

Product Summary

B520CE/B530CE/B540CE

| VRRM (V) | Io (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 |

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)**
- **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/>**

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

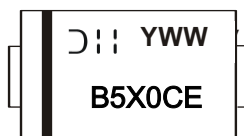
Bottom View

Ordering Information (Note 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)
 DII = 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 | V _{RRM} | 20 | 30 | 40 | V |
| Working Peak Reverse Voltage | V _{RWM} | | | | |
| DC Blocking Voltage | V _R | | | | |
| 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 _{θJA} | 50 | °C/W |
| Typical Thermal Resistance Junction to Case (Note 5) | R _{θJC} | 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 | — | — | 0.1 | mA | V _R = 20V, T _A = +25°C |
| | B530CE | — | — | 0.2 | | V _R = 30V, T _A = +25°C |
| | B540CE | — | — | 0.2 | | V _R = 40V, T _A = +25°C |
| | — | — | 4.0 | — | | 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.

NOT RECOMMENDED FOR NEW DESIGN

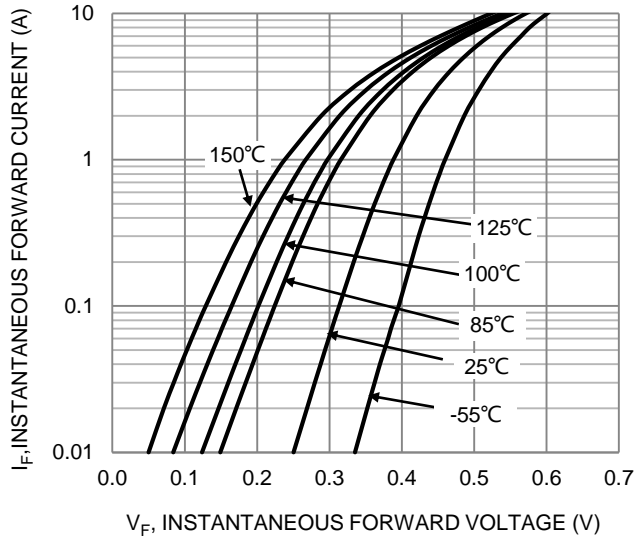


Figure 1. Typical Forward Characteristics

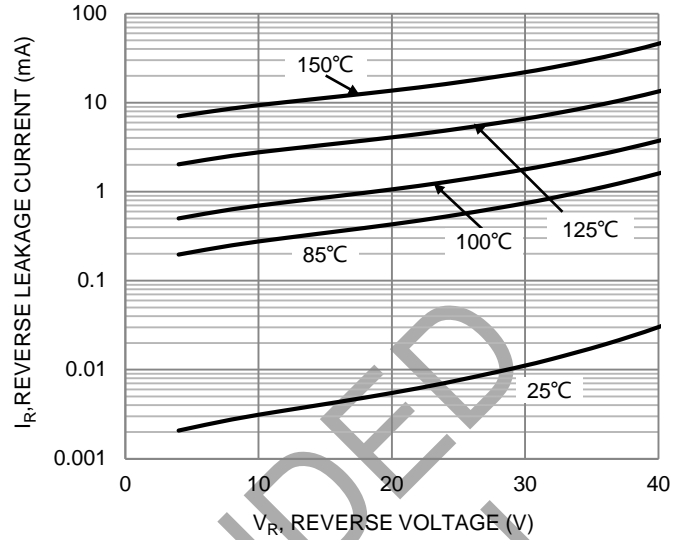


Figure 2. Typical Reverse Characteristics

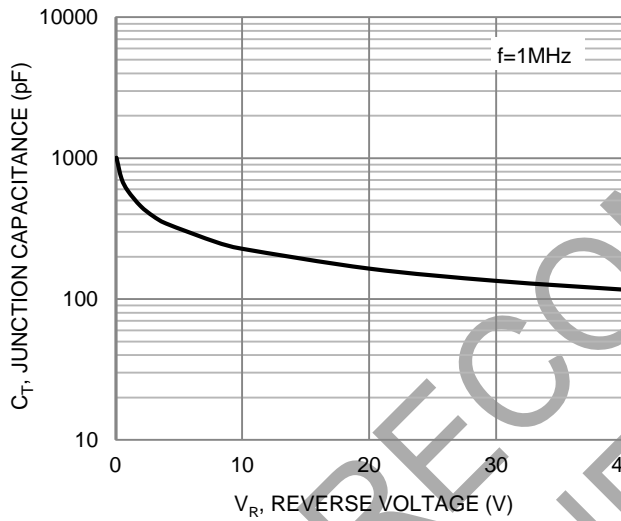


Figure 3. Typical Junction Capacitance

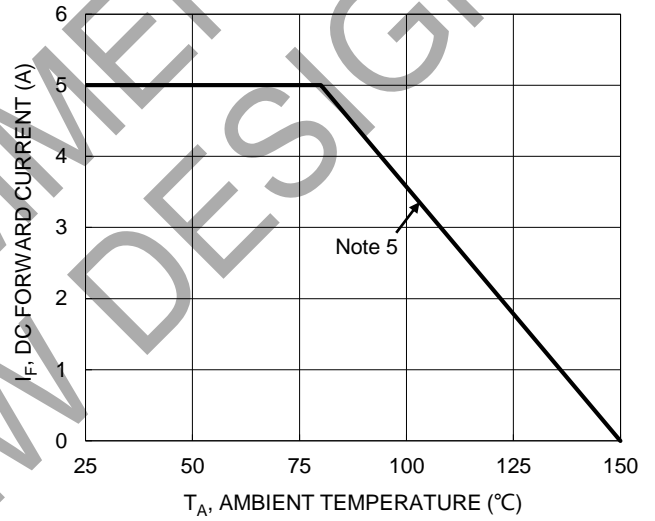


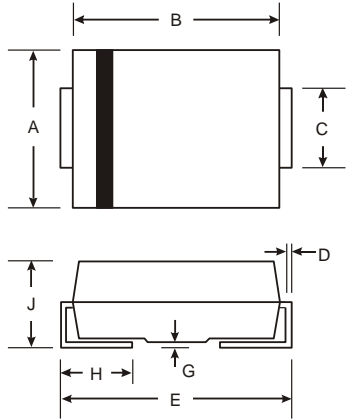
Figure 4. DC Forward Current Derating

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Package Outline Dimensions

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

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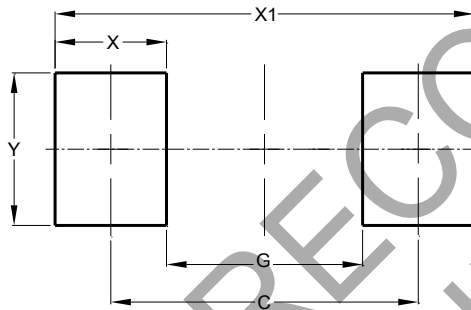


| SMC | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 5.59 | 6.22 |
| B | 6.60 | 7.11 |
| C | 2.75 | 3.18 |
| D | 0.15 | 0.31 |
| E | 7.75 | 8.13 |
| G | 0.10 | 0.20 |
| H | 0.76 | 1.52 |
| J | 2.00 | 2.50 |
| All Dimensions in mm | | |

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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