B120-E3, B130-E3, B140-E3, B150-E3, B160-E3

Vishay General Semiconductor

Surface Mount Schottky Barrier Rectifier



DO-214AC (SMA)

PRIMARY CHARACTERISTICS							
I _{F(AV)}	1.0 A						
V _{RRM}	20 V, 30 V, 40 V, 50 V, 60 V						
I _{FSM}	30 A						
V _F	0.52 V, 0.75 V						
T _J max.	125 °C, 150 °C						
Package	DO-214AC						
Diode variations	Single						

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 <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.

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

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				Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30					А	
Voltage rate of change (rated V _R)	dV/dt	10 000				V/µs		
Operating junction temperature range	TJ	- 65 to + 125 - 65 to + 150				+ 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				
Maximum reverse current at rated v _R		T _A = 100 °C	IR (-)		6.0		5	.0	IIIA		

Notes

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

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THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	B120	B130	B140	B150	B160	UNIT
Typical thermal resistance	R _{0JA} (1)	95					°C/W
Typical thermal resistance	R _{0JL} (1)	30					

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					
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)

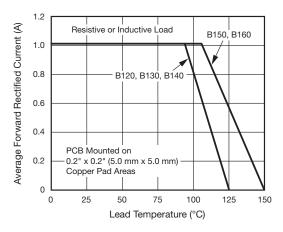


Fig. 1 - Maximum Forward Current Derating Curve

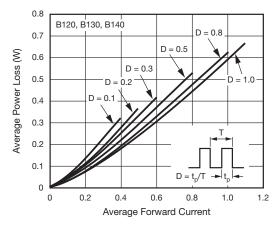


Fig. 2 - Forward Power Loss Characteristics

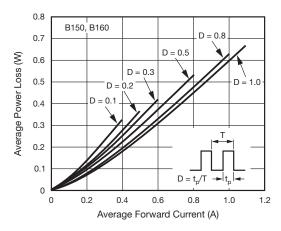


Fig. 3 - Forward Power Loss Characteristics

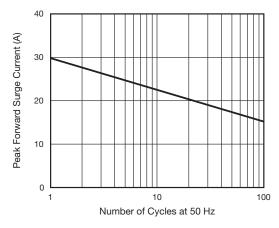


Fig. 4 - Typical Instantaneous Forward Characteristics



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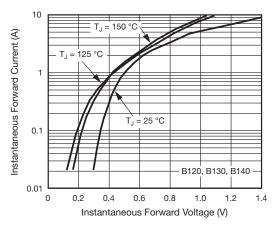


Fig. 5 - Typical Instantaneous Forward Characteristics

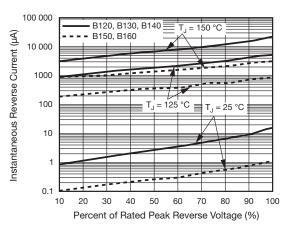


Fig. 7 - Typical Reverse Leakage Characteristics

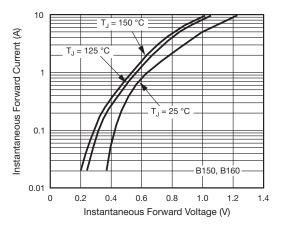


Fig. 6 - Typical Instantaneous Forward Characteristics

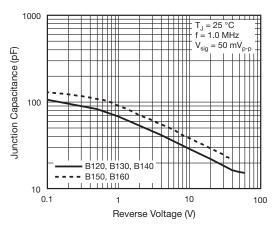
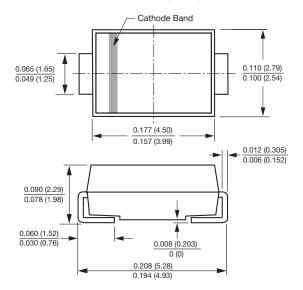


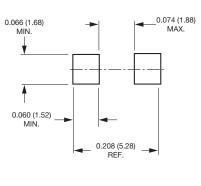
Fig. 8 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AC (SMA)



Mounting Pad Layout





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