

Features

- Lead free
- RoHS compliant*
- Reverse voltage from 20 to 60 V
- Forward current of 1 A
- High current capability
- For use in low voltage high frequency inverters, free wheeling and polarity protection applications

CD214B-B120 ~ B160 Schottky Barrier Rectifier Chip Diode

General Information

The markets of portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Schottky Rectifier Diodes for rectification applications, in compact chip package DO-214AA (SMB) size format, which offer PCB real estate savings and are considerably smaller than most competitive parts. The Schottky Rectifier Diodes offer a forward current of 1 A with a choice of repetitive peak reverse voltage of 20 V up to 60 V.

Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.

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

| Parameter | Symbol | CD214B- | | | | | Unit |
|---|-------------------|---------|------|------|------|------|------|
| | | B120 | B130 | B140 | B150 | B160 | |
| Maximum Repetitive Peak Reverse Voltage | V _{RRM} | 20 | 30 | 40 | 50 | 60 | V |
| Maximum RMS Voltage | V _{RMS} | 14 | 21 | 28 | 35 | 42 | V |
| Maximum DC Blocking Voltage | V _{DC} | 20 | 30 | 40 | 50 | 60 | V |
| Maximum Average Forward Rectified Current ¹ | I _(AV) | 1 | | | | | A |
| DC Reverse Current @ Rated DC Blocking Voltage (@T _A = 25 °C) | I _R | 0.5 | | | | | mA |
| DC Reverse Current @ Rated DC Blocking Voltage (@T _A = 100 °C) | I _R | 10 | | | | | mA |
| Typical Junction Capacitance ² | C _J | 110 | | | | | pF |
| Maximum Instantaneous Forward Voltage @ 1 A | V _F | 0.5 | | | 0.7 | | V |
| Typical Thermal Resistance ³ | R _{θJA} | 22 | | | | | °C/W |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) | I _{FSM} | 30 | | | | | A |

Notes:

1 See Forward Derating Curve.

2 Measured at 1 MHz and an applied reverse voltage of 4.0 V.

3 Thermal resistance from junction to ambient and from junction to lead P.C.B. mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas.

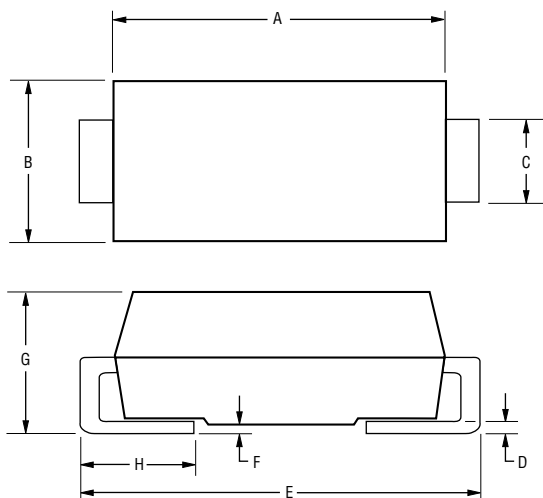
Thermal Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter | Symbol | CD214B- | | | | | Unit |
|-----------------------------|------------------|-------------|------|------|-------------|------|------|
| | | B120 | B130 | B140 | B150 | B160 | |
| Operating Temperature Range | T _J | -55 to +125 | | | -55 to +150 | | °C |
| Storage Temperature Range | T _{STG} | -55 to +150 | | | | | °C |

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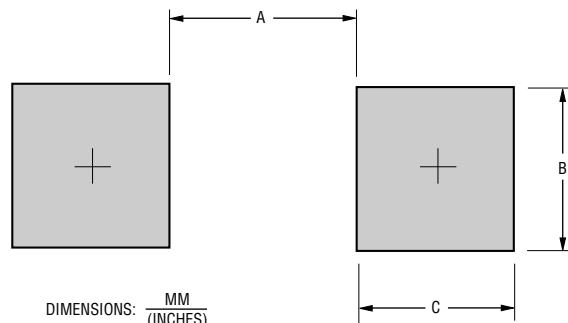
Product Dimensions



| Dimension | SMB (DO-214AA) |
|-----------|---------------------------------------|
| A | $\frac{4.06 - 4.57}{(0.160 - 0.180)}$ |
| B | $\frac{3.30 - 3.94}{(0.130 - 0.155)}$ |
| C | $\frac{1.96 - 2.21}{(0.078 - 0.087)}$ |
| D | $\frac{0.15 - 0.31}{(0.006 - 0.112)}$ |
| E | $\frac{5.21 - 5.59}{(0.205 - 0.220)}$ |
| F | $\frac{0.05 - 0.20}{(0.002 - 0.008)}$ |
| G | $\frac{2.01 - 2.62}{(0.080 - 0.103)}$ |
| H | $\frac{0.76 - 1.52}{(0.030 - 0.060)}$ |

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

Recommended Pad Layout



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

| Dimension | SMB (DO-214AA) |
|-----------|------------------------|
| A (Max.) | $\frac{2.69}{(0.106)}$ |
| B (Min.) | $\frac{2.10}{(0.083)}$ |
| C (Min.) | $\frac{1.27}{(0.050)}$ |

Physical Specifications

CaseMolded plastic
PolarityIndicated by cathode band
Weight0.003 ounces / 0.093 grams

Typical Part Marking

CD214B-B120 **B 120B**
CD214B-B130 **B 130B**
CD214B-B140 **B 140B**
CD214B-B150 **B 150B**
CD214B-B160 **B 160B**

How To Order

CD 214B - B 1 30 LF

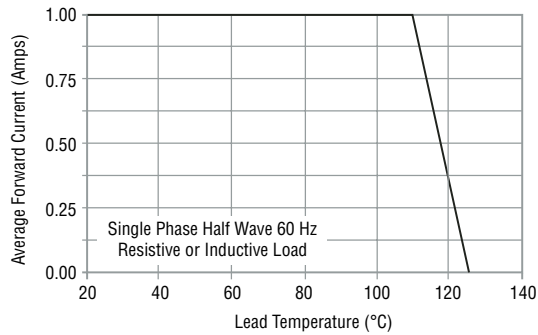
Common Code
Chip Diode
Package
• 214B = SMB/DO-214AA
Model
B = Schottky Barrier Series
Average Forward Current (I_O) Code
1 = 1 A (Code x 1000 mA = Average Forward Current)
Reverse Voltage (V_R) Code
20 = 20 V
30 = 30 V
40 = 40 V
50 = 50 V
60 = 60 V
Terminations
LF = 100 % Sn (lead free)

CD214B-B120 ~ B160 Schottky Barrier Rectifier Chip Diode

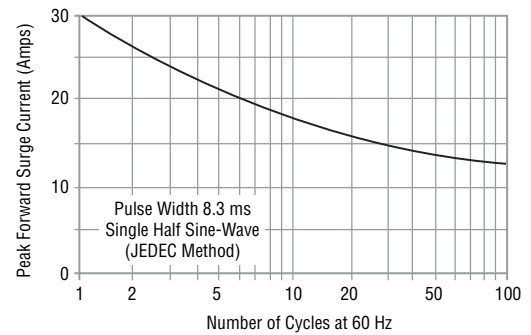
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Rating and Characteristic Curves

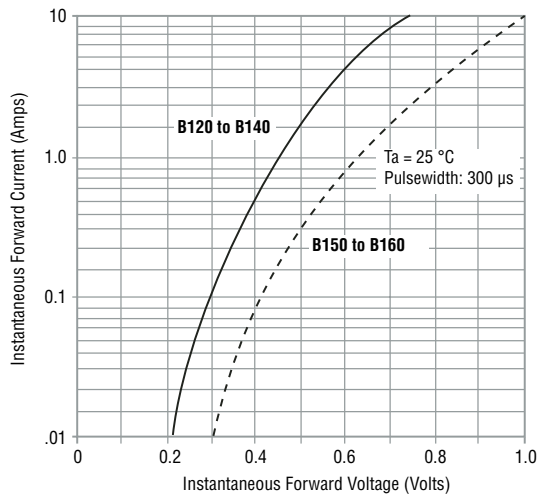
Forward Current Derating Curve



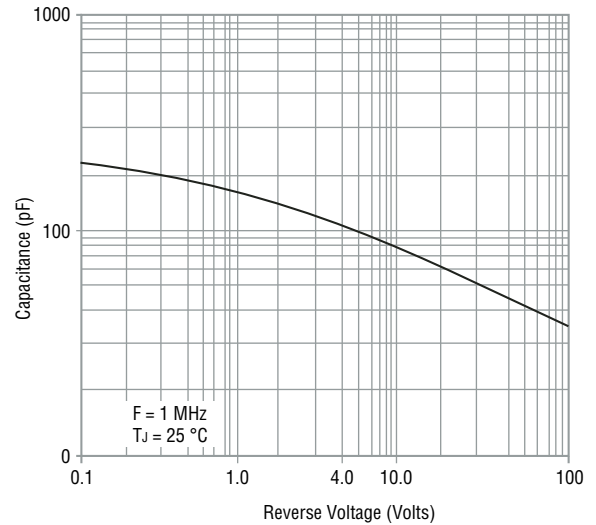
Maximum Non-Repetitive Surge Current



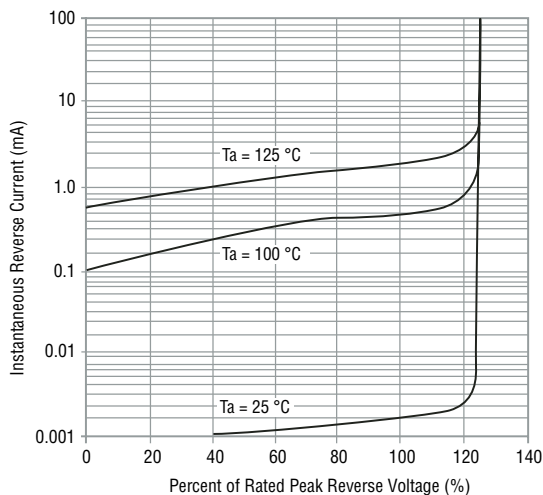
Typical Forward Characteristics



Typical Junction Capacitance



Typical Reverse Characteristics



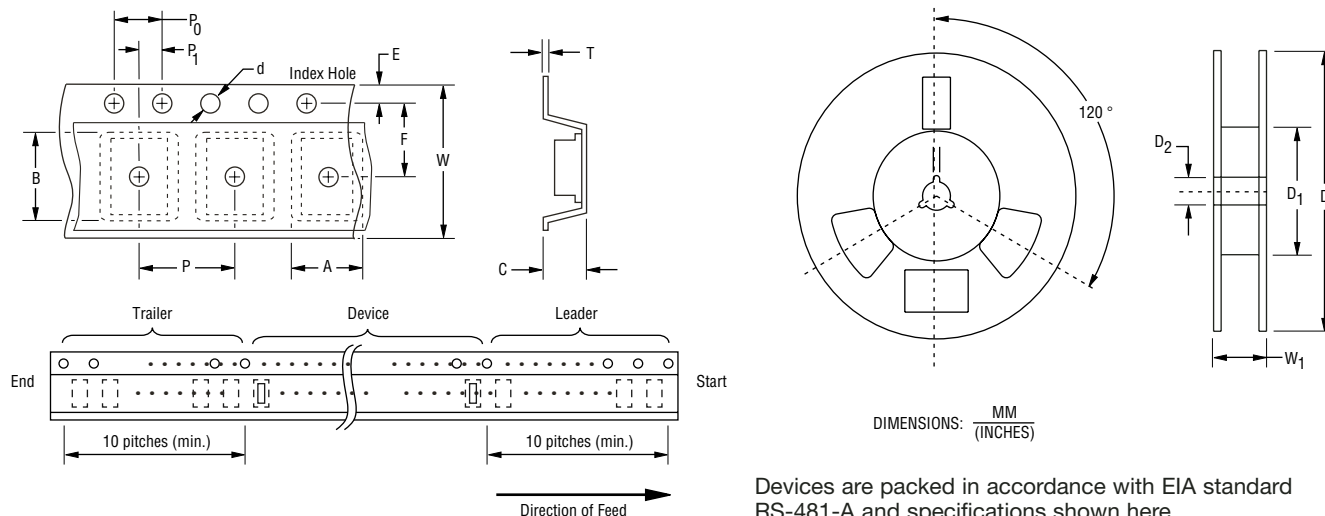
*RoHS Directive 2002/95/EC Jan 27 2003 including Annex
Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

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Packaging Information

The product will be dispensed in Tape and Reel format (see diagram below).



| Item | Symbol | SMB (DO-214AA) |
|------------------------|----------------|-------------------------------------|
| Carrier Width | A | 4.94 ± 0.10 (0.194 - 0.004) |
| Carrier Length | B | 5.57 ± 0.10 (0.219 - 0.004) |
| Carrier Depth | C | 2.36 ± 0.10 (0.093 - 0.004) |
| Sprocket Hole | d | 1.55 ± 0.05 (0.061 - 0.002) |
| Reel Outside Diameter | D | 330 (12.992) |
| Reel Inner Diameter | D ₁ | 50.0 (1.969) MIN. |
| Feed Hole Diameter | D ₂ | 13.0 ± 0.20 (0.512 - 0.008) |
| 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 ± 0.05 (0.079 - 0.002) |
| Overall Tape Thickness | T | 0.30 ± 0.10 (0.012 - 0.004) |
| Tape Width | W | 12.00 ± 0.20 (0.472 - 0.008) |
| Reel Width | W ₁ | 18.4 (0.724) MAX. |
| Quantity per Reel | -- | 3,000 |