



Features

- Lead free device (RoHS compliant*)
- Low profile
- Low power loss, high efficiency
- UL 94V-0 classification

Applications

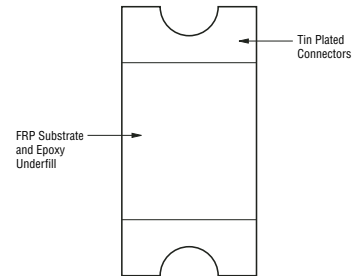
- High frequency switching power supplies
- Inverters
- Free wheeling
- Polarity protection

CD1408-FF1200~FF11500 – Surface Mount Rectifier 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 Rectifier Diodes for rectification applications, in compact chip package 1408 size format (compatible with SOD87, SOD123 formats), which offers PCB real estate savings and are considerably smaller than most competitive parts. The Glass Passivated Rectifier Diodes offer a forward current of 1 A with a choice of repetitive peak reverse voltage of 200 V up to 1500 V, with a 75 nS maximum recovery time.

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



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

| Parameter | Symbol | CD1408- | | | | | | Unit |
|---|------------|---------|--------|--------|--------|---------|---------|-----------------------|
| | | FF1200 | FF1400 | FF1600 | FF1800 | FF11000 | FF11500 | |
| Maximum Repetitive Peak Reverse Voltage | V_{RRM} | 200 | 400 | 600 | 800 | 1000 | 1500 | V |
| Maximum RMS Voltage | V_{RMS} | 140 | 280 | 420 | 560 | 700 | 1000 | V |
| Maximum DC Blocking Voltage | V_{DC} | 200 | 400 | 600 | 800 | 1000 | 1500 | V |
| Max. Average Forward Rectified Current ¹ | $I_{(AV)}$ | 1.0 | | | | | | A |
| DC Reverse Current @ Rated DC Blocking Voltage (@ $T_A = 25^\circ\text{C}$) | I_R | 5.0 | | | | | | μA |
| DC Reverse Current @ Rated DC Blocking Voltage (@ $T_A = 125^\circ\text{C}$) | I_R | 50.0 | | | | | | μA |
| DC Reverse Current @ Rated DC Blocking Voltage (@ $T_A = 150^\circ\text{C}$) | I_R | 50.0 | | | | | | μA |
| Typical Junction Capacitance ² | C_J | 10 | | | | | | pF |
| Instantaneous Forward Voltage @ $I_F = 1\text{ A}$ | V_F | 1.7 | | | | | 6.0 | V |
| Maximum Reverse Recovery Time ³ | T_{rr} | 50 | | | | 75 | 50 | ns |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 30.0 | | | | 25.0 | 15.0 | A |
| Typical Thermal Resistance | R_{j-a} | 95 | | | | | | $^\circ\text{C/Watt}$ |
| Typical Thermal Resistance | R_{j-l} | 40 | | | | | | $^\circ\text{C/Watt}$ |

Notes:

1 See Forward Derating Curve.

2 Measured @ 1.0 MHz and applied reverse voltage of 4.0 VDC.

3 Reverse recovery test condition: $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$

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

| Parameter | Symbol | CD1408-FF1200~FF11500 | Unit |
|-----------------------------|-----------|-----------------------|------------------|
| Operating Temperature Range | T_J | -65 to +175 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -65 to +175 | $^\circ\text{C}$ |

*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.

Specifications are subject to change without notice.

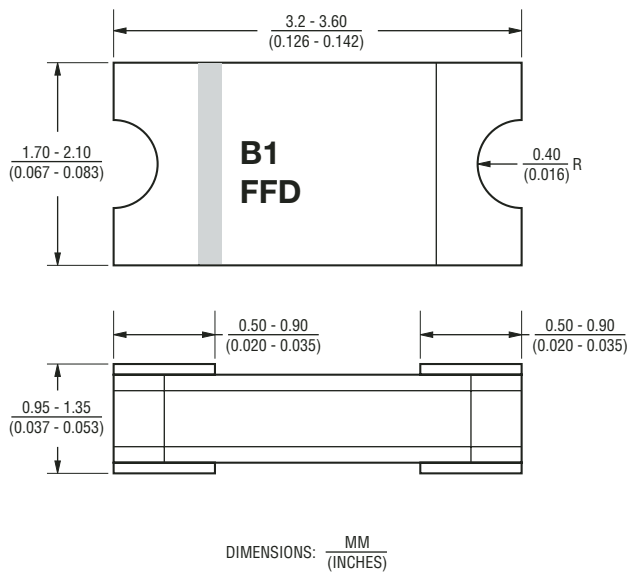
Customers should verify actual device performance in their specific applications.

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Product Dimensions

This is a lead free product, packaged with FRP substrate and is epoxy underfilled. The terminals are pure tin plated and are solderable per MIL-STD-750, Method 2026. The package weighs approximately 0.02 g. The package and dimensions are shown below.



Recommended Footprint

The device will mount onto existing JEDEC SOD-87 footprint.

How To Order

Common Code **CD 1408 - FF 1 400**
 CD = Chip Diode
 Package 1408 = ~0.14 x 0.08 ~
 Function F = Super Fast Rectifier
 Forward Current $I_{(AV)}$ 1 = 1 A
 Reverse Voltage 200 = 200 V
 400 = 400 V
 600 = 600 V
 800 = 800 V
 1000 = 1000 V
 1500 = 1500 V

Typical Part Marking

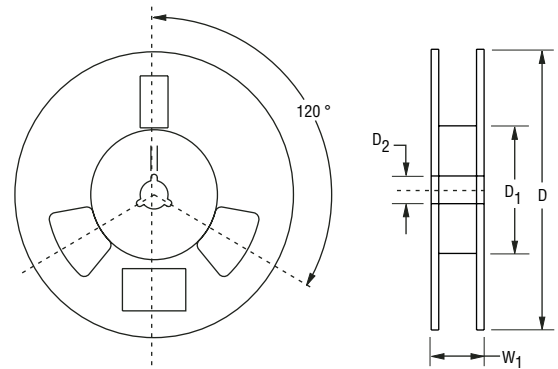
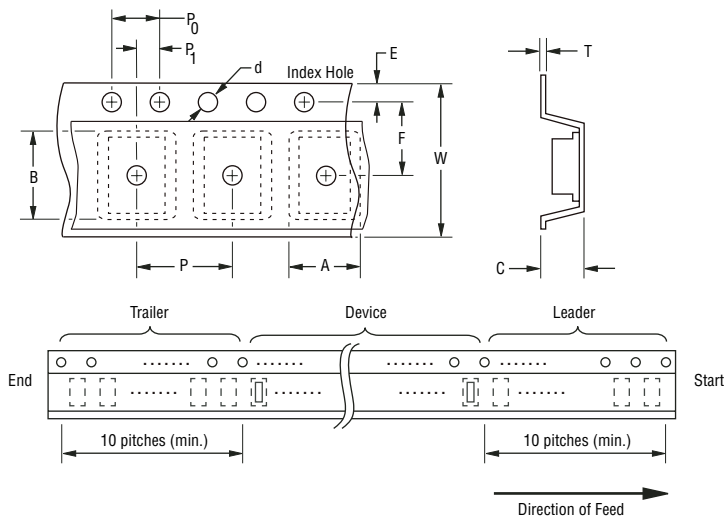
CD1408-FF1200 **B1 FFD**
 CD1408-FF1400 **B1 FFG**
 CD1408-FF1600 **B1 FFJ**
 CD1408-FF1800 **B1 FFK**
 CD1408-FF11000 **B1 FFM**
 CD1408-FF11500 **B1 FFV**

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Packaging Information

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



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

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

| Item | Symbol | 1408 |
|------------------------|----------------|---|
| Carrier Width | A | $\frac{1.90 \pm 0.10}{(0.075 - 0.004)}$ |
| Carrier Length | B | $\frac{4.30 \pm 0.10}{(0.169 - 0.004)}$ |
| Carrier Depth | C | $\frac{1.80 \pm 0.10}{(0.071 - 0.004)}$ |
| Sprocket Hole | d | $\frac{1.55 \pm 0.05}{(0.061 - 0.002)}$ |
| Reel Outside Diameter | D | $\frac{178}{(7.008)}$ |
| Reel Inner Diameter | D ₁ | $\frac{80.0}{(3.150)}$ Min. |
| Feed Hole Diameter | D ₂ | $\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$ |
| Sprocket Hole Position | E | $\frac{1.75 \pm 0.10}{(0.069 - 0.004)}$ |
| Punch Hole Position | F | $\frac{3.50 \pm 0.05}{(0.138 - 0.002)}$ |
| Punch Hole Pitch | P | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Sprocket Hole Pitch | P ₀ | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Embossment Center | P ₁ | $\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$ |
| Overall Tape Thickness | T | $\frac{0.20 \pm 0.10}{(0.008 - 0.004)}$ |
| Tape Width | W | $\frac{8.00 \pm 0.20}{(0.315 - 0.008)}$ |
| Reel Width | W ₁ | $\frac{13.5}{(0.531)}$ Max. |
| Quantity per Reel | — | 3,000 |

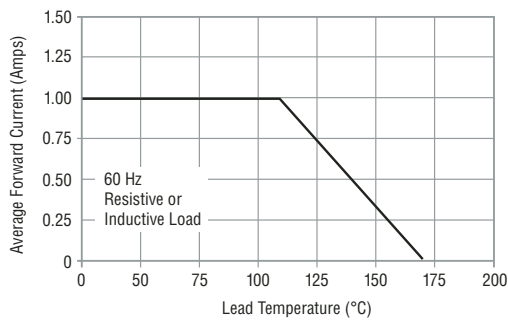
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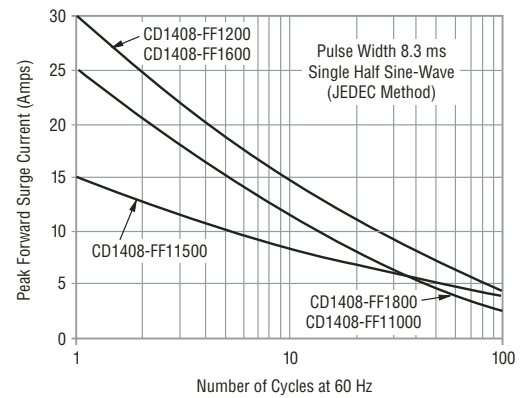
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Performance Graphs

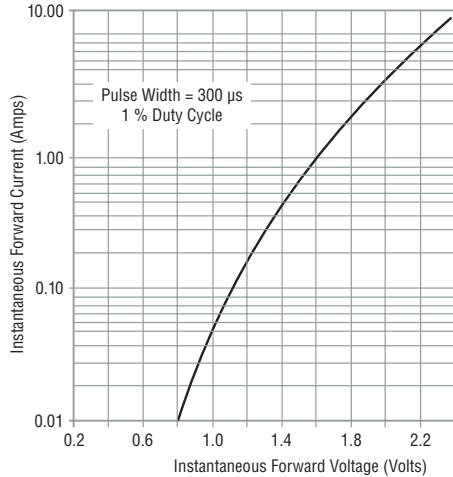
Forward Current Derating Curve



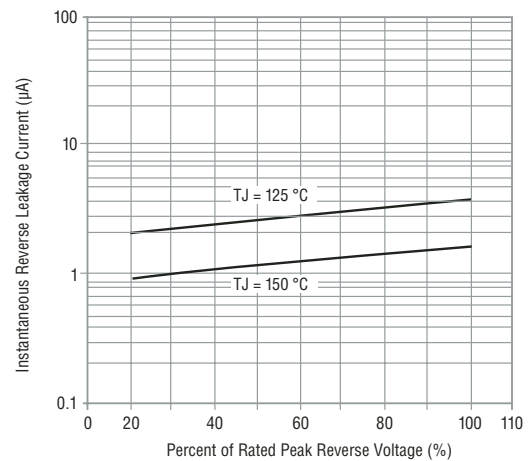
Maximum Non-Repetitive Surge Current



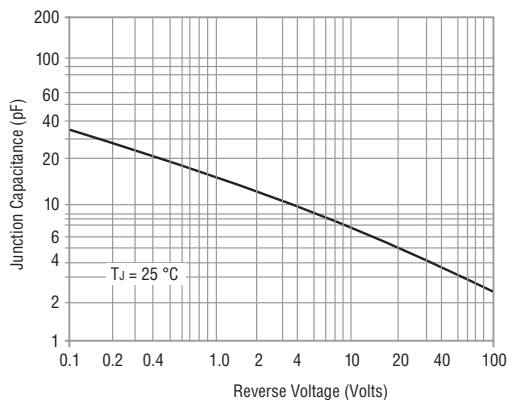
Typical Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance



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