



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 (@ $T_A = 25^\circ\text{C}$ 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 ($T_A = 55^\circ\text{C}$)	$I_{F(AV)}$	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			$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150			$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Instantaneous Forward Voltage	V_F	$I_F = 0.1\text{ A}$		0.32		V
		$I_F = 0.5\text{ A}$		0.40		
		$I_F = 1.0\text{ A}$		0.46	0.50	
		$I_F = 0.1\text{ A}$		0.24		
		$I_F = 0.5\text{ A}$		0.31		
		$I_F = 1.0\text{ A}$		0.37	0.38	
Repetitive Peak Reverse Current	I_R	$V_R = V_{RRM}$		0.015	0.2	mA
		CD123D-B120R CD123D-B140R				
		CD123D-B140LR		0.30	1.0	
Junction Capacitance	C_J	$V_R = 4\text{ V}$, $f = 1.0\text{ MHz}$		110		pF
		CD123D-B120R CD123D-B140R				
		CD123D-B140LR		115		
Thermal Resistance	$R_{\theta JA}$	Junction to Ambient (1)		190		$^\circ\text{C/W}$
	$R_{\theta JL}$	Junction to Case (2)		60		

NOTES: (1) Pulse test width $P_W = 300\text{ us}$, 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.

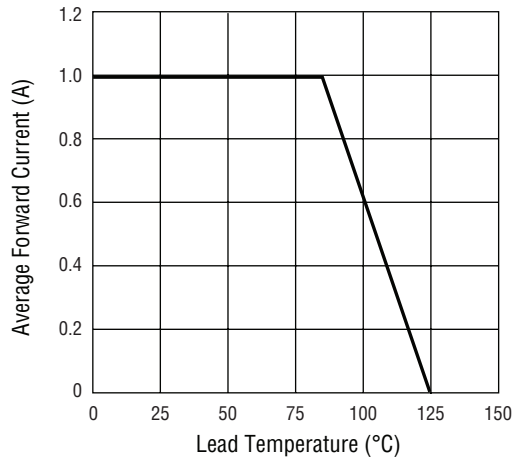
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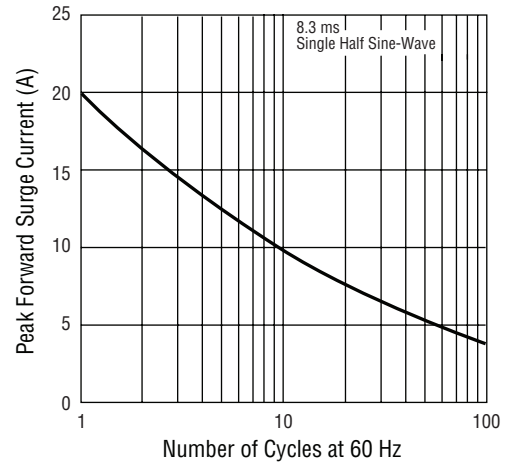
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Performance Graphs - Model CD123D-B120R & CD123D-B140R

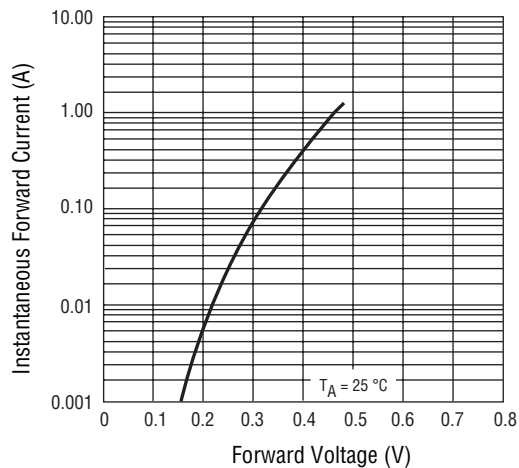
Forward Current Derating Curve



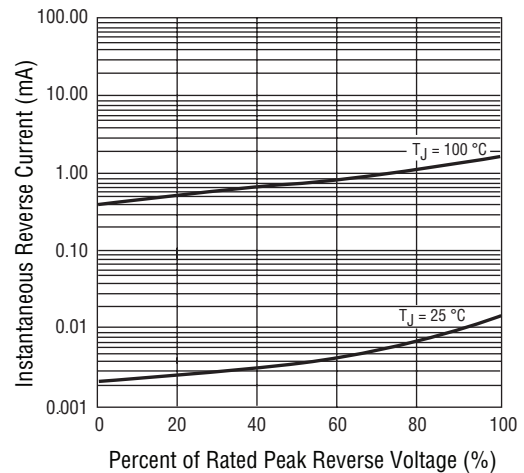
Maximum Non-Repetitive Peak Forward Surge Current



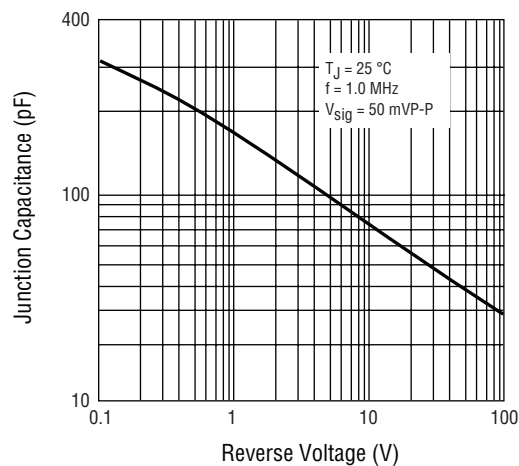
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



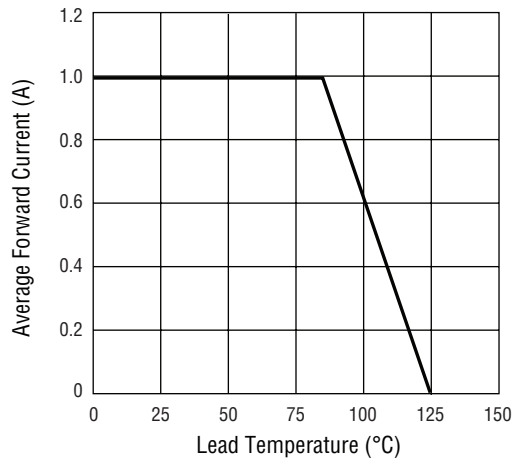
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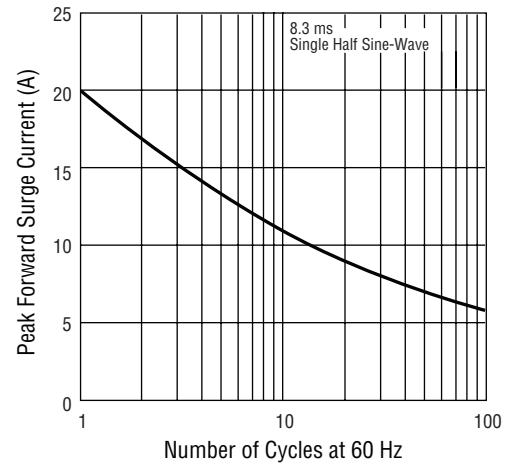
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Performance Graphs - Model CD123D-B140LR

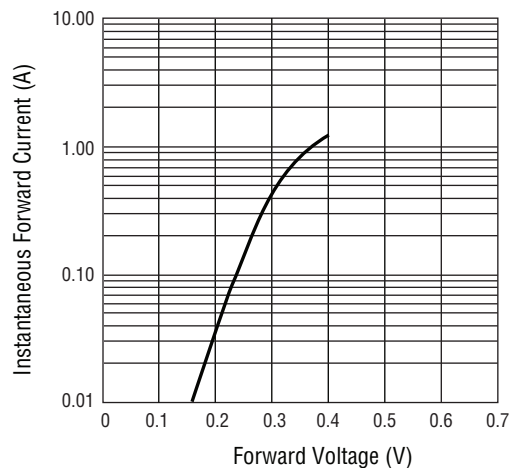
Forward Current Derating Curve



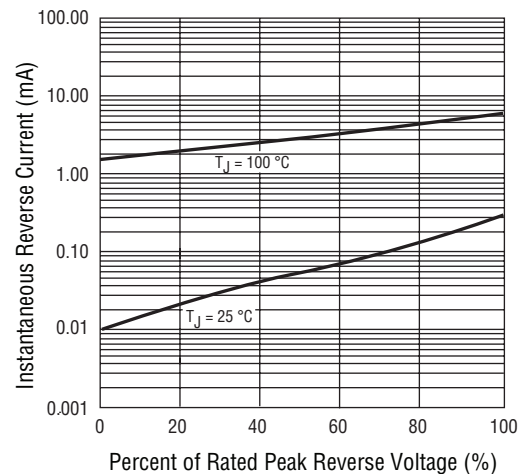
Maximum Non-Repetitive Peak Forward Surge Current



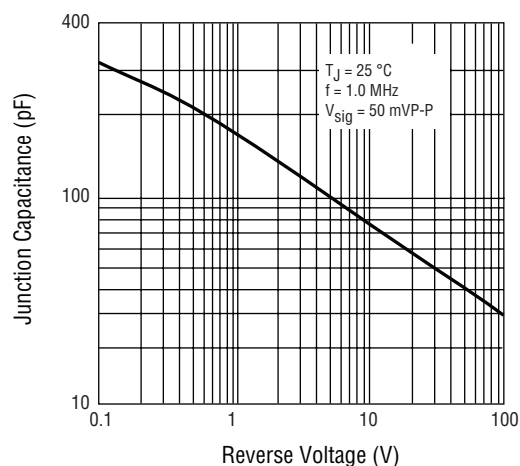
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance

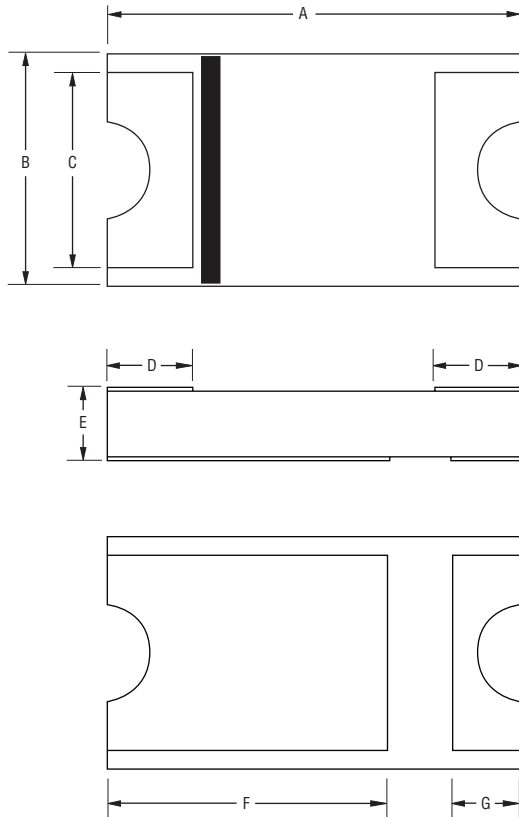


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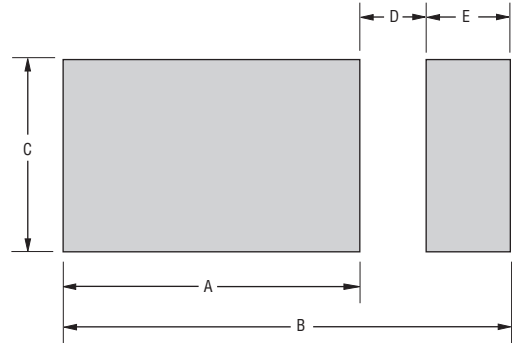
Product Dimensions



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

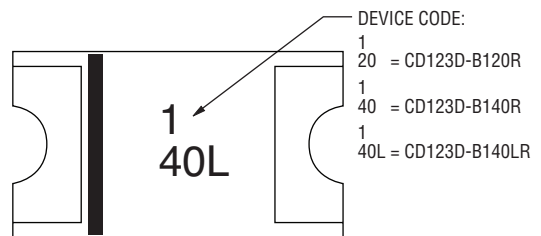


Dimension	CD123D-B1xR
A	$\frac{2.73}{(0.107)}$ MIN.
B	$\frac{4.26}{(0.168)}$ REF.
C	$\frac{1.60}{(0.063)}$ MIN.
D	$\frac{0.67}{(0.026)}$ MAX.
E	$\frac{0.86}{(0.034)}$ MIN.

Environmental Specifications

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

Typical Part Marking



How to Order

Common Code _____
CD = 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

CD 123D - B 1 40 L R

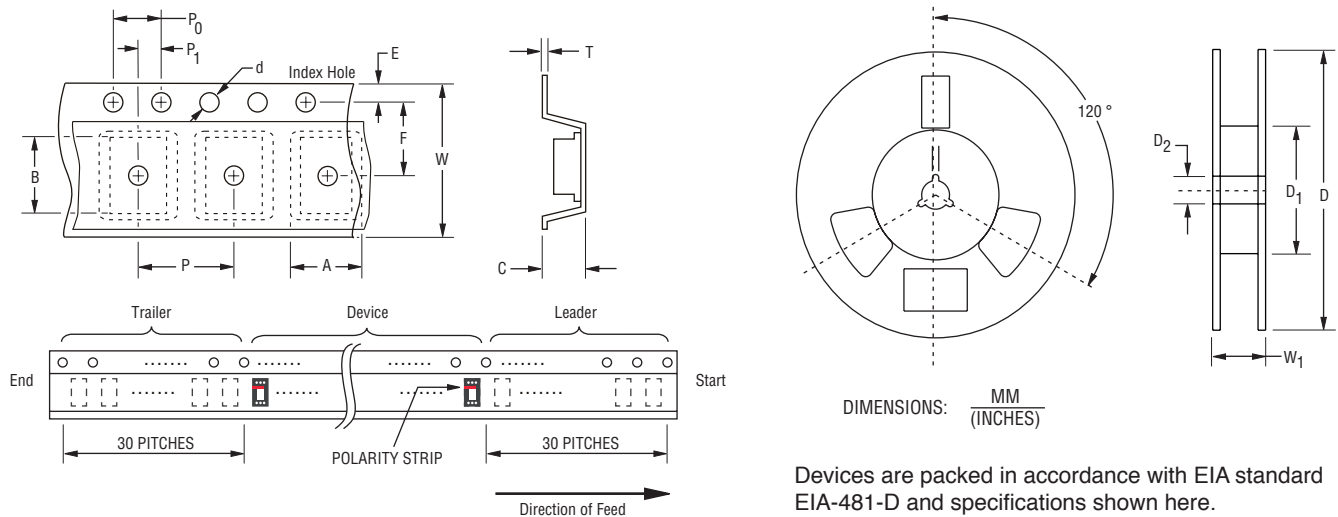
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Packaging Information

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



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

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