

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 |
|---|--------------------|---------|-------------|--------|-------|
| raiametei | | B120R | B140R | B140LR | Offic |
| Maximum Repetitive Peak Reverse Voltage | V _{RRM} | 20 | 40 | 40 | V |
| Maximum Average Forward Rectified Current (T _A = 55 °C) | I _{F(AV)} | 1 | | Α | |
| Peak Forward Surge Current 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) | I _{FSM} | 20 | | А | |
| Operating Temperature Range | TJ | | -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. | Тур. | 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 | 001230-014011 | | 0.46 | 0.50 | | |
| | | I _F = 0.1A | | 0.2 | 0.24 | | | |
| | | I _F = 0.5 A | CD123D-B140LR | | 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 | СЈ | 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.

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Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

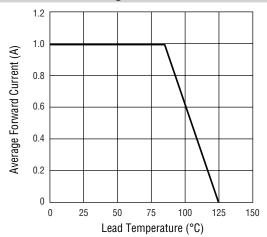
^{*} RoHS Directive 2015/863, Mar 31, 2015 and Annex.

^{**}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.

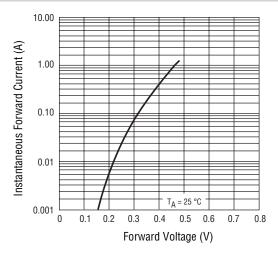
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Performance Graphs - Model CD123D-B120R & CD123D-B140R

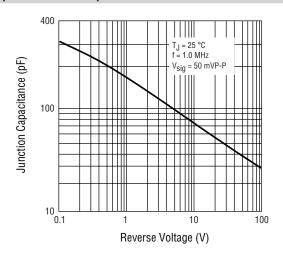
Forward Current Derating Curve



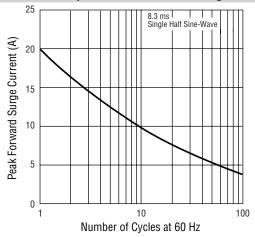
Typical Forward Characteristics



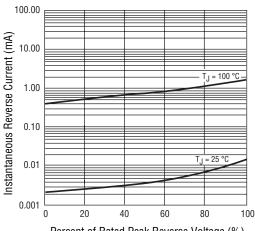
Typical Junction Capacitance



Maximum Non-Repetitive Peak Forward Surge Current



Typical Reverse Characteristics



Percent of Rated Peak Reverse Voltage (%)

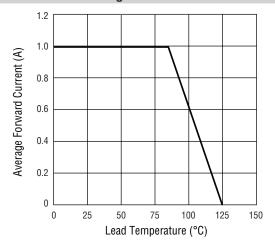
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CD123D-B1xR Schottky Barrier Chip Diode Series

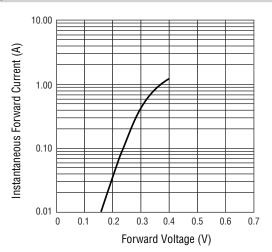
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Performance Graphs - Model CD123D-B140LR

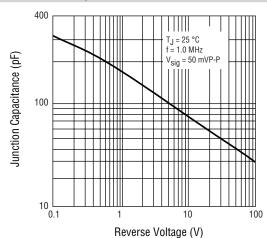
Forward Current Derating Curve



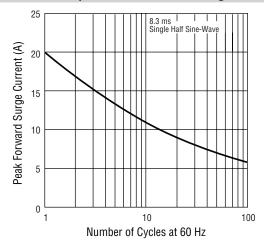
Typical Forward Characteristics



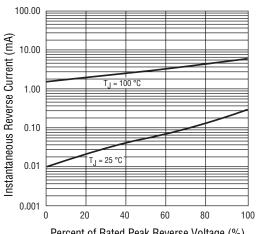
Typical Junction Capacitance



Maximum Non-Repetitive Peak Forward Surge Current



Typical Reverse Characteristics



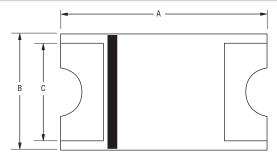
Percent of Rated Peak Reverse Voltage (%)

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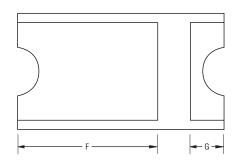
CD123D-B1xR Schottky Barrier Chip Diode Series

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Product Dimensions





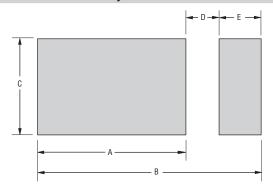


| Dimension | CD123D-B1xR |
|-----------|--|
| А | $\frac{3.40 \pm 0.2}{(0.0748 - 0.0079)}$ |
| В | $\frac{1.9 \pm 0.2}{(0.0748 - 0.0079)}$ |
| С | $\frac{1.6}{(0.0630)}$ TYP. |
| D | $\frac{0.7 \pm 0.2}{(0.0276 \pm 0.0079)}$ |
| E | 0.96 +0.2/-0.1 (0.0378 +0.0079/-0.0039) |
| F | $\frac{2.3 \pm 0.2}{(0.0906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

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

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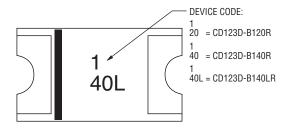
Recommended Pad Layout



| Dimension | CD123D-B1xR |
|-----------|----------------------|
| Α | 2.73 (0.107) MIN. |
| В | 4.26 (0.168) REF. |
| С | 1.60 (0.063) MIN. |
| D | 0.67 (0.026) MAX. |
| E | 0.86 MIN. |

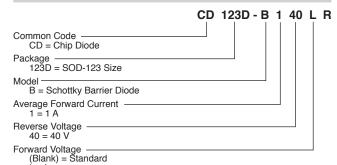
Environmental Specifications

Typical Part Marking



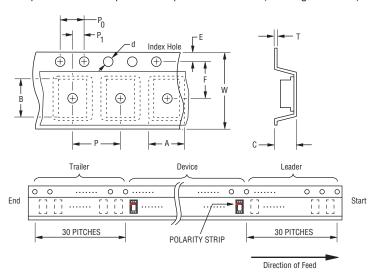
How to Order

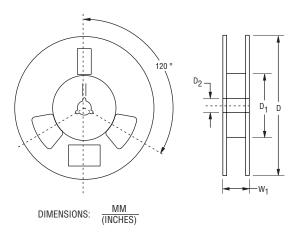
 $\dot{L} = Low$



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 | А | $\frac{2.20 \pm 0.10}{0.087 \pm 0.004}$ |
| Carrier Length | В | $\frac{3.65 \pm 0.10}{(0.144 \pm 0.004)}$ |
| Carrier Depth | С | $\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$ |
| 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 | 50 (1.969) 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 | Р | $\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$ |
| 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 | Т | 0.40 (0.016) MAX. |
| Tape Width | W | $\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$ |
| Reel Width | W ₁ | 18.7 (0.736) MAX. |
| Quantity per Reel | | 3000 |

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- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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