1.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER

Product Summary (@+25°C)

B170Q

V_{RRM} (V)	I_O (A)	$V_{F\ max}$ (V)	$I_{R\ max}$ (mA)
70	1.0	0.79	0.5

B180Q

V_{RRM} (V)	I_O (A)	$V_{F\ max}$ (V)	$I_{R\ max}$ (mA)
80	1.0	0.79	0.5

B190Q

V_{RRM} (V)	I_O (A)	$V_{F\ max}$ (V)	$I_{R\ max}$ (mA)
90	1.0	0.79	0.5

B1100Q

V_{RRM} (V)	I_O (A)	$V_{F\ max}$ (V)	$I_{R\ max}$ (mA)
100	1.0	0.79	0.5

Applications

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

Features and Benefits

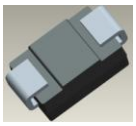
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- For Use in Low Voltage Drop, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- High Temperature Soldering: +260°C/10 Second at Terminal
- **Lead-Free Finish & RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

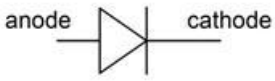
- Case: SMA
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 e3
- Polarity: Cathode Band
- Weight: 0.064 grams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

SMA

Top View



Bottom View

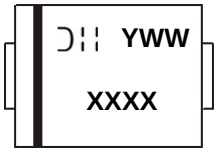


Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
B170Q-13-F	Automotive	SMA	5,000/Tape & Reel
B180Q-13-F	Automotive	SMA	5,000/Tape & Reel
B190Q-13-F	Automotive	SMA	5,000/Tape & Reel
B1100Q-13-F	Automotive	SMA	5,000/Tape & Reel

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
5. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



XXXX = Product Type Marking Code (ex: B190)
= 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	B170Q	B180Q	B190Q	B1100Q	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	70	80	90	100	V
RMS Reverse Voltage	$V_{R(RMS)}$	49	56	63	70	V
Average Rectified Output Current @ T_T = +125°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
Repetitive Peak Reverse Current	I_{RRM}	1.0				A

Thermal Characteristics

Characteristic	Symbol	B170Q	B180Q	B190Q	B1100Q	Unit
Typical Thermal Resistance Junction to Terminal (Note 6)	$R_{\theta JT}$	25				°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	V_F	— —	— —	0.79 0.69	V	I_F = 1.0A, T_A = +25°C I_F = 1.0A, T_A = +100°C
Leakage Current (Note 7)	I_R	— —	— —	0.5 5.0	mA	@ Rated V_R, T_A = +25°C @ Rated V_R, T_A = +100°C
Total Capacitance	C_T	—	—	80	pF	V_R = 4V, f = 1MHz

Notes: 6. Valid provided that terminals are kept at ambient temperature.
7. Short duration pulse test used to minimize self-heating effect.

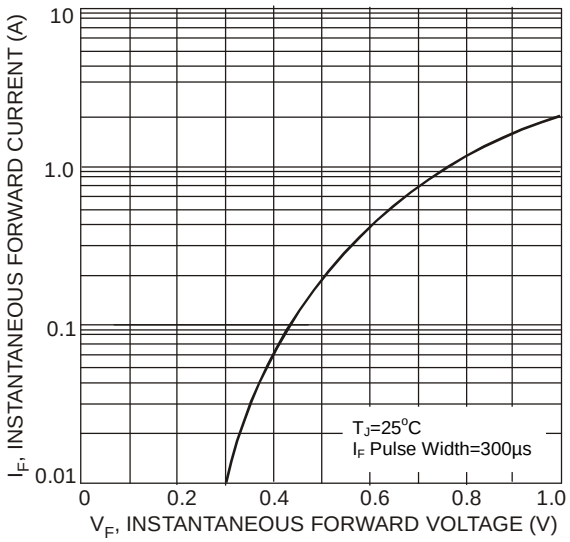


Fig. 1 Typical Forward Characteristics

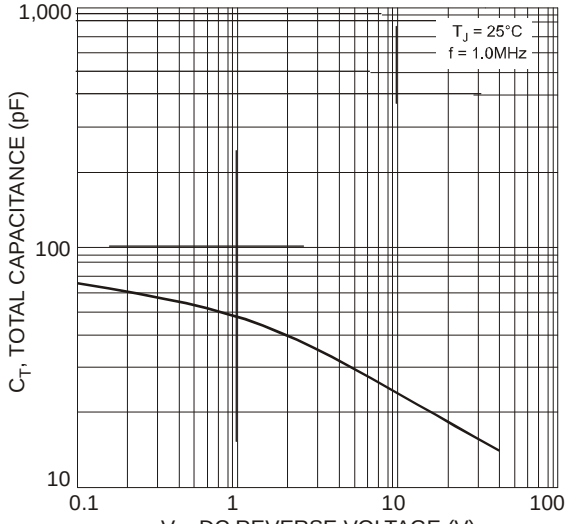


Fig. 2 Total Capacitance vs. Reverse Voltage

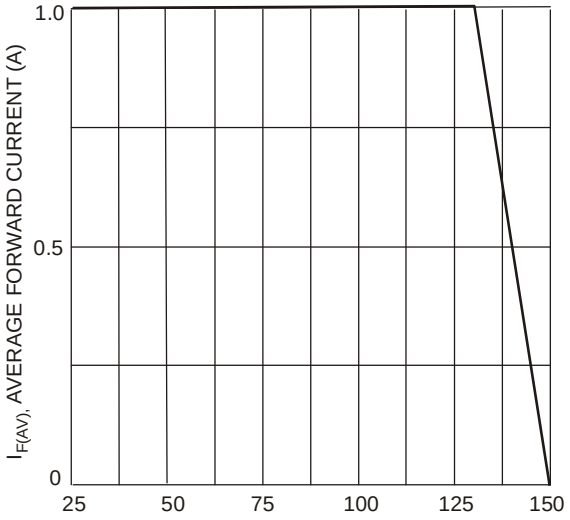


Fig. 3 Forward Current Derating Curve

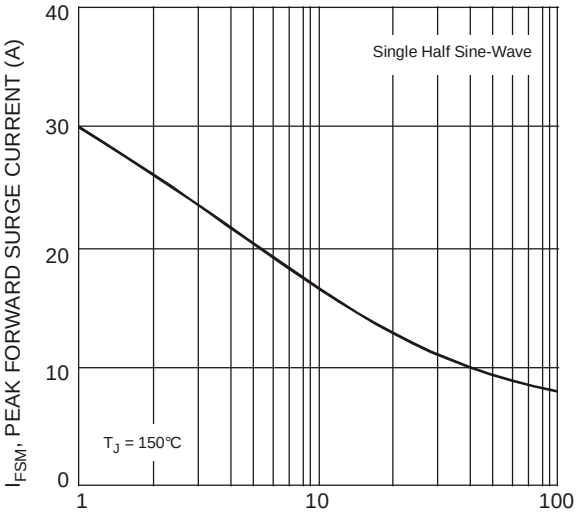
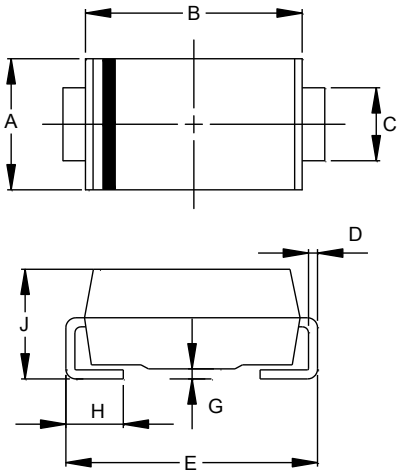


Fig. 4 Max Non-Repetitive Peak Forward Surge Current

Package Outline Dimensions

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

SMA

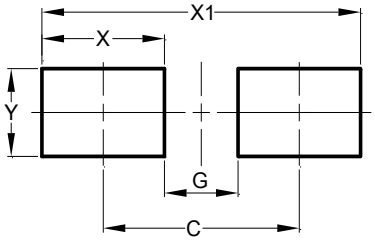


SMA		
Dim	**Min**	**Max**
A	2.29	2.92
B	4.00	4.60
C	1.27	1.63
D	0.15	0.31
E	4.80	5.59
G	0.05	0.20
H	0.76	1.52
J	1.96	2.40
All Dimensions in mm		

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

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