



**THE DATASHEET OF  
B3100-13**

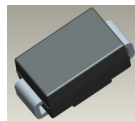


**3.0A HIGH VOLTAGE SCHOTTKY BARRIER RECTIFIER**
**Features**

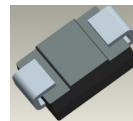
- Guard Ring Die Construction for Transient Protection
- Low Power Loss, High Efficiency
- Surge Overload Rating to 100A Peak
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

**Mechanical Data**

- Case: SMC
- 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 ③
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.21 grams (approximate)



Top View



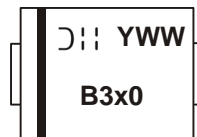
Bottom View

**Ordering Information** (Note 3)

Part Number*	Case	Packaging
B3x0-13-F	SMC	3000/Tape & Reel

\* x = Device type, e.g. B380-13-F (SMC 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**


B3x0 = Product type marking code, ex: B380 (SMC package)  
 D11 = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year (ex: 2 for 2002)  
 WW = Week code (01 - 53)  
 Note: B3100 marking code is B3100

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

Characteristic	Symbol	B370	B380	B390	B3100	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$					
Working Peak Reverse Voltage	$V_{RWM}$	70	80	90	100	V
DC Blocking Voltage (Note 4)	$V_R$					
RMS Reverse Voltage	$V_{R(RMS)}$	49	56	63	70	V
Average Rectified Output Current @ $T_T = 90^\circ\text{C}$	$I_O$	3.0				A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	100				A

Notes: 4.  $V_B$  measured at  $I_R = 500\mu\text{A}$  ( $25^\circ\text{C}$ ).

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Terminal	$R_{\theta JT}$	10	$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_J$	-55 to +125	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +150	$^\circ\text{C}$

### Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	$V_F$	-	-	0.79 0.69	V	$I_F = 3.0\text{A}$ , $T_A = 25^\circ\text{C}$ $I_F = 3.0\text{A}$ , $T_A = 100^\circ\text{C}$
Leakage Current (Note 5)	$I_R$	-	-	0.5 20	mA	@ Rated $V_R$ , $T_A = 25^\circ\text{C}$ @ Rated $V_R$ , $T_A = 100^\circ\text{C}$
Total Capacitance	$C_T$	-	-	100	pF	$V_R = 4\text{V}$ , $f = 1\text{MHz}$

Notes: 5. Short duration pulse test used to minimize self-heating effect.

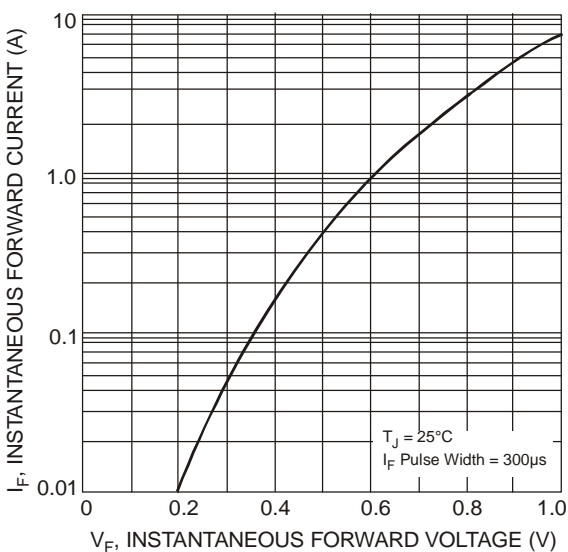


Fig. 1 Typical Forward Characteristics

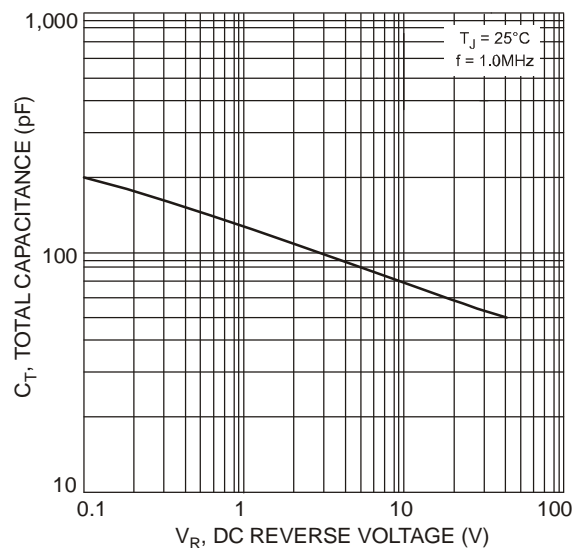


Fig. 2 Total Capacitance vs. Reverse Voltage

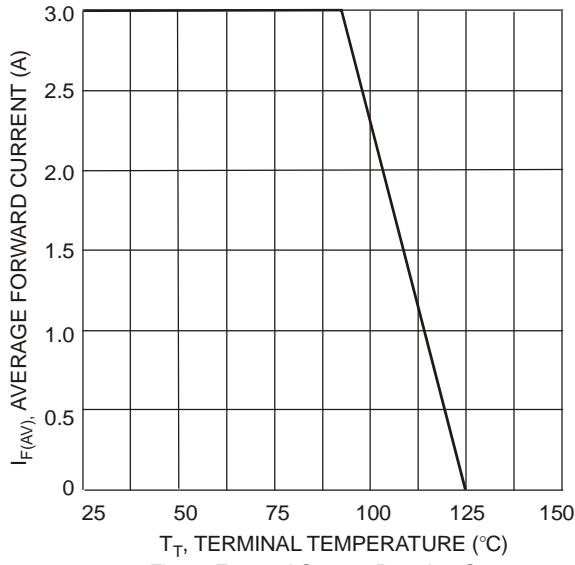


Fig. 3 Forward Current Derating Curve

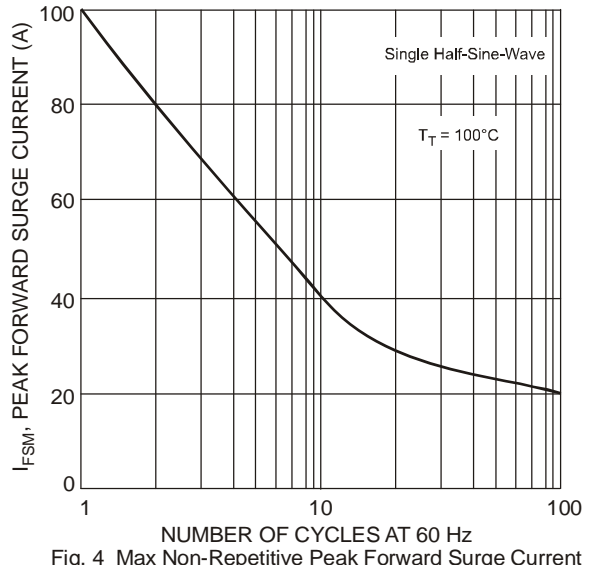
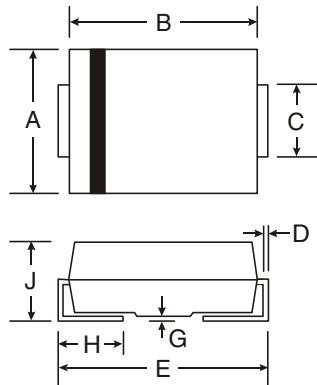


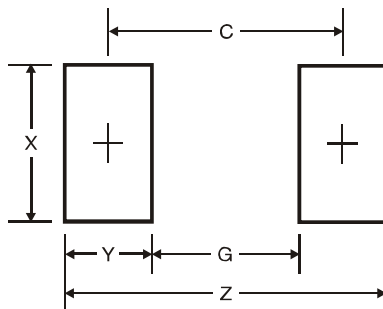
Fig. 4 Max Non-Repetitive Peak Forward Surge Current

**Package Outline Dimensions**



SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

**Suggested Pad Layout**



Dimensions	Value (in mm)
Z	9.3
G	4.4
X	3.3
Y	2.5
C	6.8

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