

Features

- RoHS compliant*
- Low profile
- Low power loss, high efficiency
- UL 94V-0 classification

Applications

- Switch Mode Power Supplies
- Portable equipment batteries
- High frequency rectification
- DC/DC Converters
- Telecommunications

CD214A-B3xR Series Schottky Barrier Rectifier Chip Diode

General Information

Portable communications, computing and video equipment manufacturers are challenging the semiconductor industry to develop increasingly smaller electronic components.

Bourns offers Schottky Rectifier Diodes for rectification applications, in a compact chip package compatible with DO-214AC (SMA) size format. The Schottky Rectifier Diodes offer a forward current of 3 A with a choice of repetitive peak reverse voltage of 20 V up to 60 V.



Absolute Maximum Ratings (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

| Parameter | Symbol | CD214A- | | | | | Unit |
|---|-------------|-------------|--------|-------|--------|-------|------------------|
| | | B320R | B320LR | B340R | B340LR | B360R | |
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | 20 | 20 | 40 | 40 | 60 | V |
| Maximum Average Forward Current | $I_{F(AV)}$ | 3 | | | | | A |
| Maximum Peak Forward Surge Current (8.3 ms Single Half Sine-Wave) | I_{FSM} | 80 | | | | | A |
| Operating Junction Temperature Range | T_{OPR} | -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 | Condition or Model | Min. | Typ. | Max. | Unit | |
|--|--------|--|--|------|------|------|----|
| Maximum Instantaneous Forward Voltage (NOTE 1) | V_F | $I_F = 1\text{ A}$ | CD214A-B320R CD214A-B340R | | 0.37 | | V |
| | | | CD214A-B360R | | 0.42 | | |
| | | | CD214A-B320LR CD214A-B340LR | | 0.3 | | |
| | | $I_F = 3\text{ A}$ | CD214A-B320R CD214A-B340R | | 0.46 | 0.5 | |
| | | | CD214A-B360R | | 0.58 | 0.7 | |
| | | | CD214A-B320LR CD214A-B340LR | | 0.39 | 0.42 | |
| DC Reverse Current | I_R | $V_R = V_{RRM}$ | CD214A-B320R CD214A-B340R CD214A-B360R | | 0.02 | 0.2 | mA |
| | | | CD214A-B320LR CD214A-B340LR | | 0.55 | 1 | |
| Typical Junction Capacitance | C_J | $V_R = 4\text{ V}$, $f = 1.0\text{ MHz}$ | CD214A-B320R CD214A-B340R | | 160 | | pF |
| | | | CD214A-B360R | | 135 | | |
| | | | CD214A-B320LR CD214A-B340LR | | 120 | | |

NOTE: (1) Pulse width 300 microsecond, 1 % duty cycle.

Continued on next page.

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

Specifications are subject to change without notice.

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

| Parameter | | Symbol | Condition or Model | Min. | Typ. | Max. | Unit |
|--|---------------------|-----------------|--|------|------|------|--------------------|
| Typical Thermal Resistance (NOTE 2) | Junction to Ambient | $R_{\theta JA}$ | CD214A-B320R CD214A-B340R CD214A-B360R | | 86 | | $^\circ\text{C/W}$ |
| | | | CD214A-B320LR CD214A-B340LR | | 55 | | |
| | Junction to Lead | $R_{\theta JL}$ | CD214A-B320R CD214A-B340R CD214A-B360R | | 24 | | |
| | | | CD214A-B320LR CD214A-B340LR | | 17 | | |

NOTE: (2) Mounted on PCB with 5.0 x 5.0 mm (0.2 x 0.2 inch) copper pad areas.

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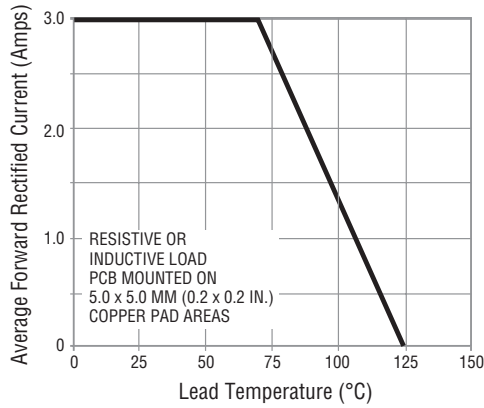
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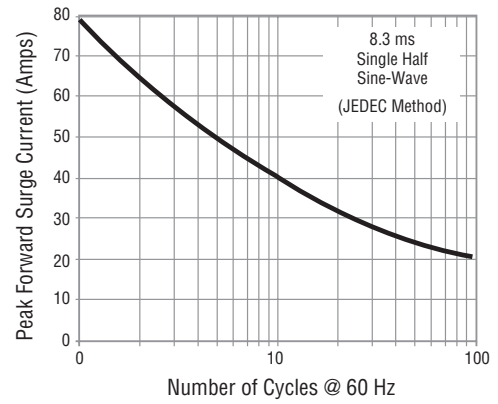


Performance Graphs

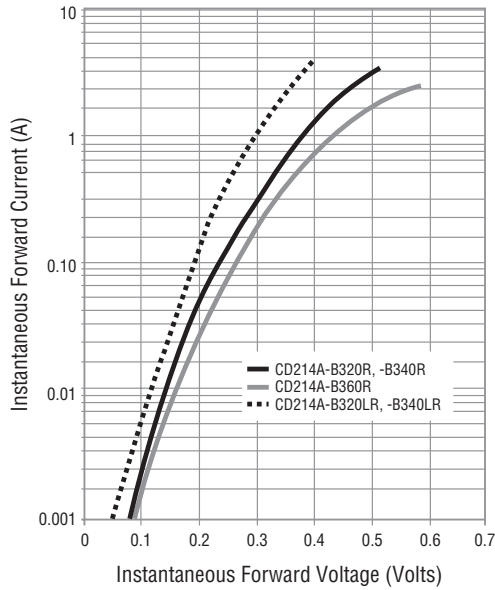
Forward Current Derating Curve



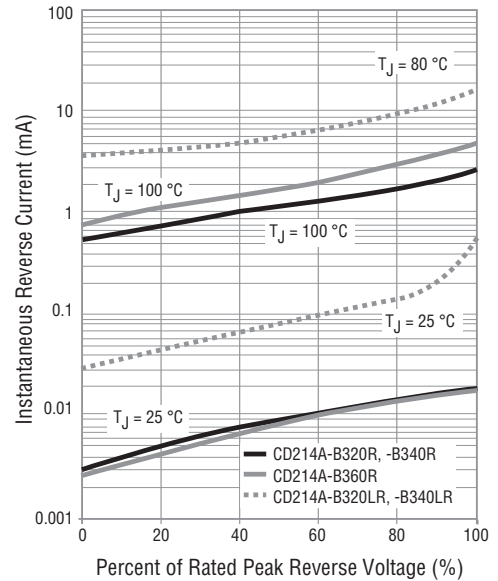
Maximum Peak Forward Surge Current



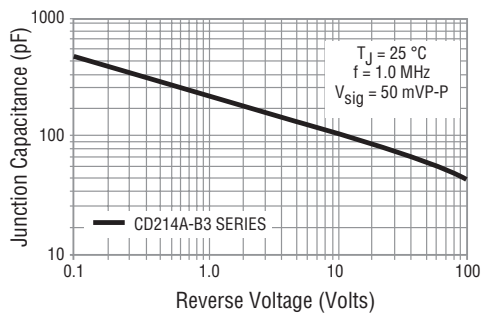
Typical Instantaneous Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance

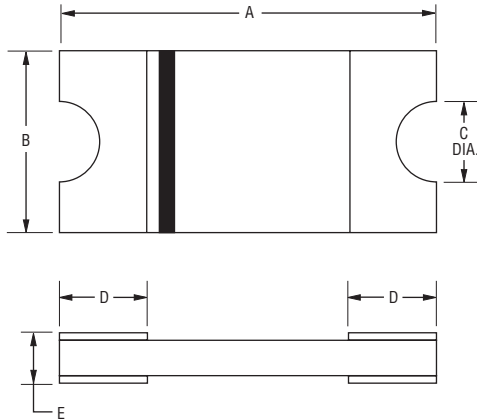


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CD214A-B3xR Series Schottky Barrier Rectifier Chip Diode



Product Dimensions



| Dimension | CD214A-B3 Series |
|-----------|--|
| A | $\frac{4.5 \pm 0.10}{(0.177 \pm 0.004)}$ |
| B | $\frac{2.20 \pm 0.10}{(0.087 \pm 0.004)}$ |
| C (Dia.) | $\frac{0.50}{(0.020)}$ |
| D | $\frac{0.95 \pm 0.20}{(0.037 \pm 0.008)}$ |
| E | $\frac{0.96 + 0.20 / - 0.10}{(0.038 + 0.008 / - 0.004)}$ |

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

How to Order

CD 214A - B 3 20 L R

Common Code _____
 CD = Chip Diode

Package _____
 214A = SMA/DO-214AC Compatible

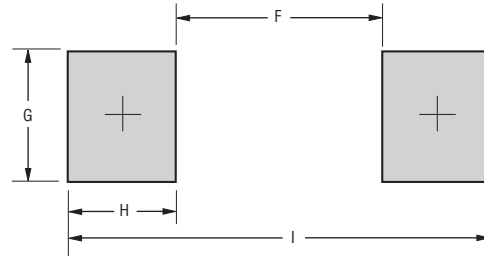
Model _____
 B = Schottky Barrier Series

Maximum Average Forward Rectified Current _____
 3 = 3 A

Maximum Repetitive Peak Reverse Voltage _____
 20 = 20 V
 40 = 40 V
 60 = 60 V

Forward Voltage Suffix _____
 L = Low Forward Voltage

Recommended Pad Layout



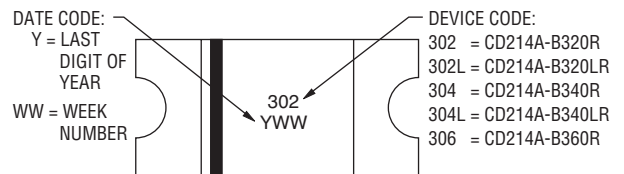
| Dimension | CD214A-B3 Series |
|-----------|-----------------------------|
| F | $\frac{2.60}{(0.102)}$ MAX. |
| G | $\frac{1.47}{(0.058)}$ MIN. |
| H | $\frac{1.27}{(0.050)}$ MIN. |
| I | $\frac{5.14}{(0.202)}$ REF. |

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

Environmental Specifications

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

Typical Part Marking



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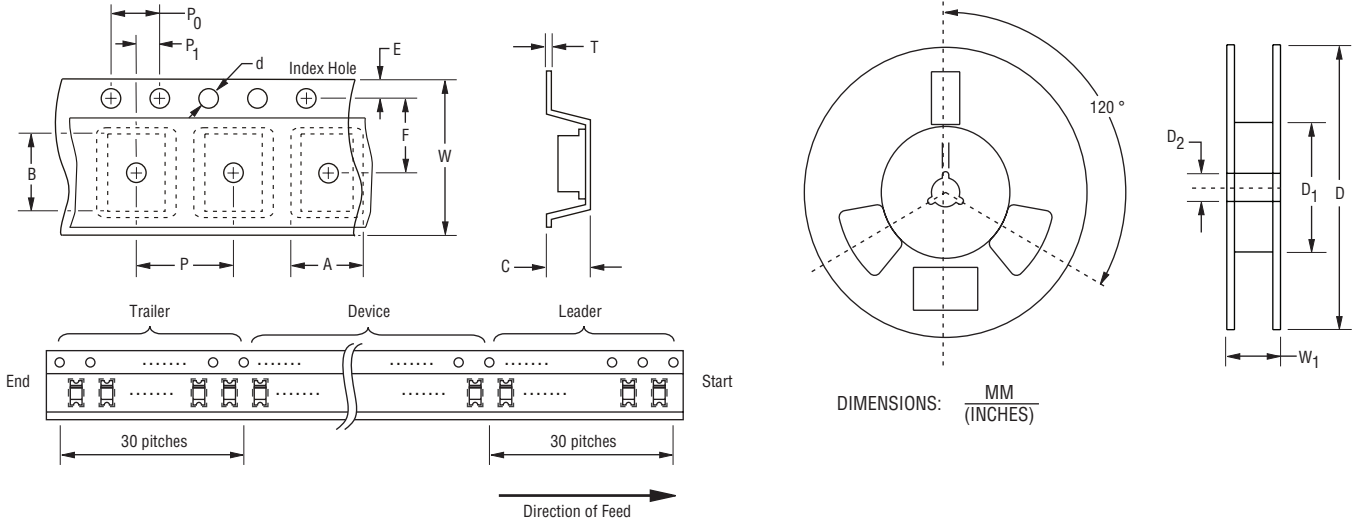
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CD214A-B3xR Series Schottky Barrier Rectifier Chip Diode

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Packaging Information

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



| Item | Symbol | CD214A-B3 Series |
|------------------------|----------------|--|
| Carrier Width | A | $\frac{2.45 \pm 0.10}{(0.096 \pm 0.004)}$ |
| Carrier Length | B | $\frac{4.75 \pm 0.10}{(0.187 \pm 0.004)}$ |
| Carrier Depth | C | $\frac{1.51 \pm 0.10}{(0.059 \pm 0.004)}$ |
| 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 | $\frac{50.0}{(1.969)}$ MIN. |
| Feed Hole Diameter | D ₂ | $\frac{13.0 \pm 0.50}{(0.512 \pm 0.020)}$ |
| 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 | $\frac{0.40}{(0.016)}$ MAX. |
| Tape Width | W | $\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$ |
| Reel Width | W ₁ | $\frac{18.7}{(0.736)}$ MAX. |
| Quantity per Reel | -- | 3,000 |

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