B540CX

5A
TRENCH SCHOTTKY BARRIER RECTIFIER
SMC

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (A)	V_F (Max) (V)	I_R (Max) (mA)
40	5	0.52	0.3

Features and Benefits

- Low Leakage Current
- Soft, Fast Switching Capability
- +150°C Operating Junction Temperature
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Applications

For use in low-voltage, high-frequency inverters, freewheeling, DC-DC converters, and polarity applications.

- SMPS
- AC-DC
- DC-DC converters
- Freewheeling diodes
- Reverse polarity protections
- Blocking diodes

Mechanical Data

- Package: SMC
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability 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 Indicator: Cathode Band or Cathode Notch
- Weight: 0.21 grams (Approximate)

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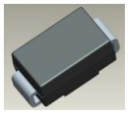
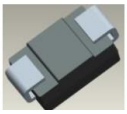


Top View



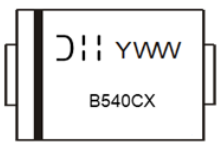
Bottom View

Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
B540CX-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 (Note 5)



B540CX = Product Type Marking Code
= Manufacturer's Code Marking
YWW = Date Code Marking
Y = Last Digit of Year (ex: 3 for 2023)
WW = Week Code 01 to 52

Note: 5. Device has a cathode band (as shown) and may also have a cathode notch.

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	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	40	V
Average Rectified Output Current	I_O	5	A
Non-Repetitive Peak Forward Surge Current 1ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	80	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Ambient (Note 6)	$R_{\theta JA}$	50	°C/W
Operating and Storage Temperature Range (Note 6)	T_J, T_{STG}	-55 to +150	°C

Note: 6. Device mounted on FR-4 substrate, 0.4" x 0.5", 2oz, single-sided, PC boards with 0.2" x 0.25" copper pad. The heat generated must be less than the thermal conductivity from junction to ambient: $dP_D / dT_J < 1 / R_{\theta JA}$.

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V_F	0.43 0.37	0.52 —	V	I_F = 5.0A, T_J = +25°C I_F = 5.0A, T_J = +125C
Leakage Current (Note 7)	I_R	0.04 —	0.3 20	mA	V_R = 40V, T_J = +25°C V_R = 40V, T_J = +100°C

Note: 7. Short duration pulse test used to minimize self-heating effect.

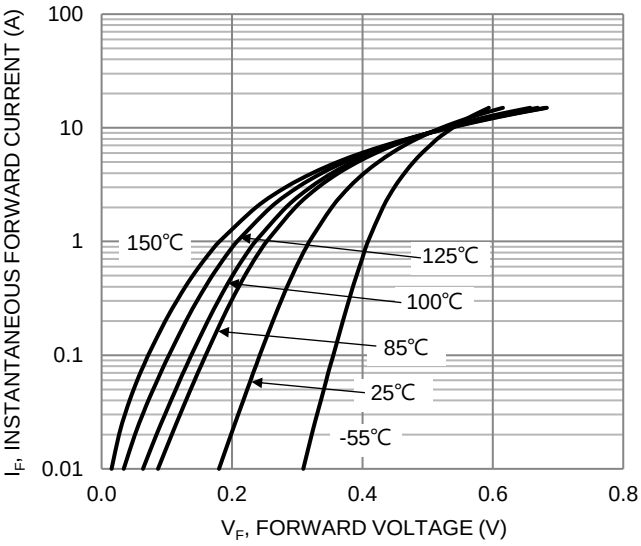


Figure 1. Typical Forward Characteristics

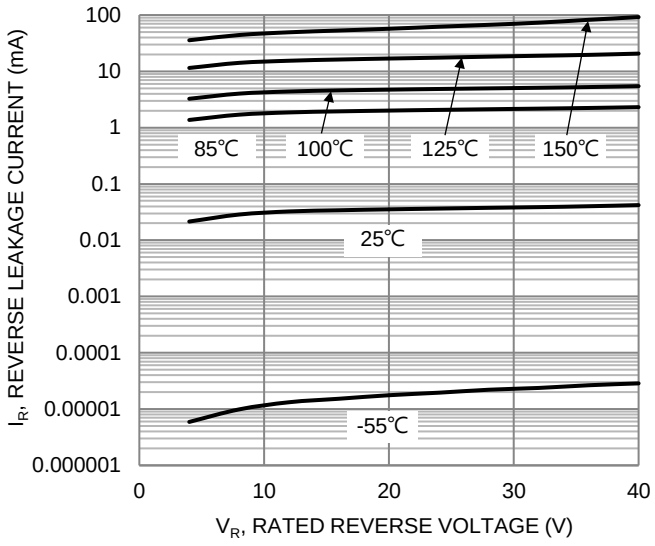


Figure 2. Typical Reverse Characteristics

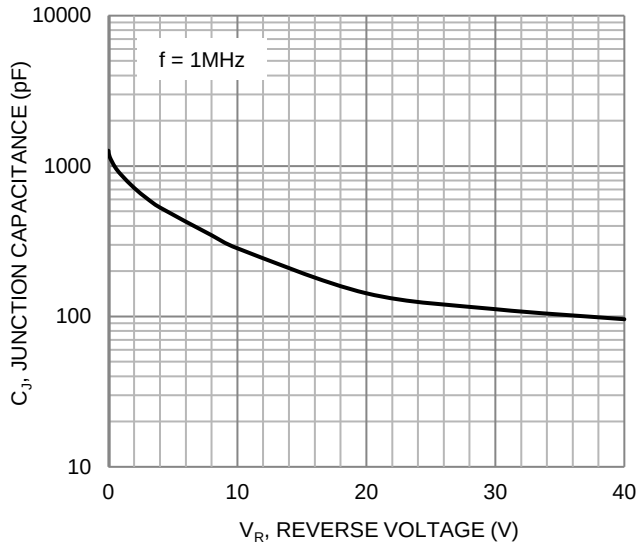


Figure 3. Junction Capacitance vs. Reverse Voltage

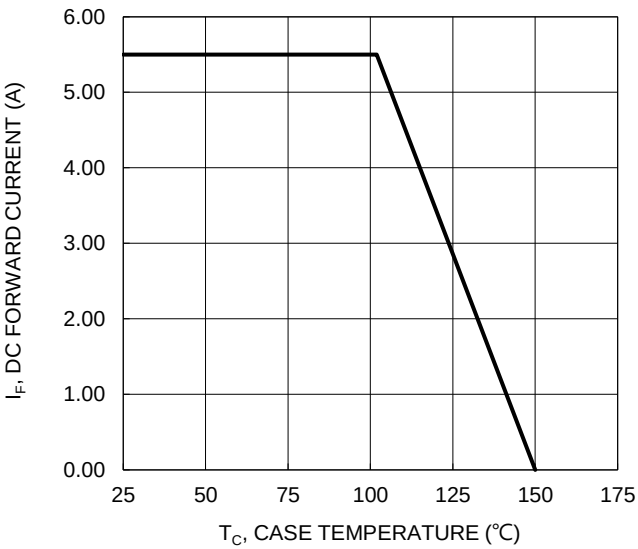


Figure 4. DC Forward Current Derating

Package Outline Dimensions

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

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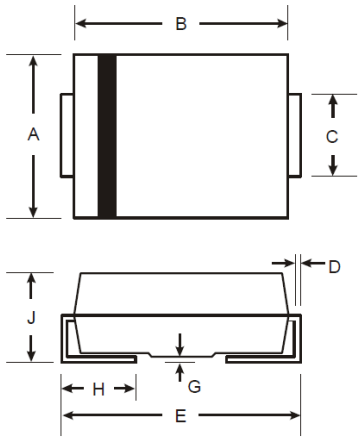

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Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.18
D	0.15	0.31
E	7.75	8.13
G	0.10	0.20
H	0.76	1.52
J	2.00	2.50
All Dimensions in mm		

Suggested Pad Layout

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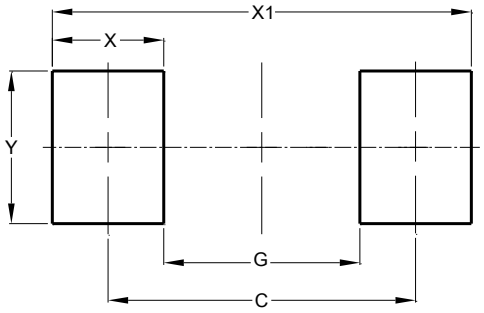

Dimensions	Value (in mm)
C	6.90
G	4.40
X	2.50
X1	9.40
Y	3.30

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