1.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER

Product Summary (@ +25°C)

Device	V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (mA)
B170AE/BE	70	1.0	0.79	0.2
B180AE/BE	80	1.0	0.79	0.2
B190AE/BE	90	1.0	0.79	0.2
B1100AE/BE	100	1.0	0.79	0.2

Features and Benefits

- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- For Use in Low Voltage Drop, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

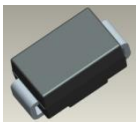
Applications

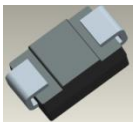
- Polarity Protection Diode
- Re-Circulating Diode
- Blocking Diode
- DC-DC
- AC-DC

Mechanical Data

- Case: SMA , SMB
- Case Material: Molded Plastic. "Green" Molding Compound. 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
- Weight: SMA-0.063 grams (Approximate)
  SMB-0.093 grams (Approximate)

SMA / SMB


Top View


Bottom View

Ordering Information (Note 4)

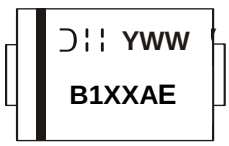
Part Number	Case	Packaging
B1XXAE-13	SMA	5,000/Tape & Reel
B1XXXAE-13	SMA	5,000/Tape & Reel
B1XXBE-13	SMB	3,000/Tape & Reel
B1XXXBE-13	SMB	3,000/Tape & Reel

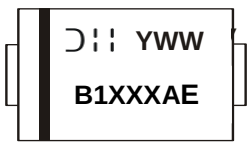
*x = Device type, e.g. B180AE-13 (SMA package); B1100BE-13 (SMB package).

Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See https://www.diodes.com/quality/lead-free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information

SMA





B1XXAE or B1XXXAE = Product Type Marking Code, ex: B170AE (SMA Package)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 8 for 2018)
WW = Week Code (01 to 53)

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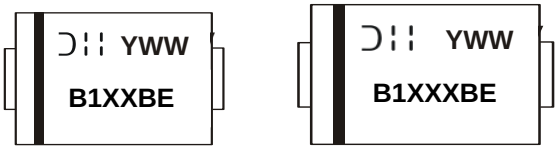
Marking Information (Cont.)

SMB



B1XXBE or B1XXXBE = Product Type Marking Code, ex: B170BE (SMB Package)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 8 for 2018)
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 capacitive load, derate current by 20%.

Characteristic	Symbol	B170AE B170BE	B180AE B180BE	B190AE B190BE	B1100AE B1100BE	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	70	80	90	100	V
Average Rectified Output Current	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	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	SMA SMB	$R_{\theta JA}$	110 75	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	SMA SMB	$R_{\theta JC}$	55 40	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@T_A = +25°C unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	— —	0.75 0.61	0.79 —	V	I_F = 1.0A, T_A = +25°C I_F = 1.0A, T_A = +125°C
Leakage Current (Note 6)	I_R	— —	— —	0.2 5.0	mA	@ Rated V_R, T_A = +25°C @ Rated V_R, T_A = +125°C
Typical Capacitance	C_T	—	27	—	pF	V_R = 4V, f = 1MHz

Notes: 5. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad.
6. Short duration pulse test used to minimize self-heating effect.

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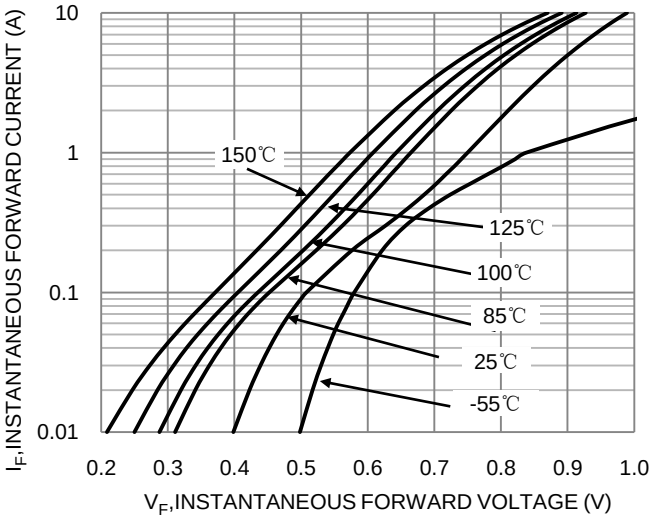

Figure 1. Typical Forward Characteristics

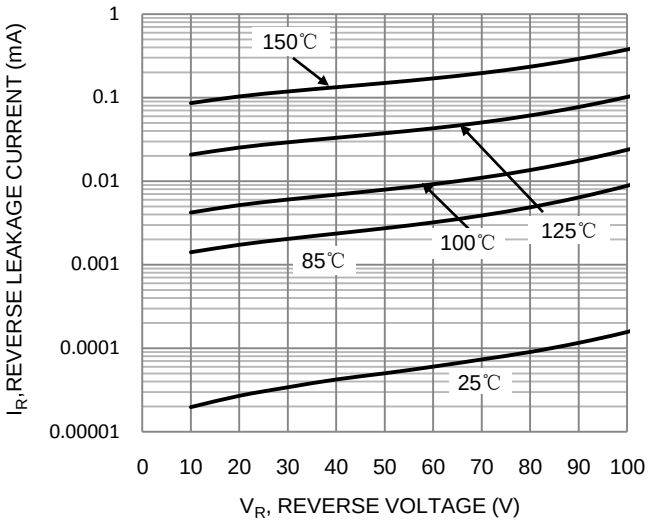

Figure 2. Typical Reverse Characteristics

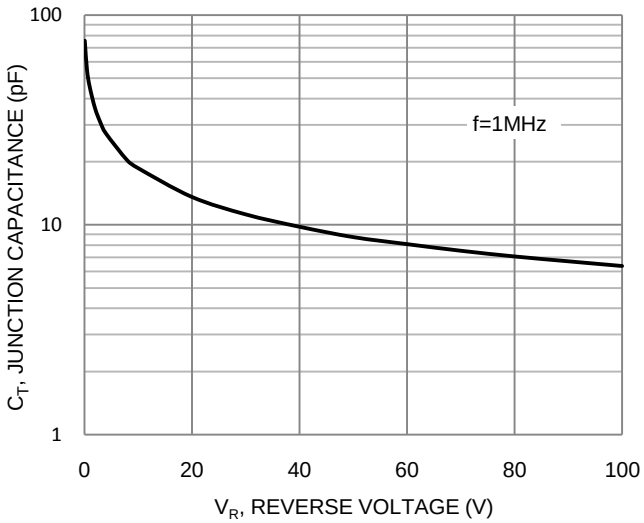

Figure 3. Typical Junction Capacitance

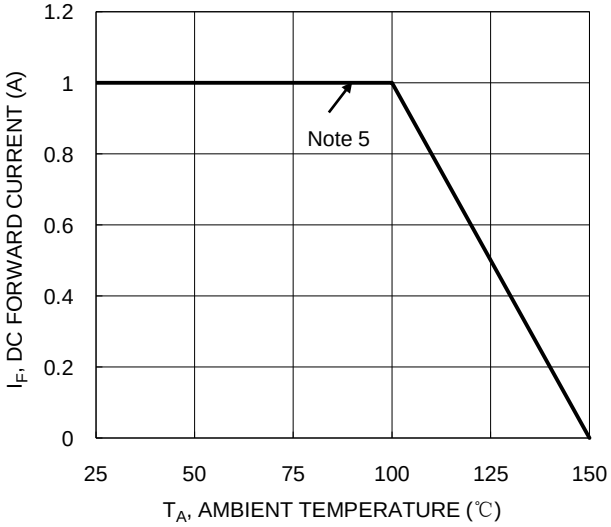

Figure 4. DC Forward Current Derating

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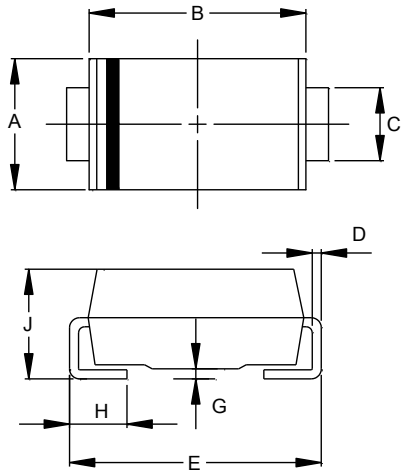
Package Outline Dimensions

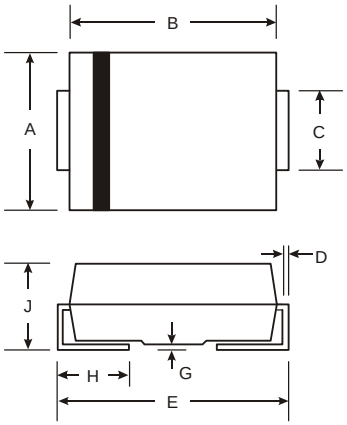
Please see http://www.diodes.com/package-outlines.html for the latest version.

SMA



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	1.96	2.40
All Dimensions in mm		

SMB

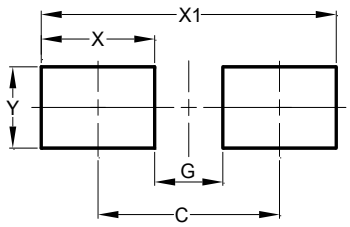


SMB		
Dim	**Min**	**Max**
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout

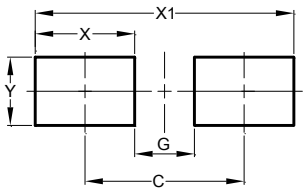
Please see http://www.diodes.com/package-outlines.html for the latest version.

SMA



Dimensions	Value (in mm)
C	4.00
G	1.50
X	2.50
X1	6.50
Y	1.70

SMB



Dimensions	Value (in mm)
C	4.30
G	1.80
X	2.50
X1	6.80
Y	2.30

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