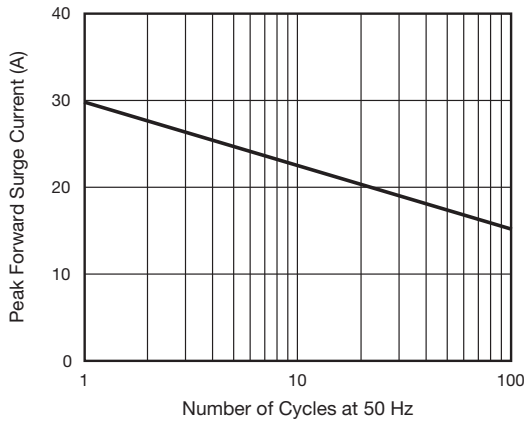

Fig. 4 - Typical Instantaneous Forward Characteristics

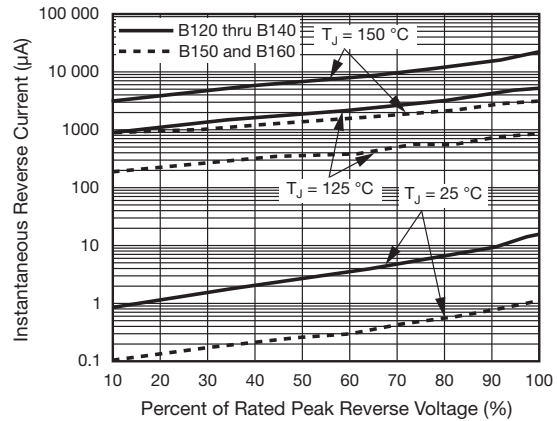Fig. 5 - Typical Instantaneous Forward Characteristics

Fig. 6 - Typical Instantaneous Forward Characteristics
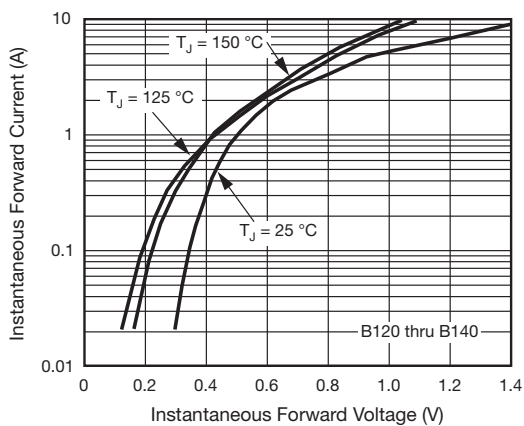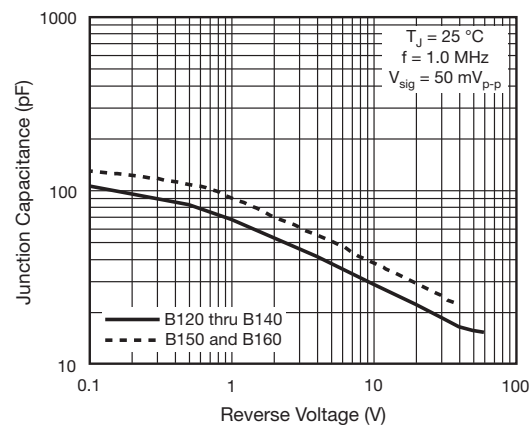

Fig. 7 - Typical Reverse Leakage Characteristics

Fig. 8 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)

Cathode Band

0.065 (1.65)
0.049 (1.25)

0.110 (2.79)
0.100 (2.54)

0.177 (4.50)
0.157 (3.99)

0.012 (0.305)
0.006 (0.152)

0.090 (2.29)
0.078 (1.98)

0.060 (1.52)
0.030 (0.76)

0.008 (0.203)
0 (0)

0.208 (5.28)
0.194 (4.93)

Mounting Pad Layout

0.066 (1.68)
MIN.

0.074 (1.88)
MAX.

0.060 (1.52)
MIN.

0.208 (5.28)
REF.

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
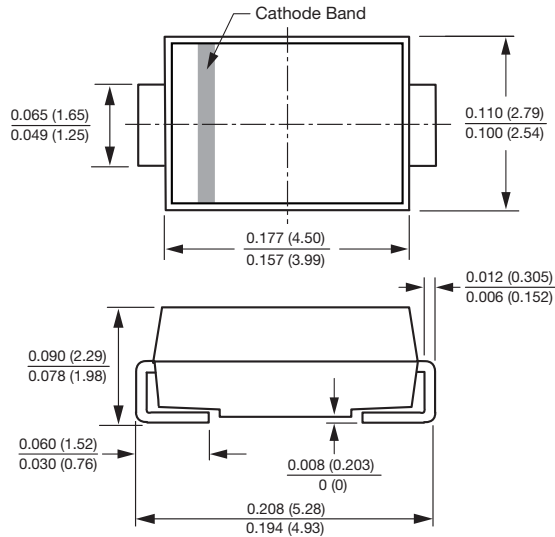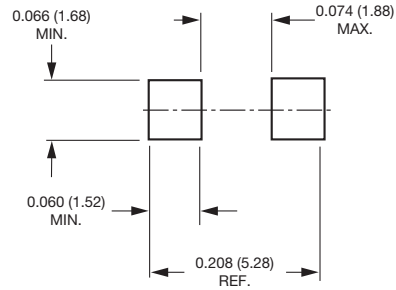
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