

## Features

- RoHS compliant\*
- Leadless chip form
- High current capability
- Low forward voltage
- Halogen free\*\*

## Applications

- Switch Mode Power Supplies (SMPS)
- Portable equipment batteries
- High frequency rectification
- DC/DC converters
- Telecommunications

# CD123D-B1xR Schottky Barrier Chip Diode Series

## General Information

Portable communications, computing and video equipment manufacturers are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers small-signal Schottky Barrier Diodes for switching and rectification applications, in a compact chip package compatible with SOD-123 size format. The Schottky Barrier Diodes offer a forward current of 1 A with a choice of repetitive peak reverse voltage of 20 V and 40 V.



## Absolute Maximum Ratings (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CD123D-			Unit
		B120R	B140R	B140LR	
Maximum Repetitive Peak Reverse Voltage	V <sub>RRM</sub>	20	40	40	V
Maximum Average Forward Rectified Current (T <sub>A</sub> = 55 °C)	I <sub>F(AV)</sub>	1			A
Peak Forward Surge Current 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	I <sub>FSM</sub>	20			A
Operating Temperature Range	T <sub>J</sub>	-55 to +125			°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150			°C

## Electrical Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Instantaneous Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 0.1A		0.32		V
		I <sub>F</sub> = 0.5 A	CD123D-B120R CD123D-B140R	0.40		
		I <sub>F</sub> = 1.0 A		0.46	0.50	
		I <sub>F</sub> = 0.1A	CD123D-B140LR	0.24		
		I <sub>F</sub> = 0.5 A		0.31		
		I <sub>F</sub> = 1.0 A		0.37	0.38	
Repetitive Peak Reverse Current	I <sub>R</sub>	V <sub>R</sub> = V <sub>RRM</sub>		0.015	0.2	mA
			CD123D-B120R CD123D-B140R			
			CD123D-B140LR	0.30	1.0	
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 4 V, f = 1.0 MHz		110		pF
			CD123D-B120R CD123D-B140R			
			CD123D-B140LR	115		
Thermal Resistance	R <sub>θJA</sub>	Junction to Ambient (1)		190		°C/W
	R <sub>θJL</sub>	Junction to Case (2)		60		

NOTES: (1) Pulse test width P<sub>W</sub> = 300 us, 1 % duty cycle.

(2) Mounted on P.C. board with 2.73 x 1.6 mm and 0.86 x 1.6 mm copper pad areas.

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\* RoHS Directive 2015/863, Mar 31, 2015 and Annex.

\*\*Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

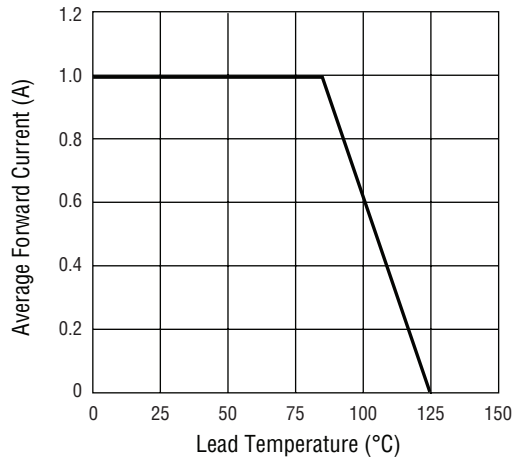
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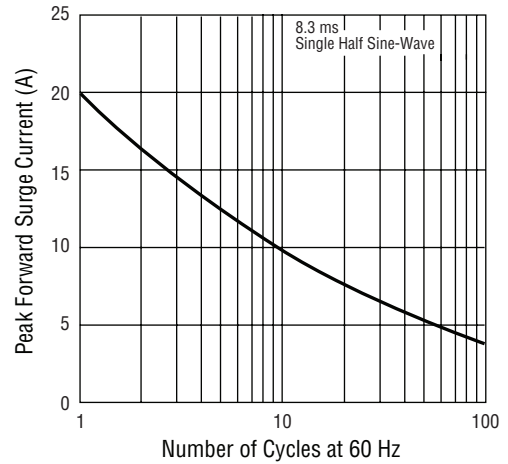
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## Performance Graphs - Model CD123D-B120R & CD123D-B140R

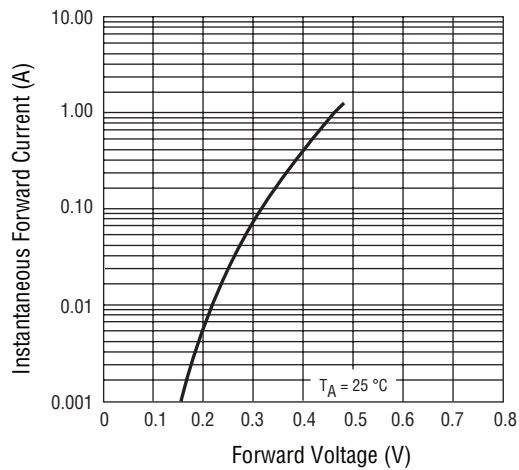
### Forward Current Derating Curve



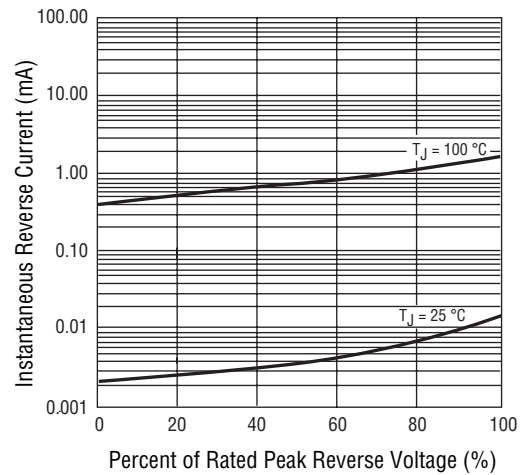
### Maximum Non-Repetitive Peak Forward Surge Current



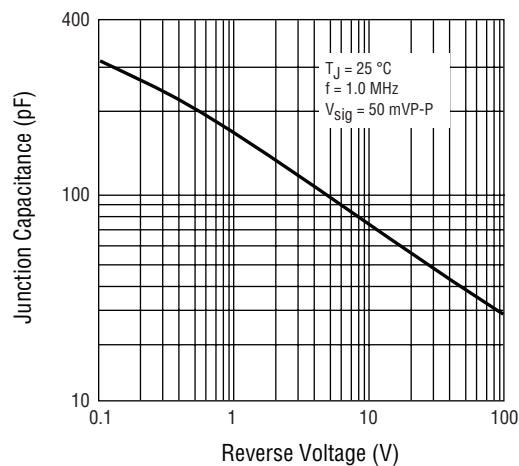
### Typical Forward Characteristics



### Typical Reverse Characteristics



### Typical Junction Capacitance



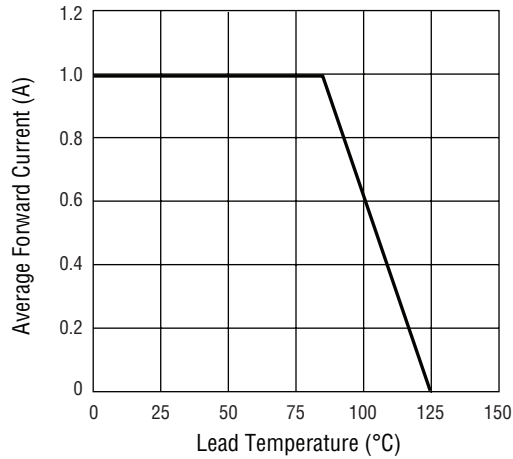
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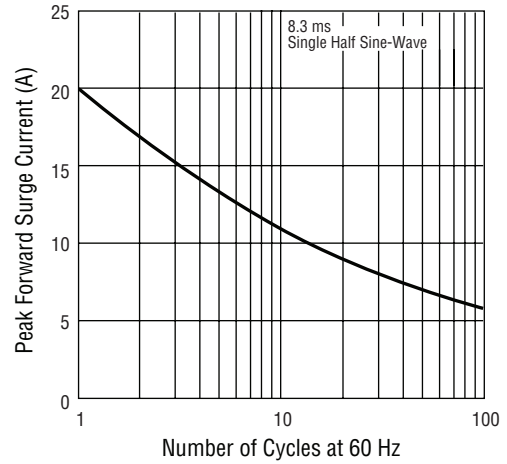
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## Performance Graphs - Model CD123D-B140LR

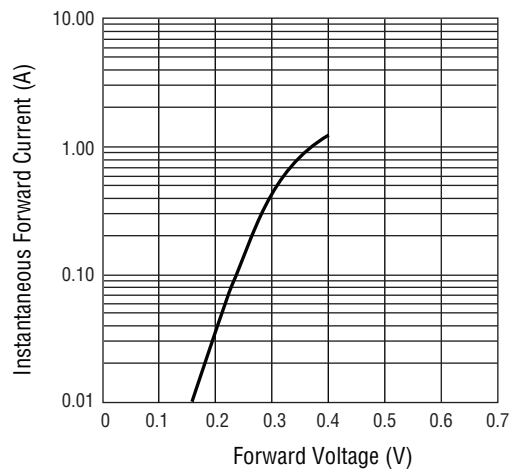
### Forward Current Derating Curve



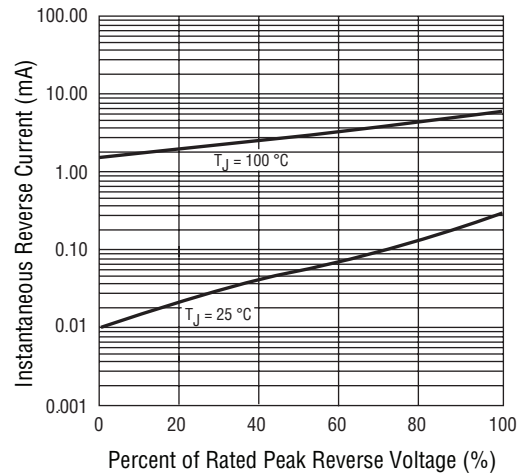
### Maximum Non-Repetitive Peak Forward Surge Current



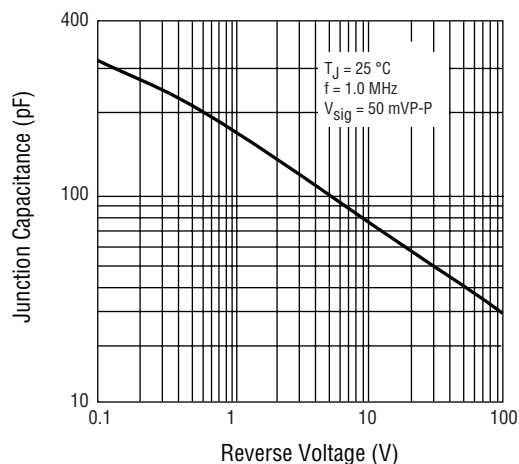
### Typical Forward Characteristics



### Typical Reverse Characteristics



### Typical Junction Capacitance

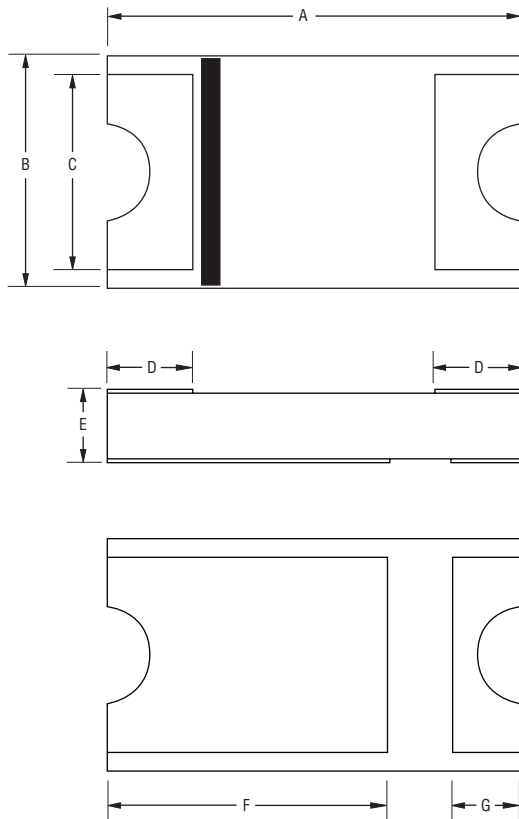


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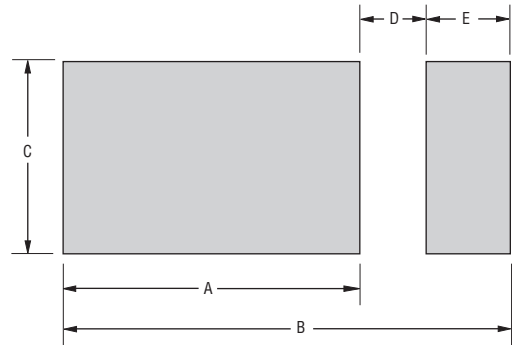
## Product Dimensions



Dimension	CD123D-B1xR
A	$\frac{3.40 \pm 0.2}{(0.0748 - 0.0079)}$
B	$\frac{1.9 \pm 0.2}{(0.0748 - 0.0079)}$
C	$\frac{1.6}{(0.0630)}$ TYP.
D	$\frac{0.7 \pm 0.2}{(0.0276 \pm 0.0079)}$
E	$\frac{0.96 +0.2/-0.1}{(0.0378 +0.0079/-0.0039)}$
F	$\frac{2.3 \pm 0.2}{(0.0906 \pm 0.0079)}$
G	$\frac{0.43 \pm 0.2}{(0.0169 \pm 0.0079)}$

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

## Recommended Pad Layout

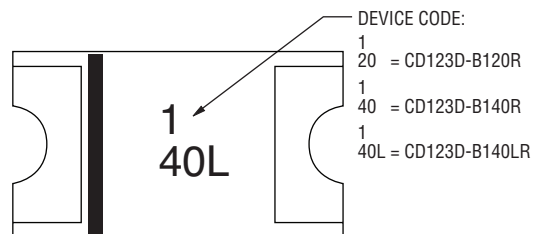


Dimension	CD123D-B1xR
A	$\frac{2.73}{(0.107)}$ MIN.
B	$\frac{4.26}{(0.168)}$ REF.
C	$\frac{1.60}{(0.063)}$ MIN.
D	$\frac{0.67}{(0.026)}$ MAX.
E	$\frac{0.86}{(0.034)}$ MIN.

## Environmental Specifications

Moisture Sensitivity Level.....1  
ESD Classification (HBM).....3B

## Typical Part Marking



## How to Order

Common Code CD 123D - B 1 40 L R  
 CD = Chip Diode  
 Package 123D = SOD-123 Size  
 Model B = Schottky Barrier Diode  
 Average Forward Current 1 = 1 A  
 Reverse Voltage 40 = 40 V  
 Forward Voltage L (Blank) = Standard  
 L = Low

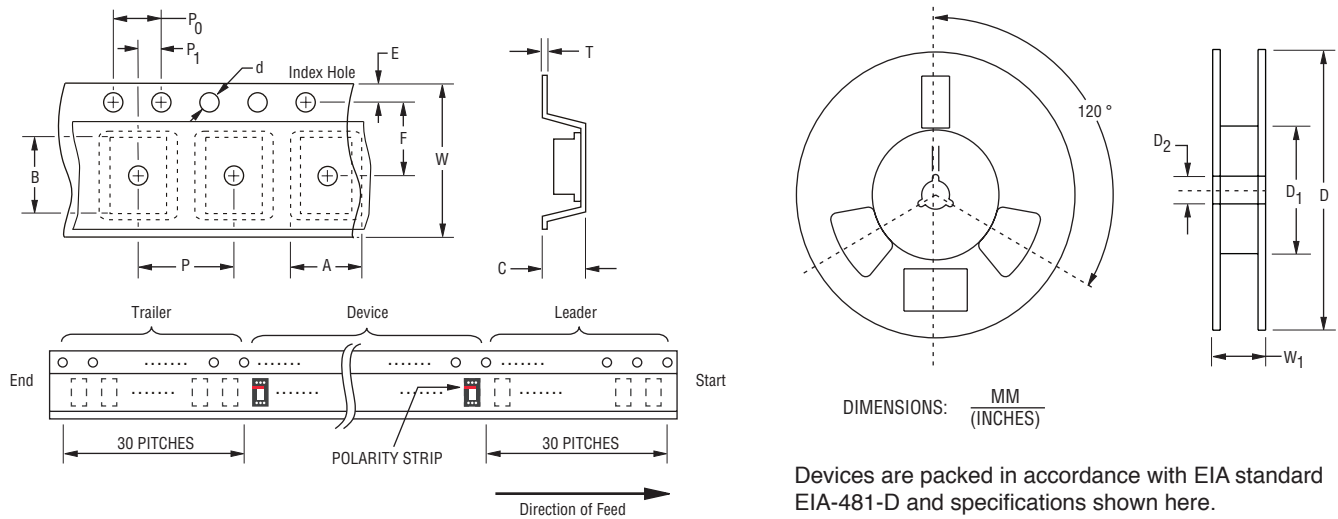
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# CD123D-B1xR Schottky Barrier Chip Diode Series

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## Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



Devices are packed in accordance with EIA standard EIA-481-D and specifications shown here.

Item	Symbol	CD123D-B1xR
Carrier Width	A	$\frac{2.20 \pm 0.10}{0.087 \pm 0.004}$
Carrier Length	B	$\frac{3.65 \pm 0.10}{(0.144 \pm 0.004)}$
Carrier Depth	C	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.50 \pm 0.10}{(0.059 \pm 0.004)}$
Reel Outside Diameter	D	$\frac{178 \pm 2.0}{(7.008 \pm 0.079)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{50}{(1.969)} \text{ MIN.}$
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 \pm 0.5}{(0.512 \pm 0.020)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$
Overall Tape Thickness	T	$\frac{0.40}{(0.016)} \text{ MAX.}$
Tape Width	W	$\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$
Reel Width	W <sub>1</sub>	$\frac{18.7}{(0.736)} \text{ MAX.}$
Quantity per Reel	--	3000

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