B520CE - B530CE - B540CE

5.0A SURFACE MOUNT SCHOTTKY BARRIER RECTIFIER

Product Summary

B520CE/B530CE/B540CE

V_{RRM} (V)	I_O (A)	V_F Max (V)	I_R Max (mA)
20	5.0	0.55	0.2
30	5.0	0.55	0.2
40	5.0	0.55	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, 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)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

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

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 (e3)
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.21 grams (Approximate)

SMC

Top View

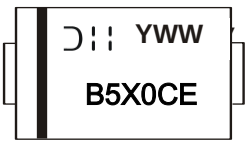
Bottom View

Ordering Information (Note 4)

Part Number	Case	Packaging
B5XXCE-13	SMC	3,000/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. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



B5X0CE = Product Type Marking Code, ex: B540CE (SMC Package)
= Manufacturers' Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 9 for 2019)
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	B520CE	B530CE	B540CE	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	20	30	40	V
Average Rectified Output Current	I_O	5.0			A
Non-Repetitive Peak Forward Surge Current, 8.3ms Single Half-Sine-Wave Superimposed on Rated Load	I_{FSM}	150			A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	50	°C/W
Typical Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	20	°C/W
Storage Temperature Range	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	— —	0.49 0.42	0.55 —	V	I_F = 5.0A, T_A = +25°C I_F = 5.0A, T_A = +125°C
Leakage Current (Note 6)	B520CE B530CE B540CE	I_R	— — — —	— — — 4.0	0.1 0.2 0.2 —	mA	V_R = 20V, T_A = +25°C V_R = 30V, T_A = +25°C V_R = 40V, T_A = +25°C V_R = 40V, T_A = +125°C
Typical Capacitance		C_T	—	340	—	pF	V_R = 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.

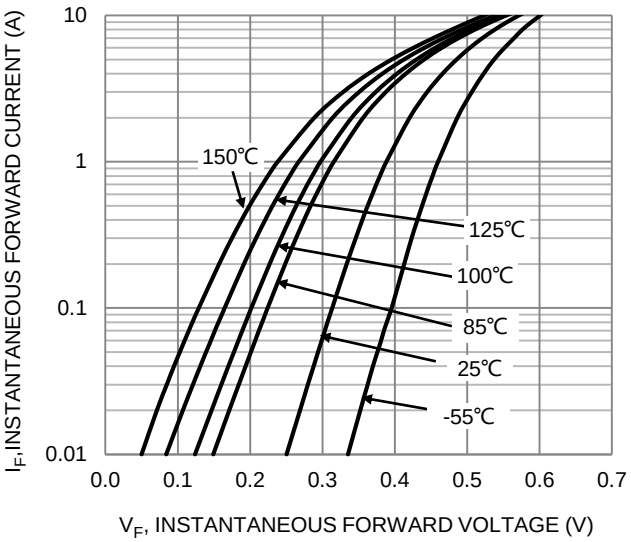


Figure 1. Typical Forward Characteristics

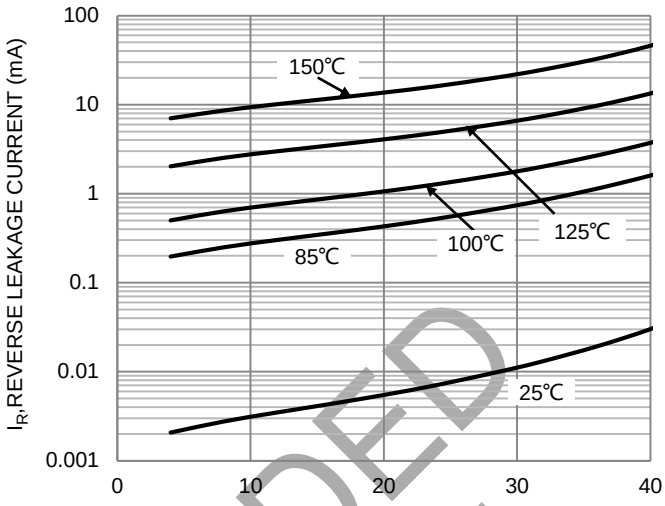


Figure 2. Typical Reverse Characteristics

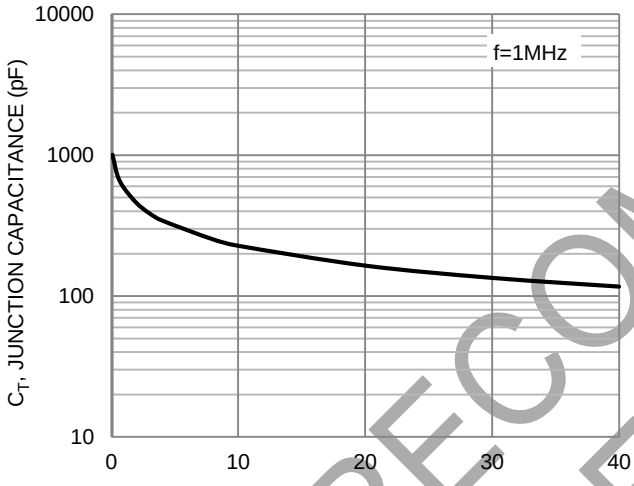


Figure 3. Typical Junction Capacitance

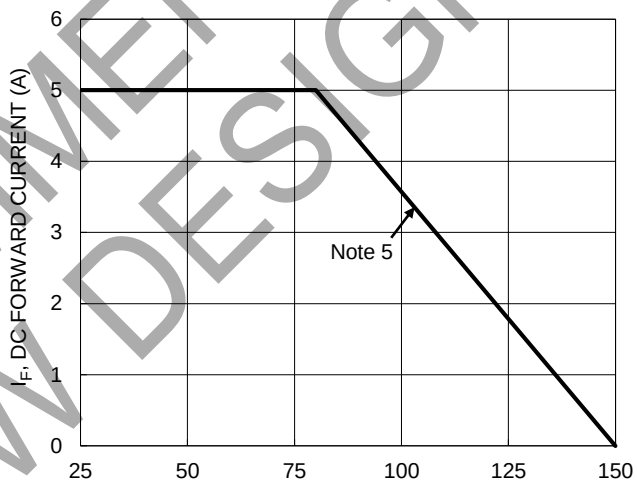
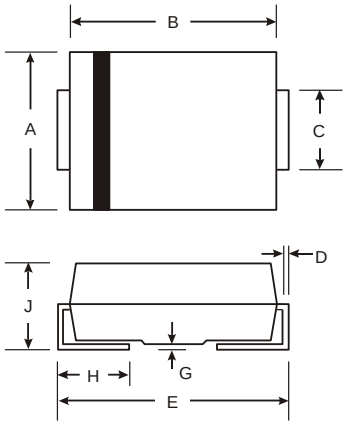


Figure. 4, DC Forward Current Derating

Package Outline Dimensions

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

SMC

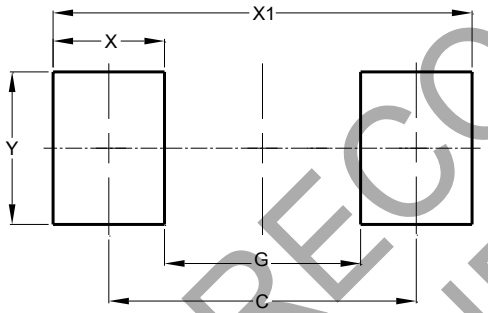


SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

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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