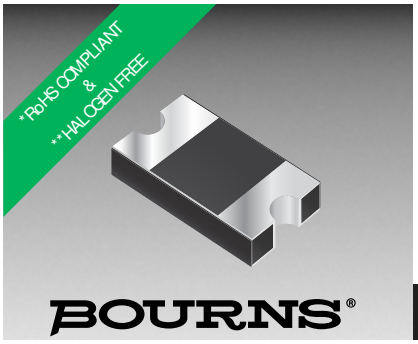


BOURNS®

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 °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 = 0.1A	CD123D-B120R CD123D-B140R		0.32		V
		I_F = 0.5 A			0.40		
		I_F = 1.0 A			0.46	0.50	
		I_F = 0.1A	CD123D-B140LR		0.24		
		I_F = 0.5 A			0.31		
		I_F = 1.0 A			0.37	0.38	
Repetitive Peak Reverse Current	I_R	$V_R = V_{RRM}$	CD123D-B120R CD123D-B140R		0.015	0.2	mA
			CD123D-B140LR		0.30	1.0	
Junction Capacitance	C_J	V_R = 4 V, f = 1.0 MHz	CD123D-B120R CD123D-B140R		110		pF
			CD123D-B140LR		115		
Thermal Resistance	$R_{\theta JA}$	Junction to Ambient (1)			190		°C/W
	$R_{\theta JL}$	Junction to Case (2)			60		

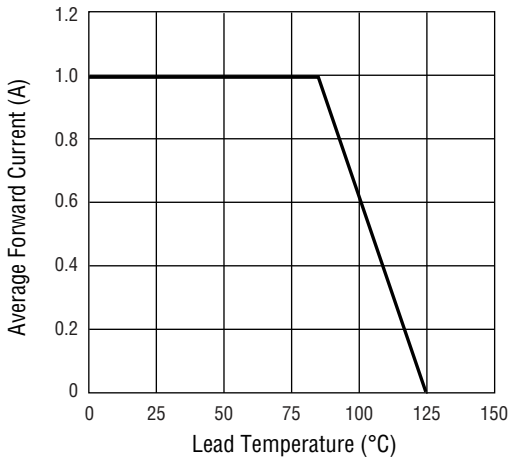
NOTES: (1) Pulse test width P_W = 300 us, 1 % duty cycle.
(2) Mounted on P.C. board with 2.73 x 1.6 mm and 0.86 x 1.6 mm copper pad areas.

WARNING Cancer and Reproductive Harm
www.P65Warnings.ca.gov

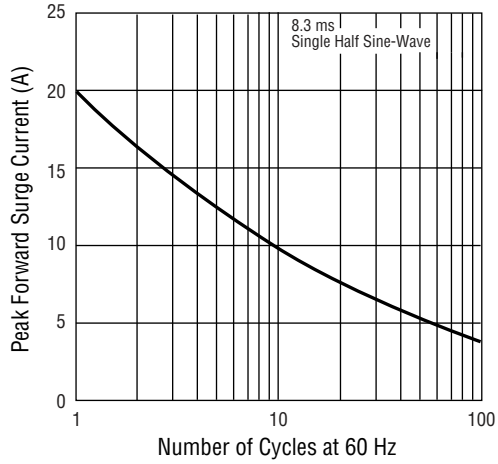
* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
** Bourns considers a product to be "halogen free" if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.

Performance Graphs - Model CD123D-B120R & CD123D-B140R

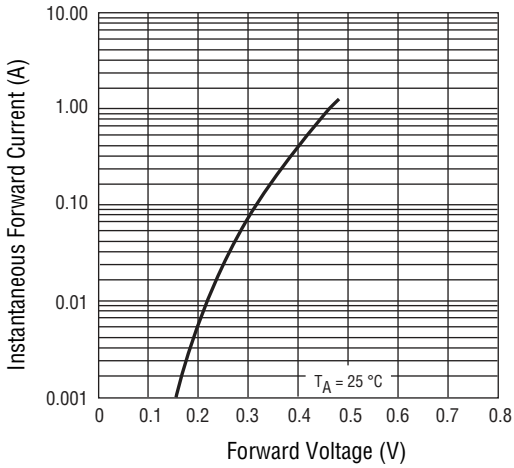
Forward Current Derating Curve



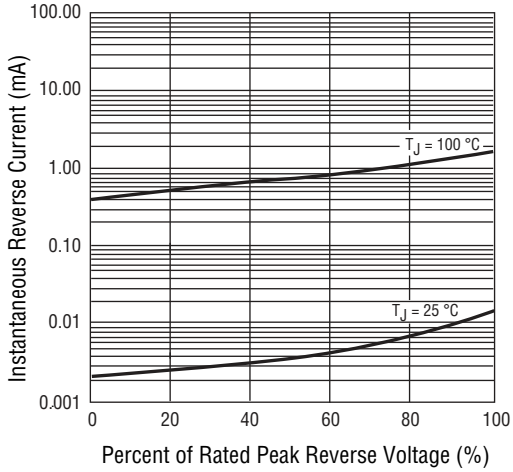
Maximum Non-Repetitive Peak Forward Surge Current



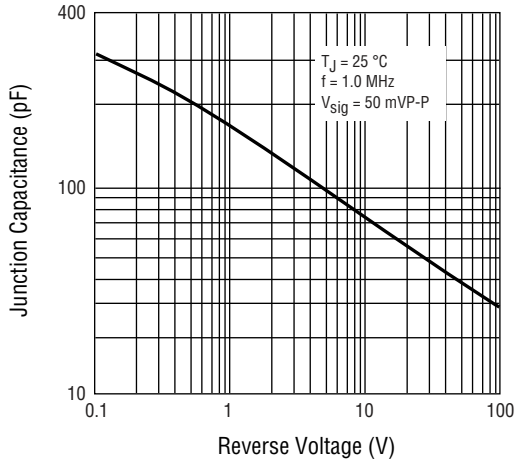
Typical Forward Characteristics



Typical Reverse Characteristics

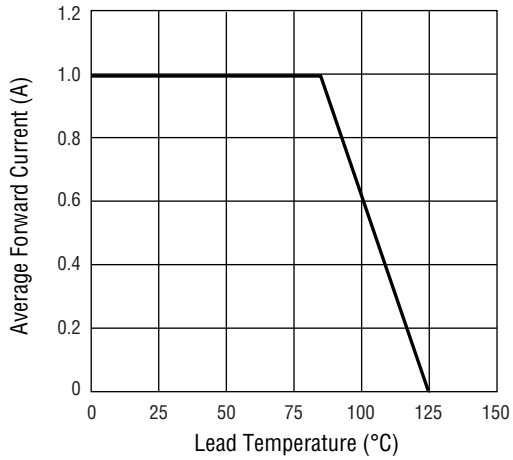


Typical Junction Capacitance

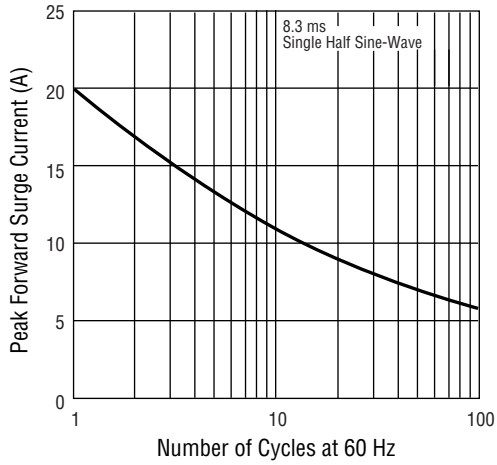


Performance Graphs - Model CD123D-B140LR

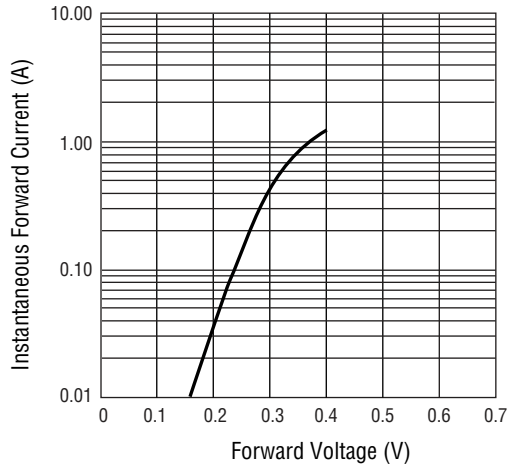
Forward Current Derating Curve



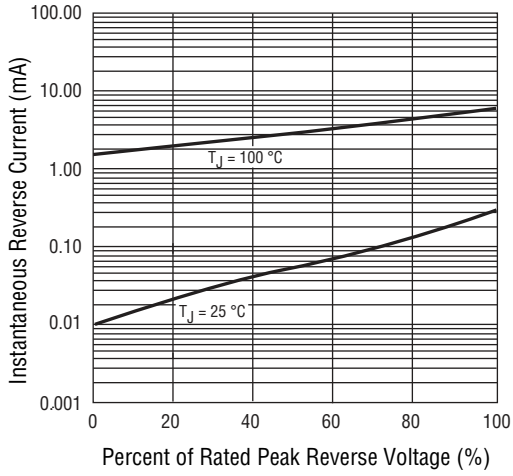
Maximum Non-Repetitive Peak Forward Surge Current



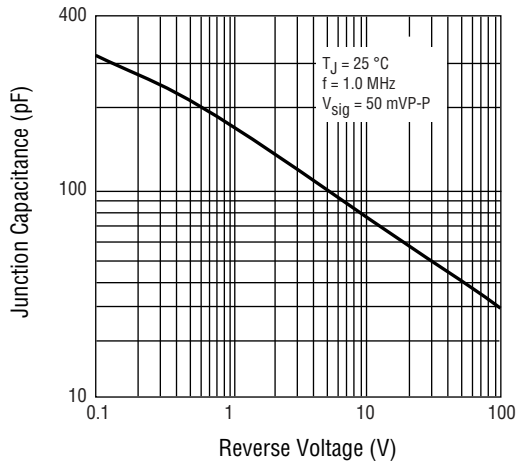
Typical Forward Characteristics



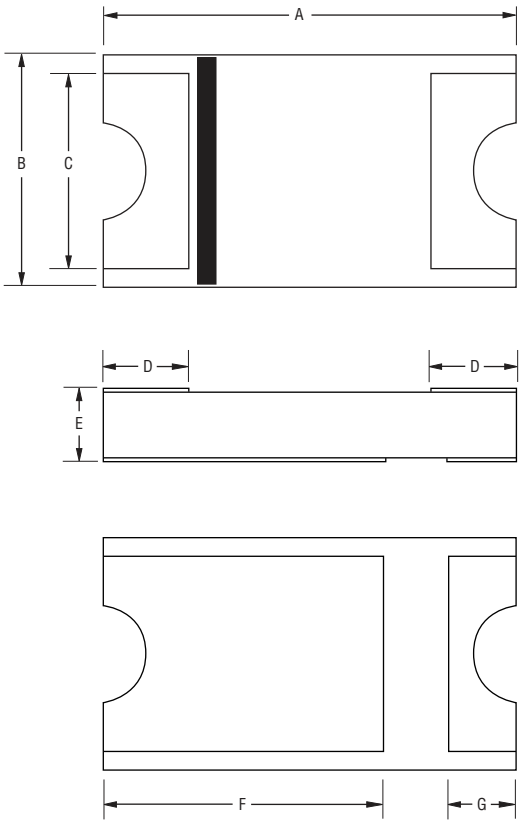
Typical Reverse Characteristics



Typical Junction Capacitance



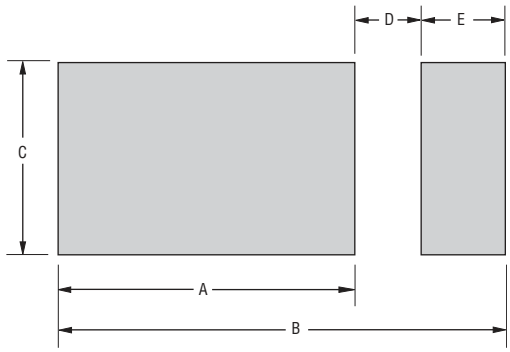
Product Dimensions



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

DIMENSIONS: MM / (INCHES)

Recommended Pad Layout

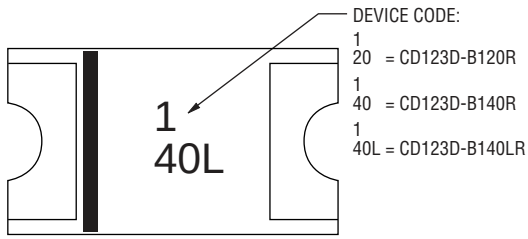


Dimension	CD123D-B1xR
A	2.73 (0.107) MIN.
B	4.26 (0.168) REF.
C	1.60 (0.063) MIN.
D	0.67 (0.026) MAX.
E	0.86 (0.034) MIN.

Environmental Specifications

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

Typical Part Marking



How to Order

CD 123D - B 1 40 L R

Common Code
CD = Chip Diode

Package
123D = SOD-123 Size

Model
B = Schottky Barrier Diode

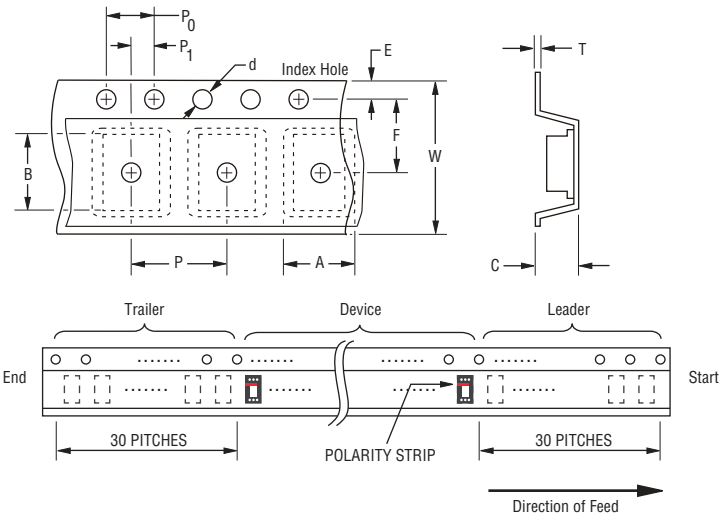
Average Forward Current
1 = 1 A

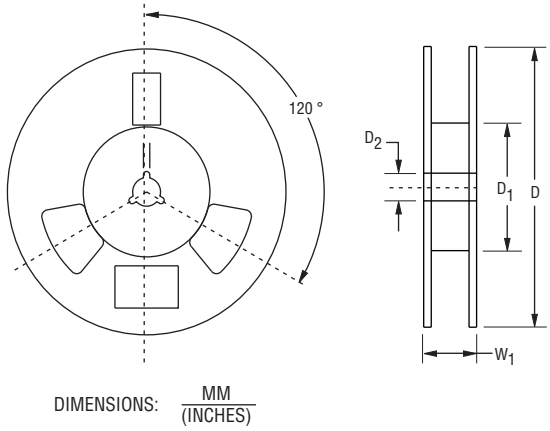
Reverse Voltage
40 = 40 V

Forward Voltage
(Blank) = Standard
L = Low

Packaging Information

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





DIMENSIONS: MM / (INCHES)

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

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) 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) MAX.
Tape Width	W	12.00 ± 0.30 / (0.472 ± 0.012)
Reel Width	W_1	18.7 / (0.736) MAX.
Quantity per Reel	--	3000

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