

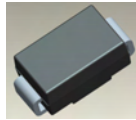
## 5.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

### Features

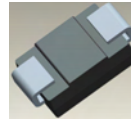
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- For Use in Low Voltage, High Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead Free Finish/RoHS Compliant (Note 1)**
- **Green Molding Compound (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

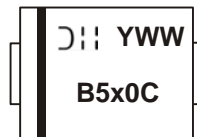
### Ordering Information (Note 3)

Part Number	Case	Packaging
B5xxC-13-F	SMC	3000/Tape & Reel

\* xx = Device type, e.g. B520C-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



B5x0C = Product type marking code, ex: B540C (SMC package)

DI = Manufacturers' code marking

YWW = Date code marking

Y = Last digit of year (ex: 2 for 2002)

WW = Week code (01 to 53)

x = 2,3,4,5 or 6 - i.e., x = 4 for B540C

### 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	B520C	B530C	B540C	B550C	B560C	Unit	
Peak Repetitive Reverse Voltage	$V_{RRM}$							
Working Peak Reverse Voltage	$V_{RWM}$	20	30	40	50	60	V	
DC Blocking Voltage	$V_R$							
RMS Reverse Voltage	$V_{R(RMS)}$	14	21	28	35	42	V	
Average Rectified Output Current @ $T_T = 90^\circ\text{C}$	$I_O$	5.0						A
Non-Repetitive Peak Forward Surge Current, 8.3 ms Single Half-Sine-Wave Superimposed on Rated Load	$I_{FSM}$	100						A

### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance, Junction to Terminal	$R_{\theta JT}$	10	$^\circ\text{C/W}$
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	50	$^\circ\text{C/W}$
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	$V_F$	-	-	0.55 0.70	V	$I_F = 5.0\text{A}$ , $T_A = 25^\circ\text{C}$
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	$C_T$	-	-	300	pF	$V_R = 4\text{V}$ , $f = 1\text{MHz}$

Notes: 4. Thermal Resistance: Junction to ambient, unit mounted on PC board with 8.0 mm<sup>2</sup> (0.033 mm thick) copper pads as heat sink.  
5. Short duration pulse test used to minimize self-heating effect.

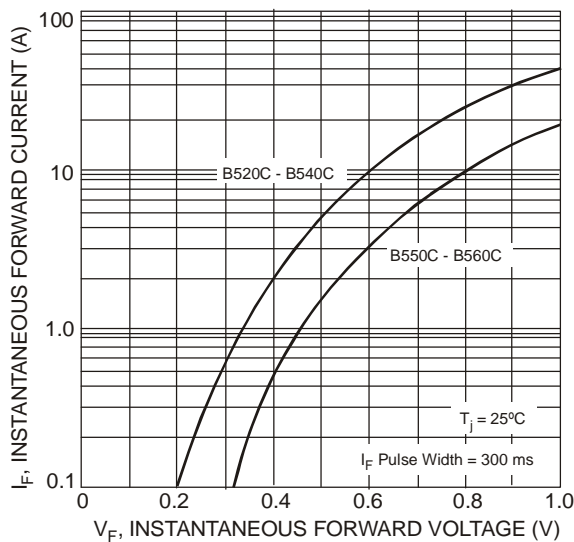


Fig. 1 Typical Forward Characteristics

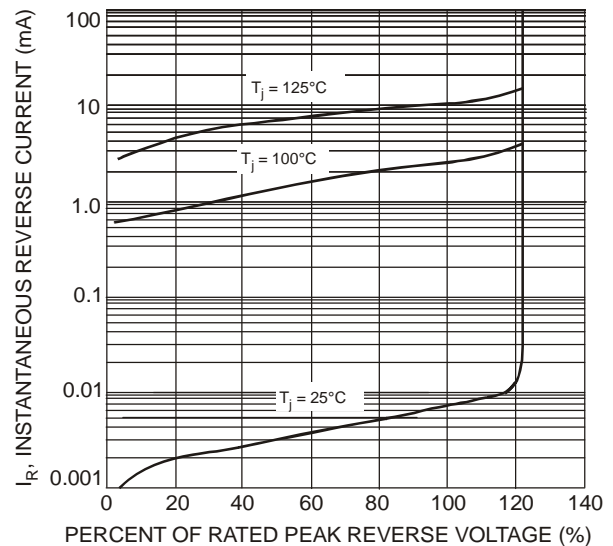


Fig. 2 Typical Reverse Characteristics

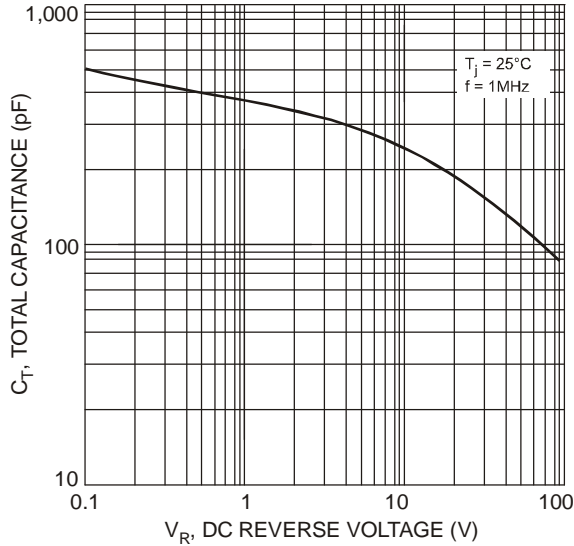


Fig. 3 Total Capacitance vs. Reverse Voltage

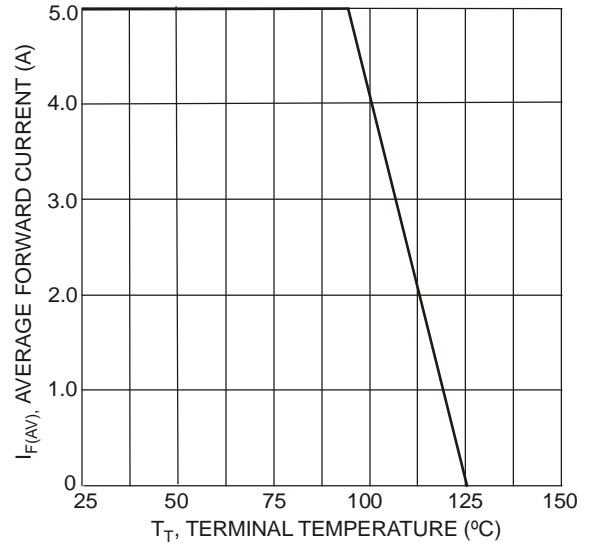


Fig. 4 Forward Current Derating Curve

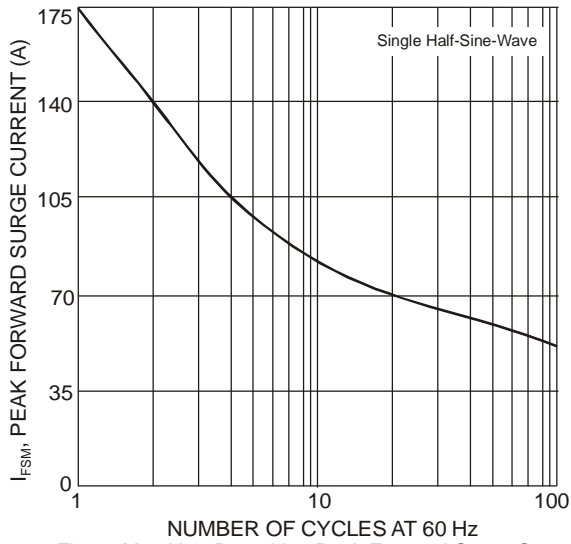
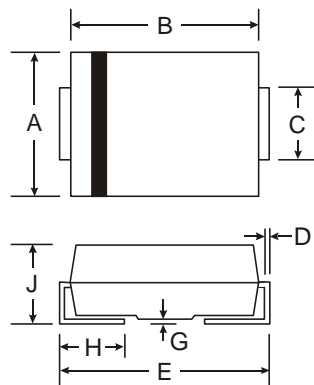


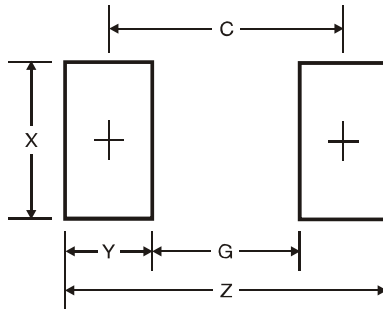
Fig. 5 Max Non-Repetitive Peak Forward Surge Current

**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
<b>All Dimensions in mm</b>		

## 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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