



**THE DATASHEET OF  
B140HB-13-F**

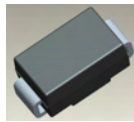


## Features

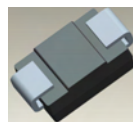
- Low Leakage Current
- Guard Ring Die Construction for Transient Protection
- Ideally Suited for Automated Assembly
- Low Power Loss, High Efficiency
- Surge Overload Rating to 45A Peak
- **Lead Free, RoHS Compliant (Note 1)**
- **Green Molding Compound (No Halogen and Antimony) (Note 2)**

## Mechanical Data

- Case: SMB
- 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
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.093 grams (approximate)



Top View



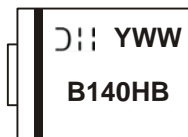
Bottom View

## Ordering Information (Note 3)

Part Number	Case	Packaging
B140HB-13-F	SMB	3000/Tape & Reel

- 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



B140HB = Product type marking code  
 = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year (ex: 2 for 2002)  
 WW = Week code (01 to 53)

### 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	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	40	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage @ $I_R = 0.1\text{mA}$	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Average Rectified Output Current @ $T_T = 115^\circ\text{C}$	$I_O$	1.0	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	45	A
Non-Repetitive Peak Forward Surge Current 5 $\mu\text{s}$ Single Half Sine-Wave	$I_{FSM}$	430	A

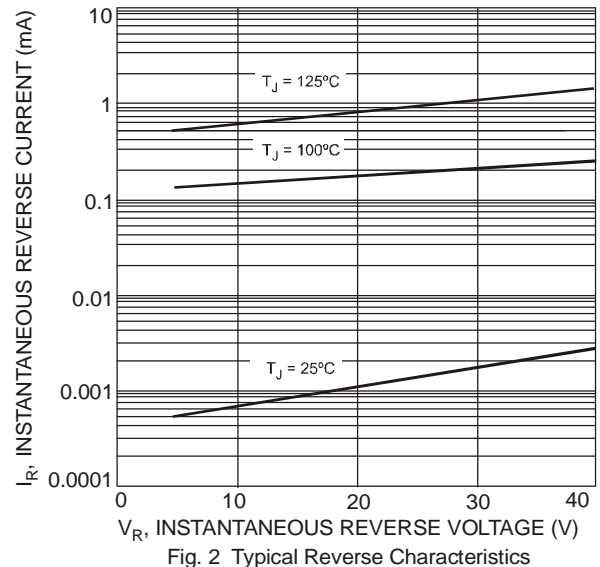
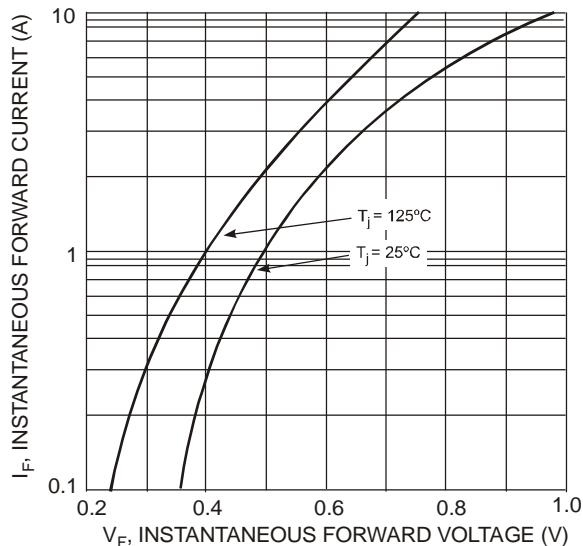
### Thermal Characteristics

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Junction to Terminal (Note 4)	$R_{\theta JT}$	36	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-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	$V_F$	-	-	0.53	V	$I_F = 1.0\text{A}, T_A = 25^\circ\text{C}$
		-	-	0.49		$I_F = 1.0\text{A}, T_A = 125^\circ\text{C}$
		-	-	0.70		$I_F = 2.0\text{A}, T_A = 25^\circ\text{C}$
		-	-	0.64		$I_F = 2.0\text{A}, T_A = 125^\circ\text{C}$
Leakage Current (Note 5)	$I_R$	-	-	0.1 4.0	mA	$V_R = 40\text{V}, T_A = 25^\circ\text{C}$ $V_R = 40\text{V}, T_A = 100^\circ\text{C}$
Total Capacitance	$C_T$	-	-	80	pF	$V_R = 5\text{V}, f = 1\text{MHz}$

- Notes: 4. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 mm<sup>2</sup> (0.013 mm thick) copper pads as heat sink.  
5. Short duration pulse test used to minimize self-heating effect.



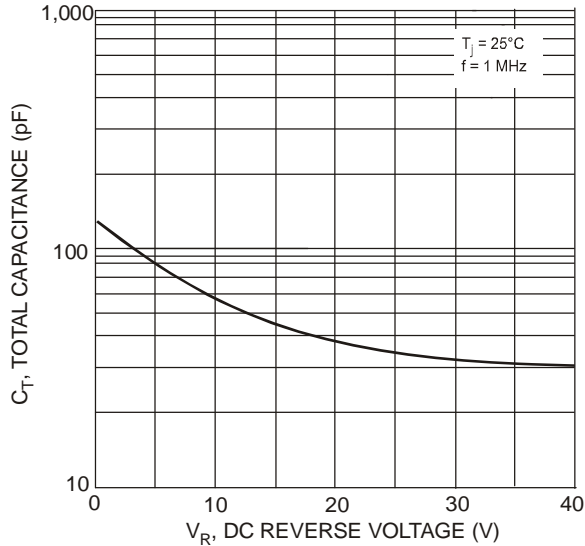


Fig. 3 Total Capacitance vs. Reverse Voltage

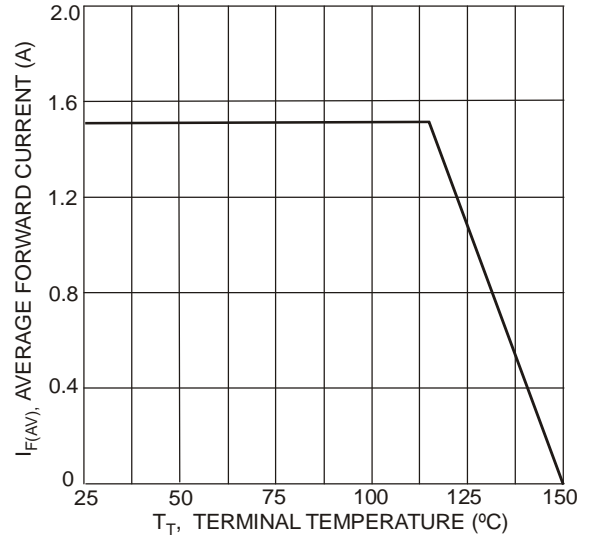


Fig. 4 Forward Current Derating Curve

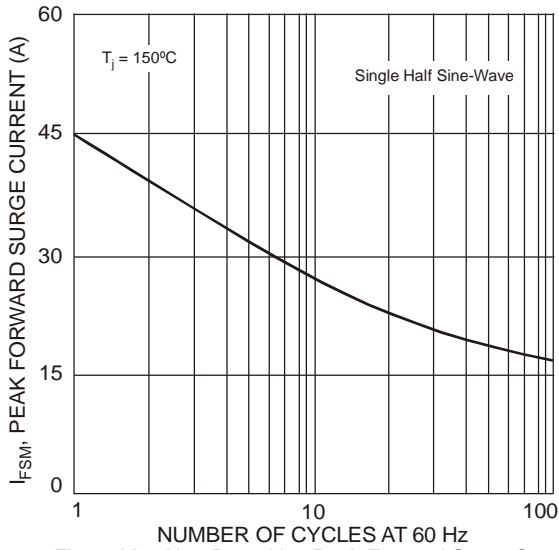
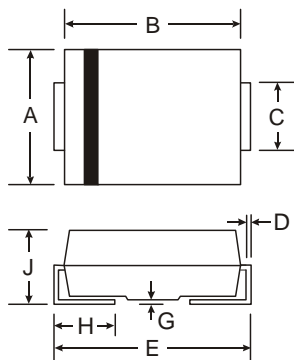


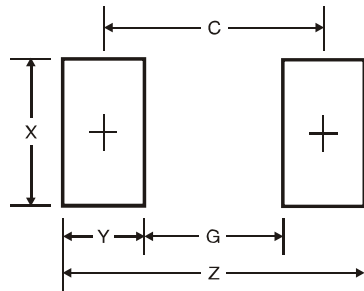
Fig. 5 Max Non-Repetitive Peak Forward Surge Current

**Package Outline Dimensions**



SMB		
Dim	Min	Max
A	3.30	3.94
B	4.06	4.57
C	1.96	2.21
D	0.15	0.31
E	5.00	5.59
G	0.05	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	6.7
G	1.8
X	2.3
Y	2.5
C	4.3

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