



**THE DATASHEET OF  
B540CE-13**



## Product Summary

B520CE/B530CE/B540CE

V <sub>RRM</sub> (V)	I <sub>O</sub> (A)	V <sub>F</sub> Max (V)	I <sub>R</sub> Max (mA)
20	5.0	0.55	0.2
30	5.0	0.55	0.2
40	5.0	0.55	0.2

## Description and Applications

This Schottky Barrier Rectifier is designed to meet the general requirements of commercial applications. It is ideally suited for use as a:

- Polarity Protection Diode
- Re-Circulating Diode
- Switching Diode

## 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, High-Frequency Inverters, Free Wheeling, and Polarity Protection Application
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3)**

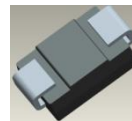
## Mechanical Data

- 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)

### SMC



Top View



Bottom View

## Ordering Information (Note 5)

Part Number	Case	Packaging
B5XXCE-13	SMC	3,000/Tape & Reel

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 <http://www.diodes.com/products/packages.html>.

## Marking Information



B5X0CE = Product Type Marking Code, ex: B540CE (SMC Package)  
 J11 = Manufacturers' Code Marking  
 YWW = Date Code Marking  
 Y = Last Digit of Year (ex: 7 for 2017)  
 WW = Week Code (01 to 53)

**Maximum Ratings** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

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

Characteristic	Symbol	B520CE	B530CE	B540CE	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	20	30	40	V
Working Peak Reverse Voltage	V <sub>RWM</sub>				
DC Blocking Voltage	V <sub>R</sub>				
Average Rectified Output Current	I <sub>O</sub>	5.0			A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half-Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	150			A

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	R <sub>θJA</sub>	50	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	R <sub>θJC</sub>	20	°C/W
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

**Electrical Characteristics** (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	—	0.49 0.42	0.55 —	V	I <sub>F</sub> = 5.0A, T <sub>A</sub> = +25°C I <sub>F</sub> = 5.0A, T <sub>A</sub> = +125°C
Leakage Current (Note 6)	I <sub>R</sub>	—	—	0.1	mA	V <sub>R</sub> = 20V, T <sub>A</sub> = +25°C
				0.2		V <sub>R</sub> = 30V, T <sub>A</sub> = +25°C
				0.2		V <sub>R</sub> = 40V, T <sub>A</sub> = +25°C
				4.0		V <sub>R</sub> = 40V, T <sub>A</sub> = +125°C
Typical Capacitance	C <sub>T</sub>	—	340	—	pF	V <sub>R</sub> = 4V, f = 1MHz

Notes: 5. Device mounted on FR-4 substrate, 1\*\*1", 2oz, single-sided, PC boards with 0.56\*\*0.73".  
6. Short duration pulse test used to minimize self-heating effect.

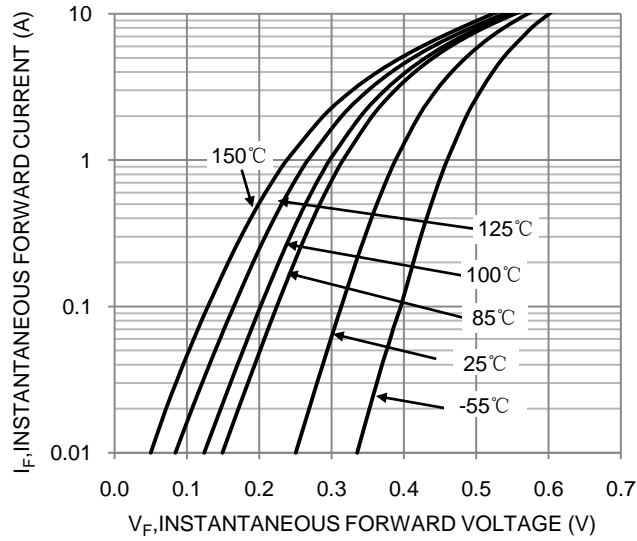


Figure 1. Typical Forward Characteristics

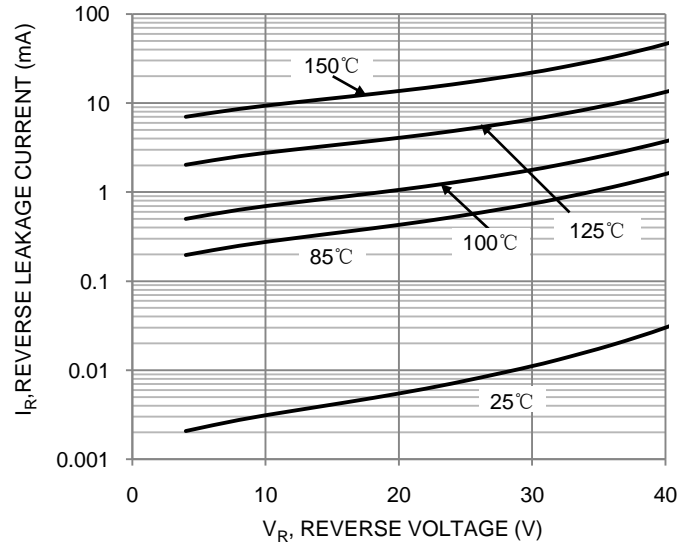


Figure 2. Typical Reverse Characteristics

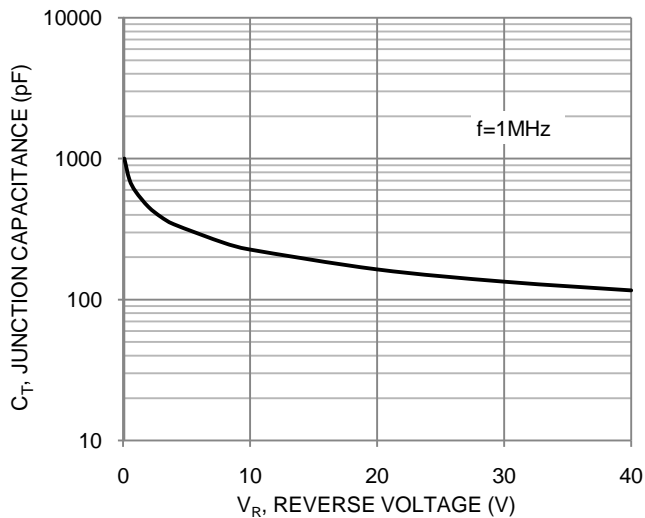


Figure 3. Typical Junction Capacitance

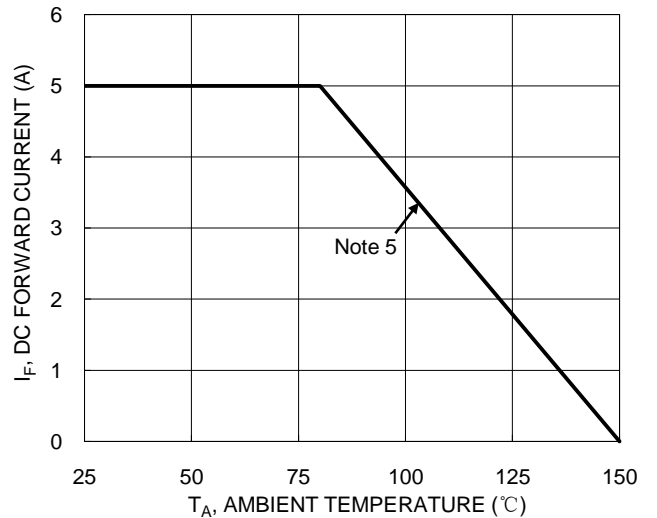
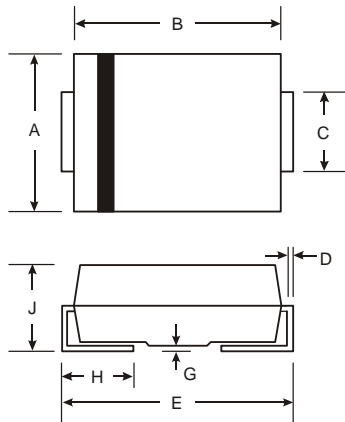


Figure 4. DC Forward Current Derating

## Package Outline Dimensions

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

### SMC

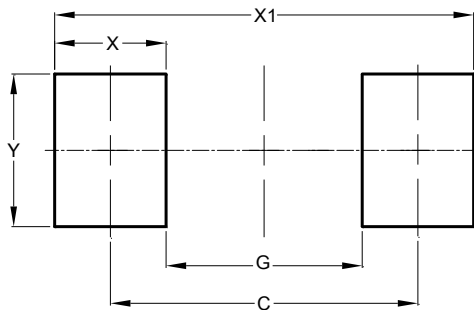


SMC		
Dim	Min	Max
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

## Suggested Pad Layout

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

### SMC



Dimensions	Value (in mm)
C	6.90
G	4.40
X	2.50
X1	9.40
Y	3.30

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