



## 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-B140LR	0.30	1.0	
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 4 V, f = 1.0 MHz		110		pF
			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.



## WARNING Cancer and Reproductive Harm

[www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

\* 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.

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Users should verify actual device performance in their specific applications.

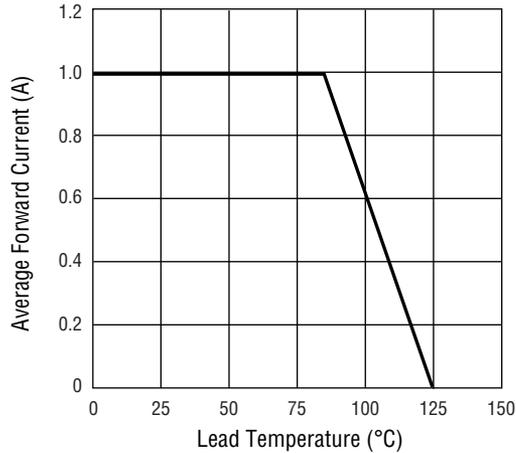
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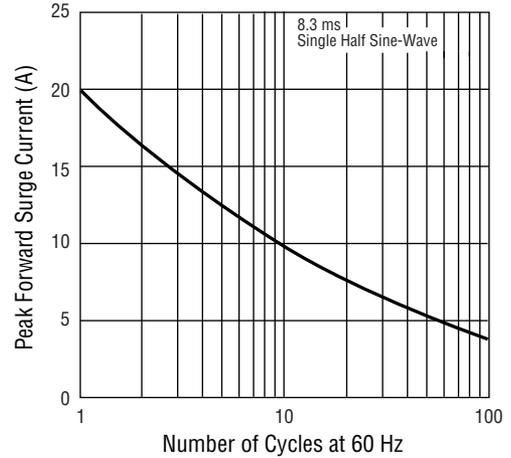
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## Performance Graphs - Model CD123D-B120R & CD123D-B140R

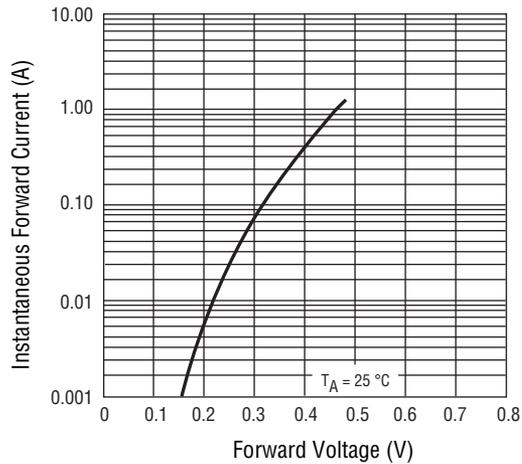
### Forward Current Derating Curve



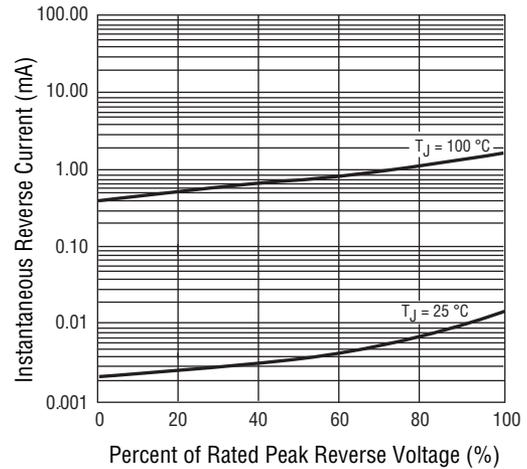
### Maximum Non-Repetitive Peak Forward Surge Current



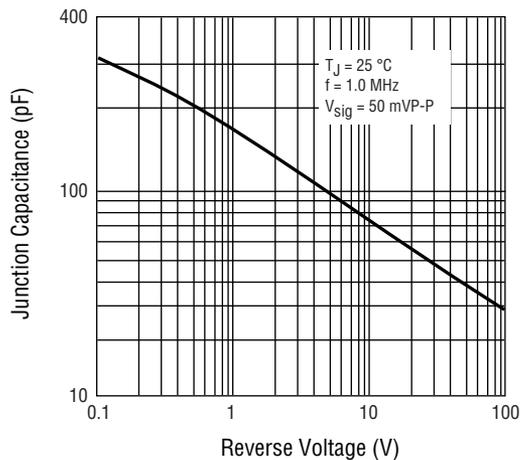
### Typical Forward Characteristics



### Typical Reverse Characteristics



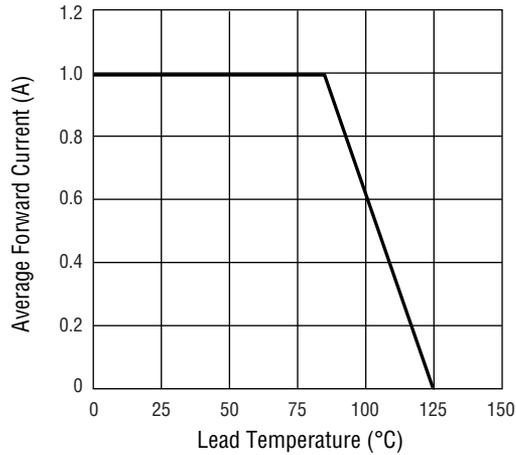
### Typical Junction Capacitance



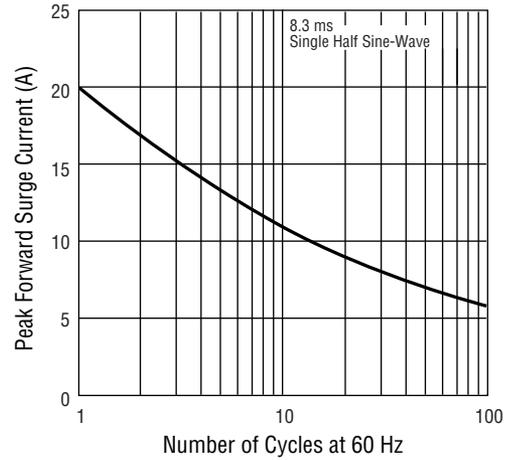
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## Performance Graphs - Model CD123D-B140LR

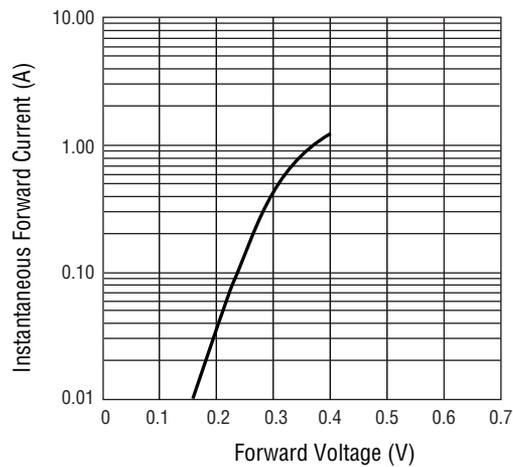
### Forward Current Derating Curve



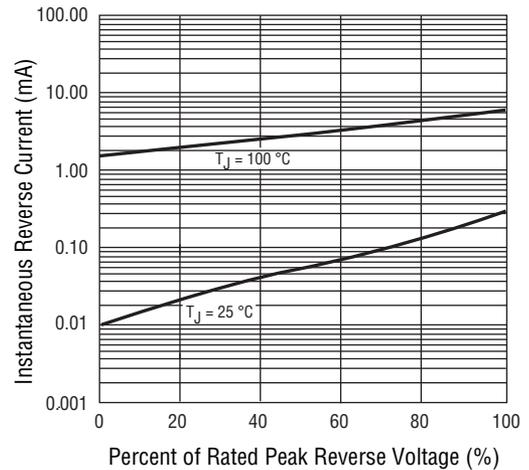
### Maximum Non-Repetitive Peak Forward Surge Current



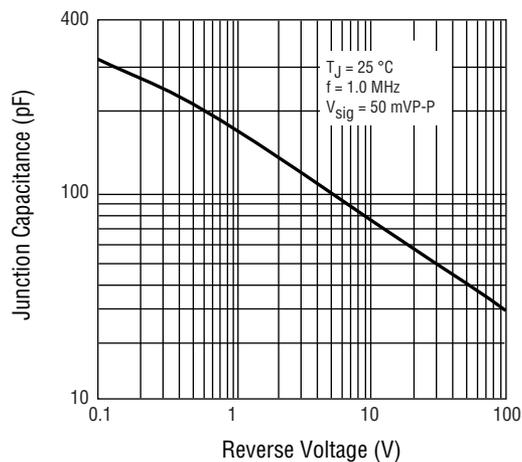
### Typical Forward Characteristics



### Typical Reverse Characteristics



### Typical Junction Capacitance

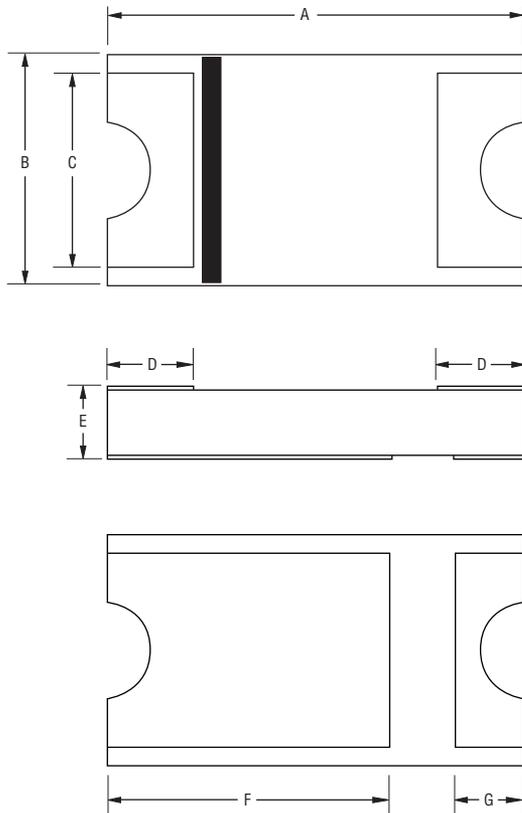


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# CD123D-B1xR Schottky Barrier Chip Diode Series



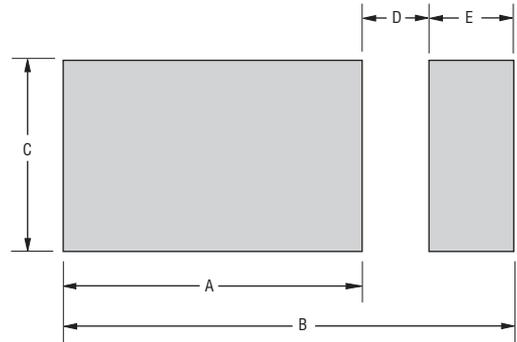
## Product Dimensions



Dimension	CD123D-B1xR
A	$\frac{3.40 \pm 0.2}{(0.0748 \pm 0.0079)}$
B	$\frac{1.9 \pm 0.2}{(0.0748 \pm 0.0079)}$
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

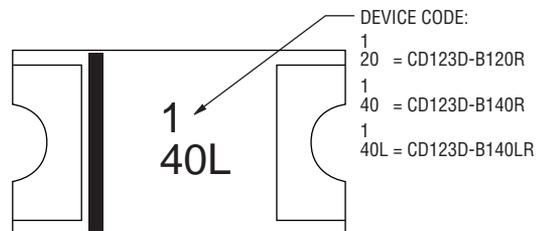


Dimension	CD123D-B1xR
A	$\frac{2.73}{(0.107)}$ MIN.
B	$\frac{4.26}{(0.168)}$ REF.
C	$\frac{1.60}{(0.063)}$ MIN.
D	$\frac{0.67}{(0.026)}$ MAX.
E	$\frac{0.86}{(0.034)}$ MIN.

## 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 (Blank) = Standard  
 L = Low

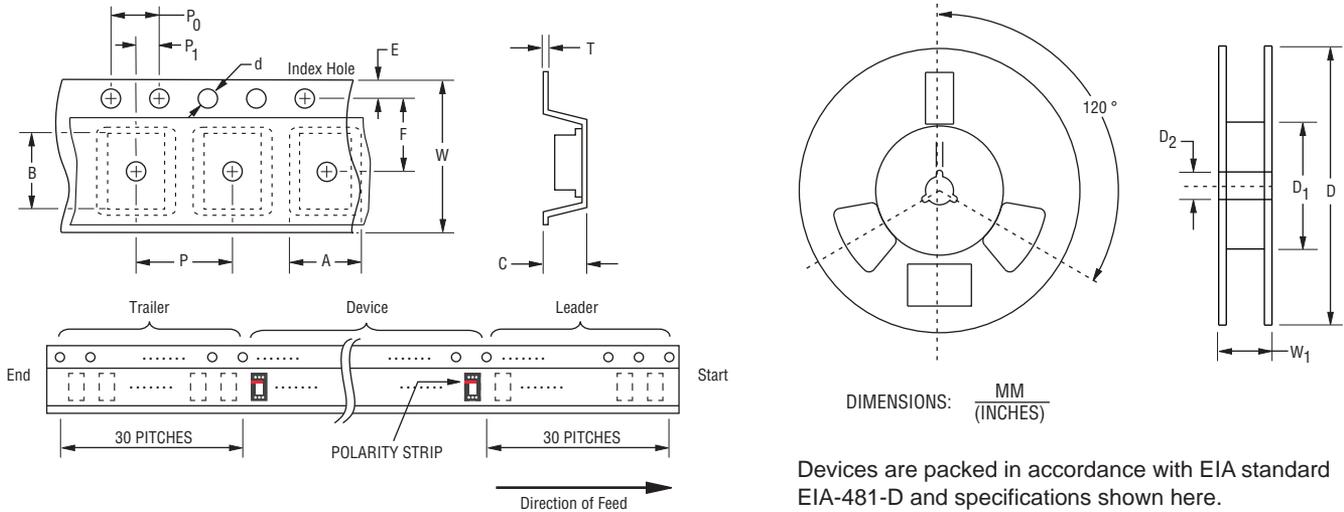
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# CD123D-B1xR Schottky Barrier Chip Diode Series

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

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