

Features

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

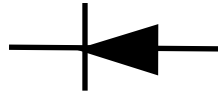
Applications

- 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.

Additional Information

Click these links for more information:



Absolute Maximum Ratings (@ T_A = 25 °C Unless Otherwise Noted)

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

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

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

NOTES: (1) Pulse test width P_W = 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

* 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.

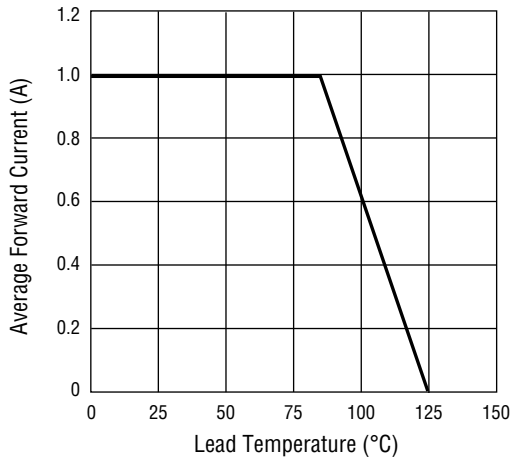
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Users should verify actual device performance in their specific applications.

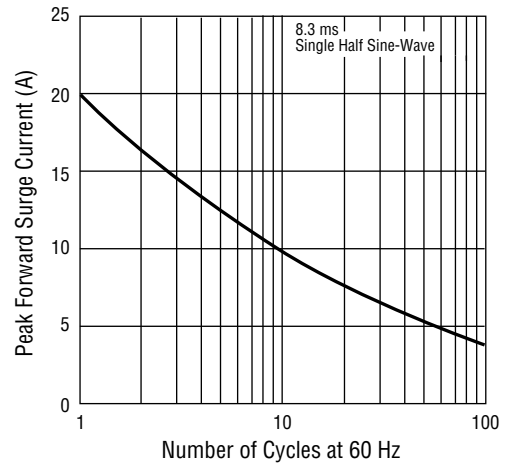
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Performance Graphs - Model CD123D-B120R & CD123D-B140R

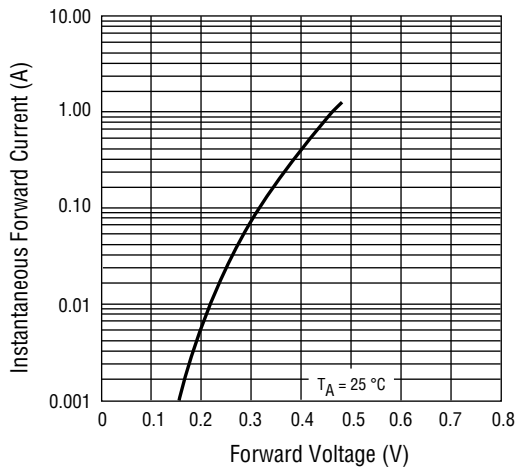
Forward Current Derating Curve



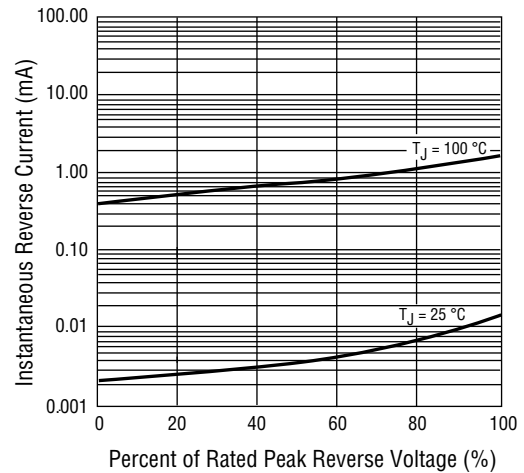
Maximum Non-Repetitive Peak Forward Surge Current



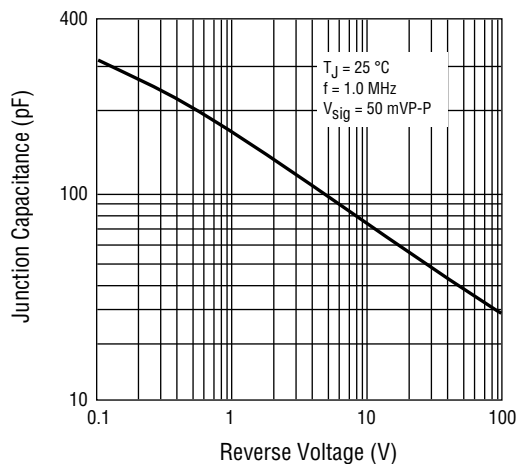
Typical Forward Characteristics



Typical Reverse Characteristics



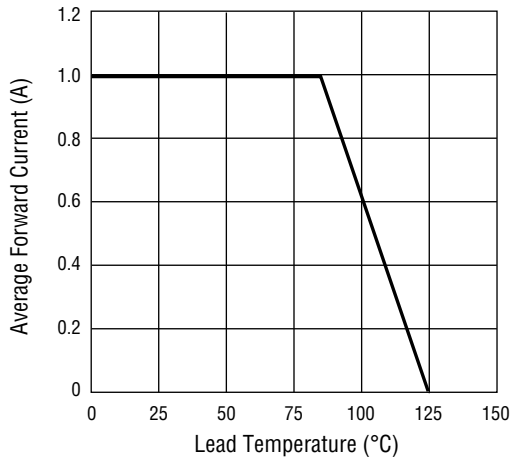
Typical Junction Capacitance



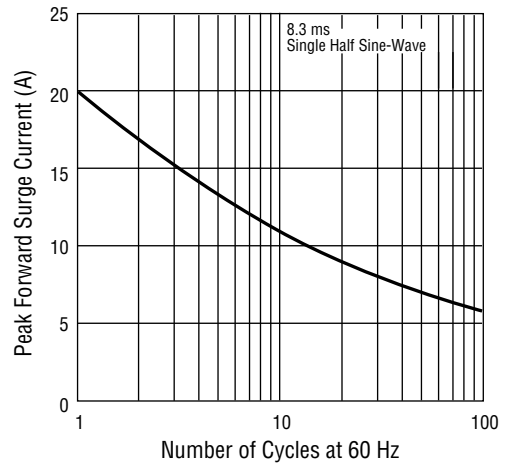
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Performance Graphs - Model CD123D-B140LR

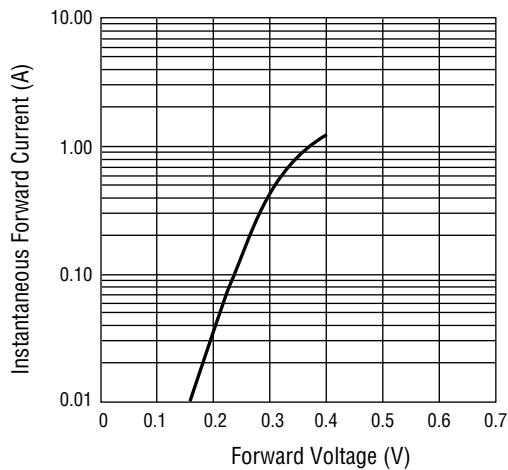
Forward Current Derating Curve



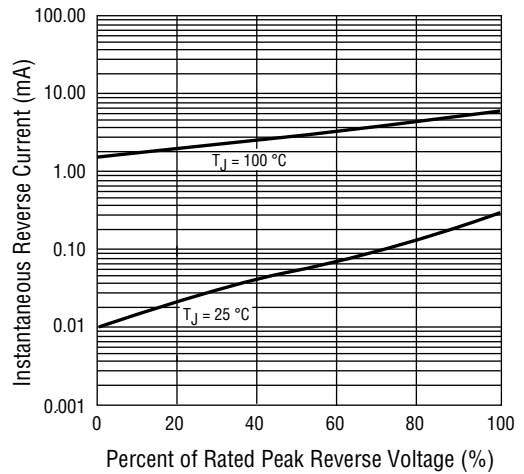
Maximum Non-Repetitive Peak Forward Surge Current



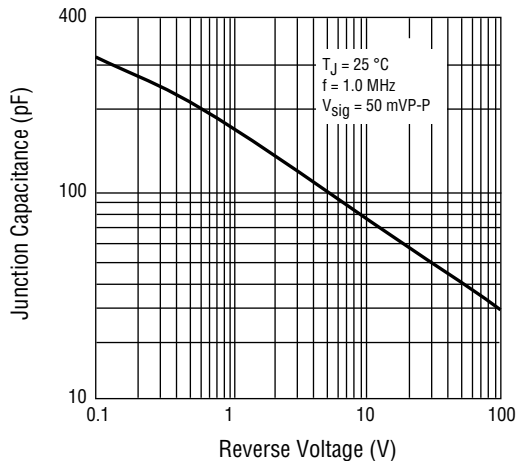
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance

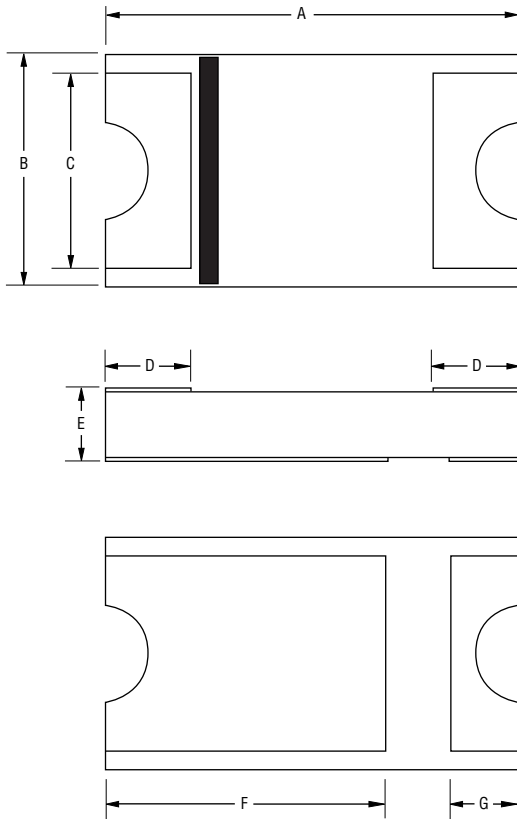


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CD123D-B1xR Schottky Barrier Chip Diode Series



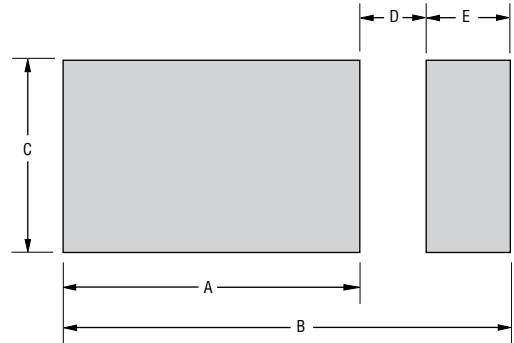
Product Dimensions



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

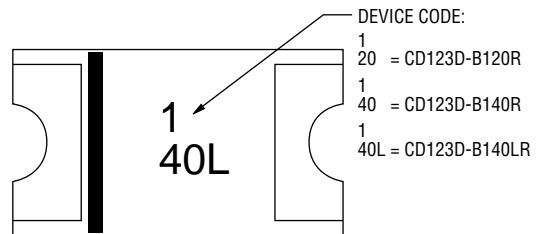


Dimension	CD123D-B1xR
A	$\frac{2.73}{(0.107)}$ MIN.
B	$\frac{4.26}{(0.168)}$ REF.
C	$\frac{1.60}{(0.063)}$ MIN.
D	$\frac{0.67}{(0.026)}$ MAX.
E	$\frac{0.86}{(0.034)}$ MIN.

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

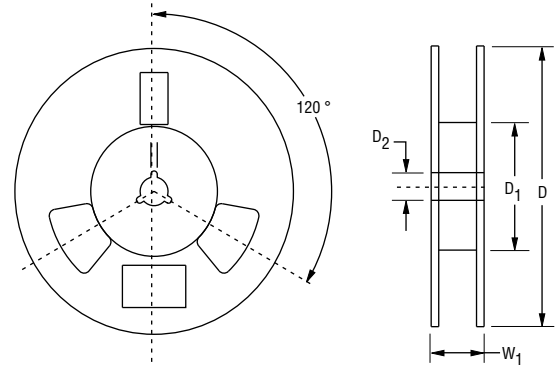
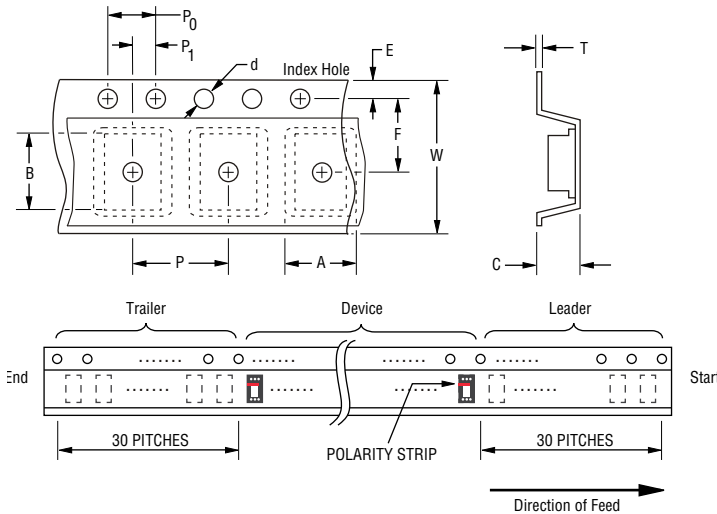
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CD123D-B1xR Schottky Barrier Chip Diode Series

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Packaging Information

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



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

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 ₁	$\frac{50}{(1.969) \text{ MIN.}}$
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.5}{(0.512 \pm 0.020)}$
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 ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$
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 ₁	$\frac{18.7}{(0.736) \text{ MAX.}}$
Quantity per Reel	--	3000

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