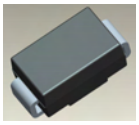
1.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Features

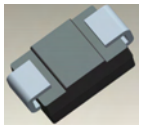
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 30A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band or Cathode Notch
- Weight: SMA 0.064 grams (approximate)
  SMB 0.093 grams (approximate)



Top View



Bottom View

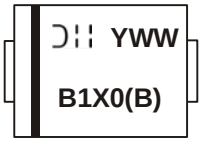
Ordering Information (Note 3)

Part Number	Case	Packaging
B1XX-13-F	SMA	5000/Tape & Reel
B1XXB-13-F	SMB	3000/Tape & Reel

*xx = Device Type, e.g. B120-13-F (SMA Package); B120B-13-F (SMB Package).

Notes:
1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
3. For packaging details, go to our website at http://www.diodes.com.

Marking Information



B1X0 = Product type marking code, ex: B120 (SMA package)
B1X0B = Product type marking code, ex: B160B (SMB package)
= Manufacturers' code marking
YWW = Date code marking
Y = Last digit of year (ex: 2 for 2002)
WW = Week code (01 to 53)

Maximum Ratings @T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitance load, derate current by 20%.

Characteristic	Symbol	B120/B	B130/B	B140/B	B150/B	B160/B	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	30	40	50	60	V
RMS Reverse Voltage	$V_{R(RMS)}$	14	21	28	35	42	V
Average Rectified Output Current @ T_T = 130°C	I_O	1.0					A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	30					A

Thermal Characteristics

Characteristic	Symbol	B120/B	B130/B	B140/B	B150/B	B160/B	Unit
Typical Thermal Resistance Junction to Terminal (Note 4)	$R_{\theta JT}$	20					°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150					°C

Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop B120/B, B130/B, B140/B B150/B, B160/B	V_F	- -	- -	0.5 0.7	V	I_F = 1.0A I_F = 1.0A
Leakage Current (Note 5)	I_R	- -	- -	0.5 10	mA	@ Rated V_R, T_A = 25°C @ Rated V_R, T_A = 100°C
Total Capacitance	C_T	-	-	110	pF	V_R = 4V, f = 1MHz

Notes: 4. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pads as heat sink.
5. Short duration pulse test used to minimize self-heating effect.

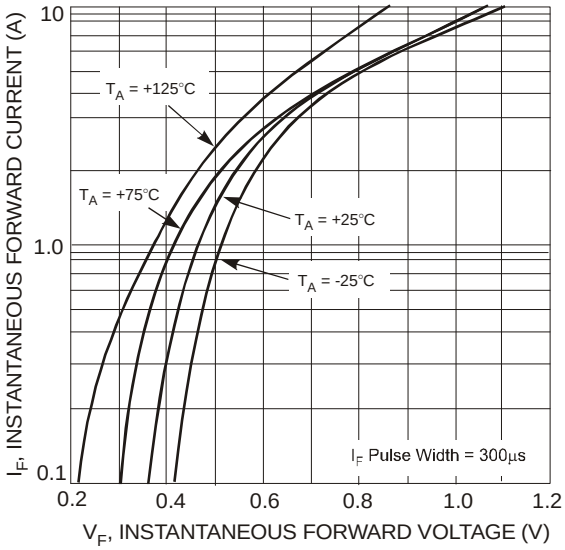


Fig. 1 Typical Forward Characteristics - B120/B thru B140/B

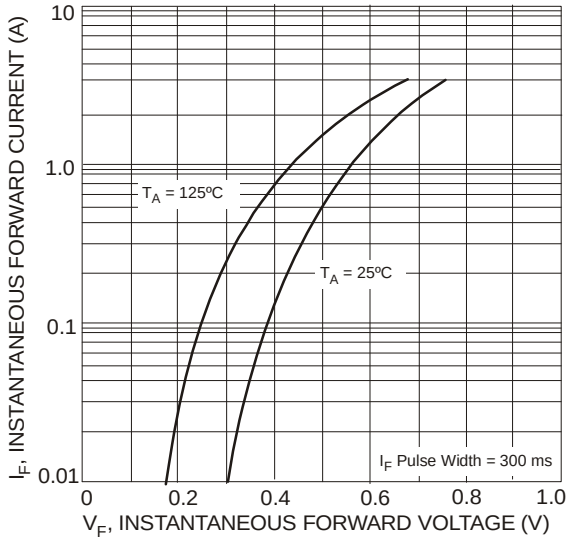


Fig. 2 Typical Forward Characteristics - B150/B thru B160/B

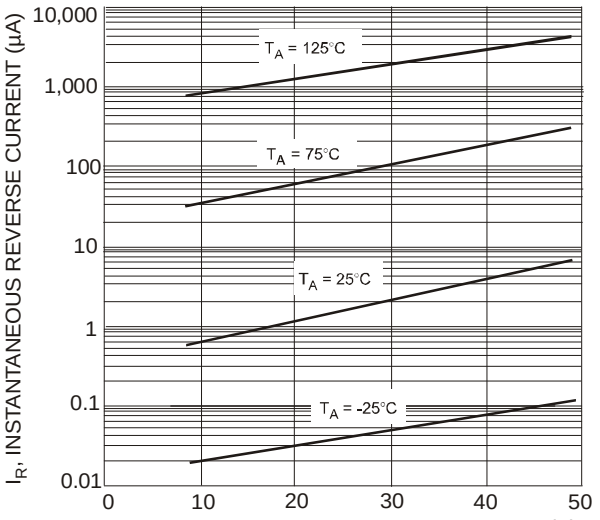


Fig. 3 Typical Reverse Characteristics, B120/B thru B140/B

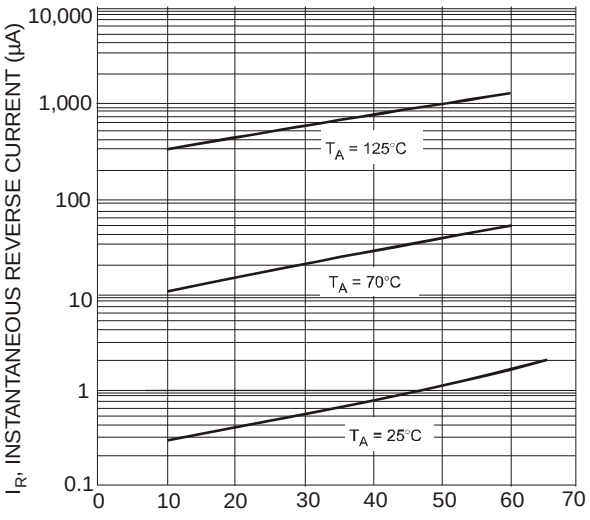


Fig. 4 Typical Reverse Characteristics, B150/B thru B160/B

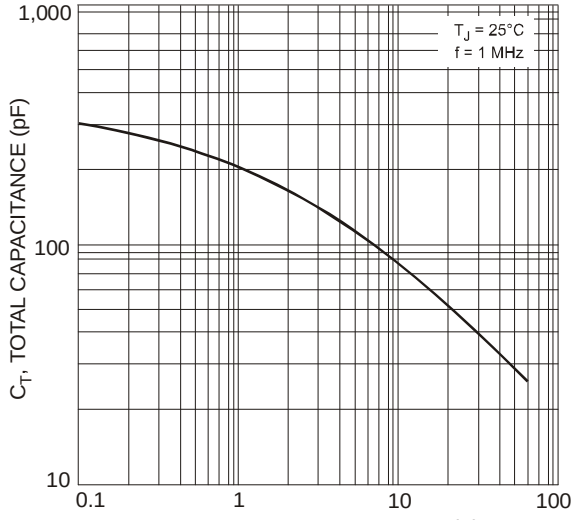


Fig. 5 Total Capacitance vs. Reverse Voltage

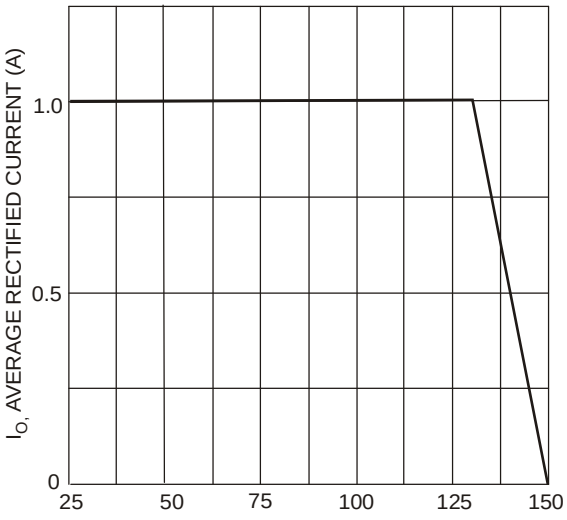


Fig. 6 Forward Current Derating Curve

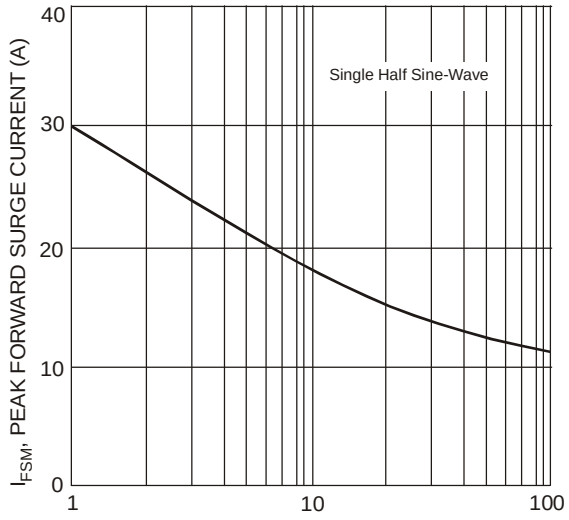
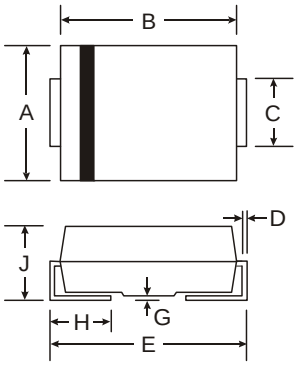


Fig. 7 Max Non-Repetitive Peak Forward Surge Current

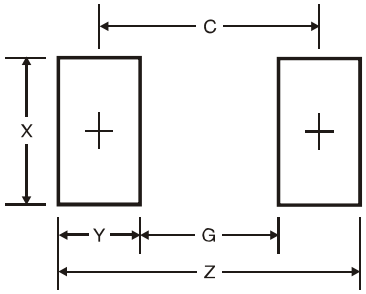
Package Outline Dimensions



SMA		
Dim	Min	Max
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	2.01	2.30
All Dimensions in mm		

SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout



SMA Dimensions	Value (in mm)
Z	6.5
G	1.5
X	1.7
Y	2.5
C	4.0

SMB Dimensions	Value (in mm)
Z	6.7
G	1.8
X	2.3
Y	2.5
C	4.3

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