



Features

- Lead free as standard
- RoHS compliant*
- Leadless
- Low stored charge



This series is currently available, but not recommended for new designs. The [Model CD0603-B0xR Series](#) is the recommended replacement.

CD0603/1005 Schottky Barrier Chip Diode Series

General Information

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

Bourns offers small-signal high-speed Schottky Barrier Diodes for switching and rectification applications, in compact chip package 0603 and 1005 size format, which offer PCB real estate savings and are considerably smaller than most competitive parts. The Schottky Barrier Diodes offer a forward current of 30 mA, 100 mA or 200 mA, a reverse voltage of 30 V and 40 V and also have a low forward voltage option. The diodes are lead free with Cu/Ni/Au plated terminations and are compatible with lead free manufacturing processes, conforming to many industry and government regulations on lead free components.

Bourns® Chip Diodes conform to JEDEC standards, easy to handle on standard pick and place equipment and their flat configuration makes roll away much more difficult.

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | CDxxxx-B00340 | CDxxxx-B0130L | CDxxxx-B0140L | CDxxxx-B0140R | CDxxxx-B0230 | CDxxxx-B0240 | Unit |
|---|----------------|---------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|------|
| Forward Voltage (Max.) | V _F | 0.37 (I _f = 1 mA) | 0.44 (I _f = 0.1 A) | 0.55 (I _f = 0.1 A) | 0.45 (I _f = 0.01 A) | 0.50 (I _f = 0.2 A) | 0.55 (I _f = 0.2 A) | V |
| Capacitance Between Terminals (Max.) (f = 1 MHz) | C _T | 1.5 (V _r = 1 V) | 9 (V _r = 10 V) | 9 (V _r = 10 V) | 9 (V _r = 10 V) | 12 (V _r = 10 V) | 12 (V _r = 10 V) | pF |
| Reverse Current (Max.) | I _R | 1 (V _r = 40 V) | 30 (V _r = 30 V) | 30 (V _r = 10 V) | 1 (V _r = 10 V) | 30 (V _r = 30 V) | 10 (V _r = 30 V) | μA |

How To Order

CD 0603 - B 01 30 L

Common Code _____
Chip Diode

Package _____
• 0603
• 1005

Model _____
B = Schottky Barrier Series

Average Forward Current (I_o) Code _____
003 = 30 mA
01 = 100 mA
02 = 200 mA
(Code x 1000 mA = Average Forward Current)

Reverse Voltage (V_R) Code _____
30 = 30 V
40 = 40 V

Forward Voltage Suffix _____
L = Low Forward Voltage V_f (CDxxxx-B0130L)
R = Low Reverse Current V_R (CDxxxx-B0140R)



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

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

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

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CD0603/1005 Schottky Barrier Chip Diode Series

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Absolute Ratings (@ T_A = 25 °C Unless Otherwise Noted)

| Parameter | Symbol | CD0603- B00340 | CD0603- B0130L | CD0603- B0140L | CD0603- B0140R | CD0603- B0230 | CD0603- B0240 | Unit |
|---------------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------|
| Repetitive Peak Reverse Voltage | V _R RM | 45 | 35 | 45 | 45 | 35 | 45 | V |
| Reverse Voltage | V _R | 40 | 30 | 40 | 40 | 30 | 40 | V |
| Average Forward Current | I _O | 30 | 100 | 100 | 100 | 200 | 200 | mA |
| Forward Current, Surge Peak | I _{surge} | 500* | 1000* | 1000* | 1000* | 2000* | 2000* | mA |
| Power Dissipation | PD | | | | 150 | | | mW |
| Storage Temperature | T _{STG} | | | | -40 to +125 | | | °C |
| Junction Temperature | T _J | | | | -40 to +125 | | | °C |

| Parameter | Symbol | CD1005- B00340 | CD1005- B0130L | CD1005- B0140L | CD1005- B0140R | CD1005- B0230 | CD1005- B0240 | Unit |
|---------------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------|
| Repetitive Peak Reverse Voltage | V _R RM | 45 | 35 | 45 | 45 | 35 | 45 | V |
| Reverse Voltage | V _R | 40 | 30 | 40 | 40 | 30 | 40 | V |
| Average Forward Current | I _O | 30 | 100 | 100 | 100 | 200 | 200 | mA |
| Forward Current, Surge Peak | I _{surge} | 500* | 1000* | 1000* | 1000* | 3000* | 3000* | mA |
| Power Dissipation | PD | 200 | 250 | 250 | 250 | 250 | 250 | mW |
| Storage Temperature | T _{STG} | | | | -40 to +125 | | | °C |
| Junction Temperature | T _J | | | | -40 to +125 | | | °C |

* Condition: 8.3 ms single half sine-wave superimposed on rate load (JEDEC method).

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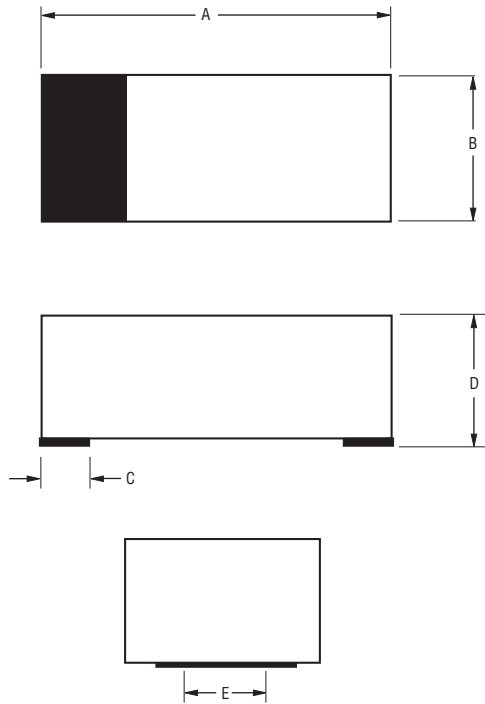
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CD0603/1005 Schottky Barrier Chip Diode Series



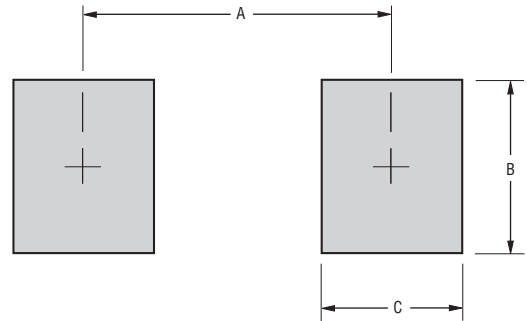
Product Dimensions



| Dimension | 0603 | 1005 |
|-----------|---------------------------------------|---------------------------------------|
| A | $\frac{1.60 - 1.80}{(0.063 - 0.071)}$ | $\frac{2.40 - 2.60}{(0.095 - 0.102)}$ |
| B | $\frac{0.80 - 1.00}{(0.031 - 0.039)}$ | $\frac{1.10 - 1.30}{(0.043 - 0.051)}$ |
| C | $\frac{0.45}{(0.018)}$ Typ. | $\frac{0.50}{(0.020)}$ Typ. |
| D | $\frac{0.70 - 0.85}{(0.027 - 0.033)}$ | $\frac{0.70 - 0.90}{(0.027 - 0.035)}$ |
| E | $\frac{0.70}{(0.028)}$ Typ. | $\frac{1.00}{(0.039)}$ Typ. |

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

Recommended Pad Layout



| Dimension | 0603 | 1005 |
|-----------|------------------------|------------------------|
| A (Max.) | $\frac{1.25}{(0.049)}$ | $\frac{2.00}{(0.079)}$ |
| B (Min.) | $\frac{1.00}{(0.039)}$ | $\frac{1.3}{(0.051)}$ |
| C (Min.) | $\frac{0.6}{(0.024)}$ | $\frac{0.7}{(0.028)}$ |

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

Physical Specifications

Case0603(1608) / 1005(2512) Molded plastic
 Terminals.....Gold plated, solderable per MIL-STD-750,
 Method 2026
 PolarityIndicated by cathode band
 Mounting PositionAny
 Weight0.000159 ounces / 0.0045 grams

Typical Part Marking

| | |
|---------------------|-----------|
| CDxxxx-B00340 | B2 |
| CDxxxx-B0130L | B3 |
| CDxxxx-B0140L | B8 |
| CDxxxx-B0140R | B9 |
| CDxxxx-B0230 | B5 |
| CDxxxx-B0240 | B7 |

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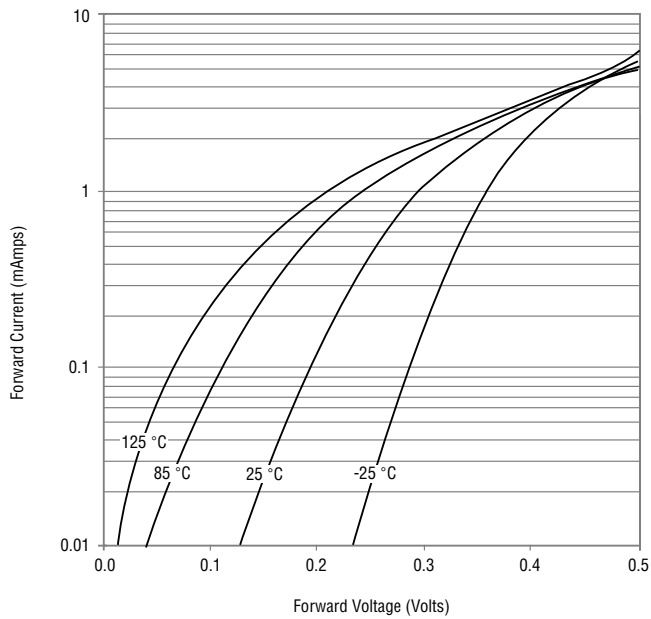
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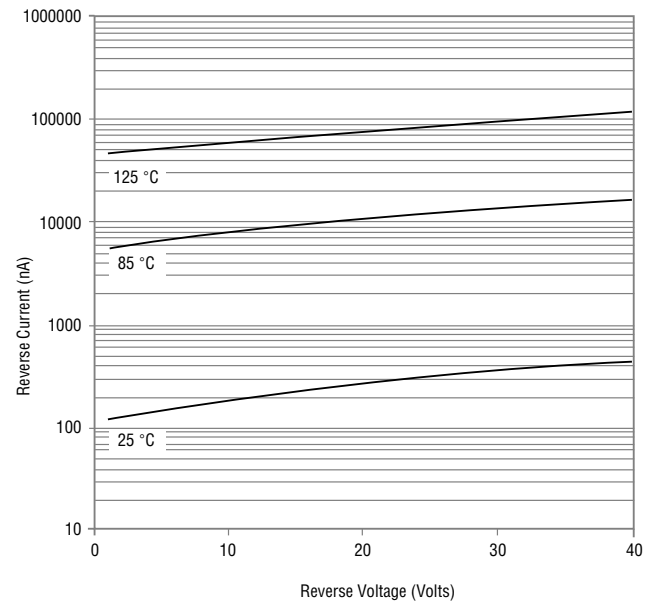
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Rating and Characteristic Curves: CDxxx-B00340

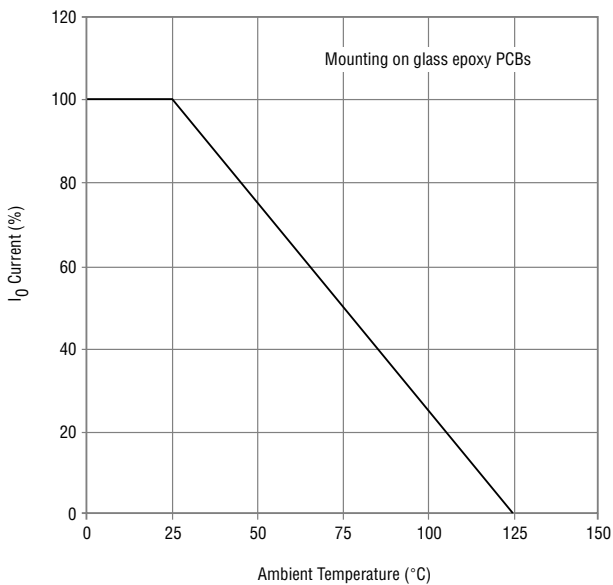
Forward Characteristics



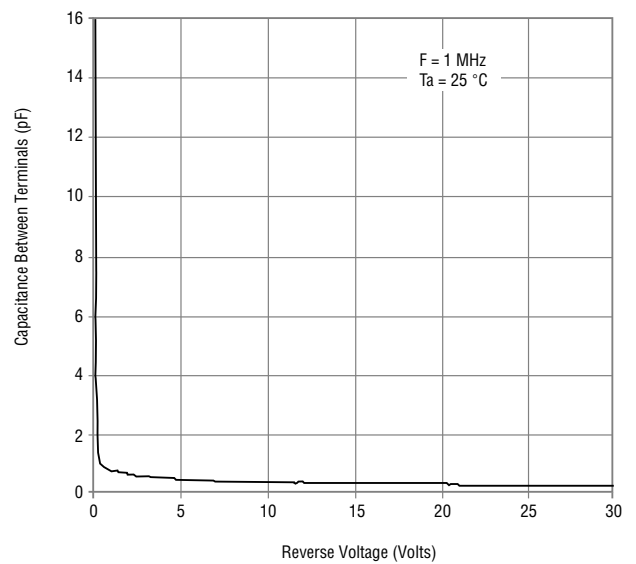
Reverse Characteristics



Derating Curve



Capacitance Between Terminals



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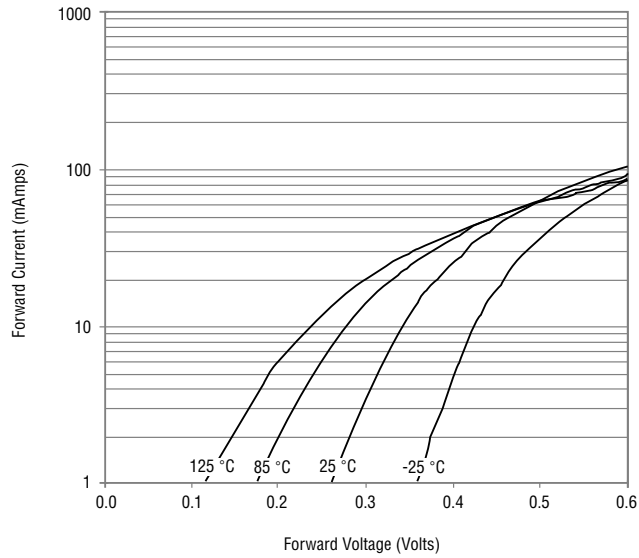
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CD0603/1005 Schottky Barrier Chip Diode Series

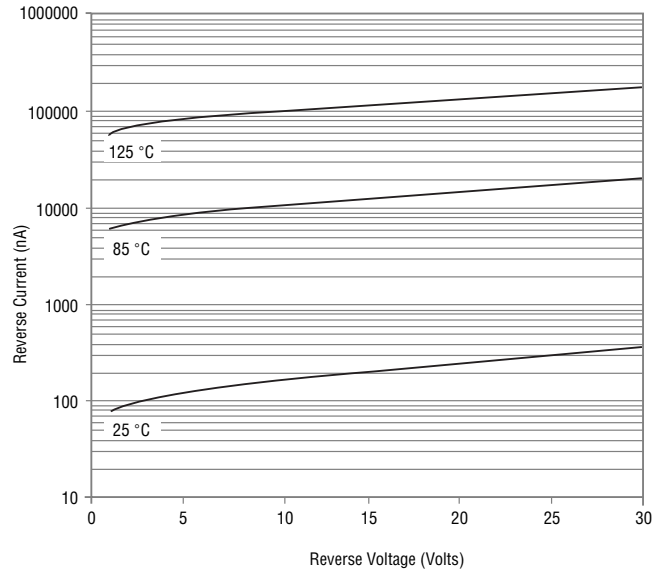


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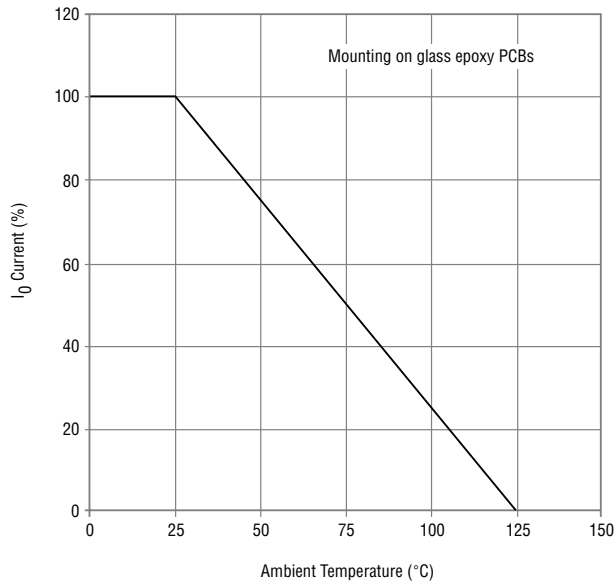
Forward Characteristics



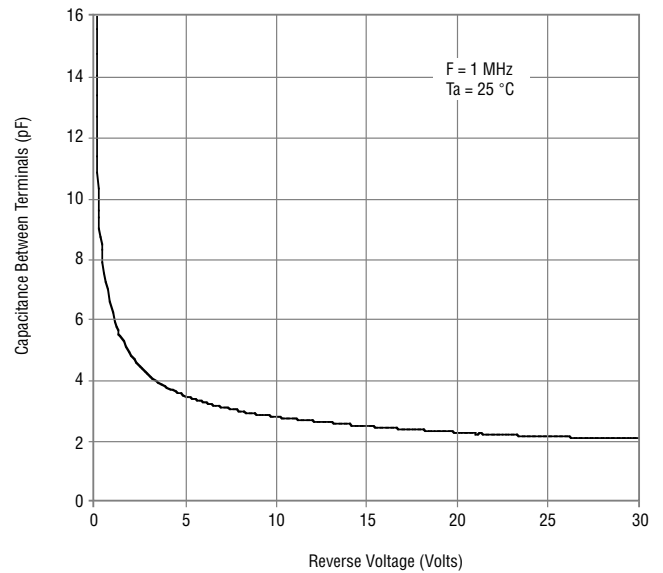
Reverse Characteristics



Derating Curve



Capacitance Between Terminals



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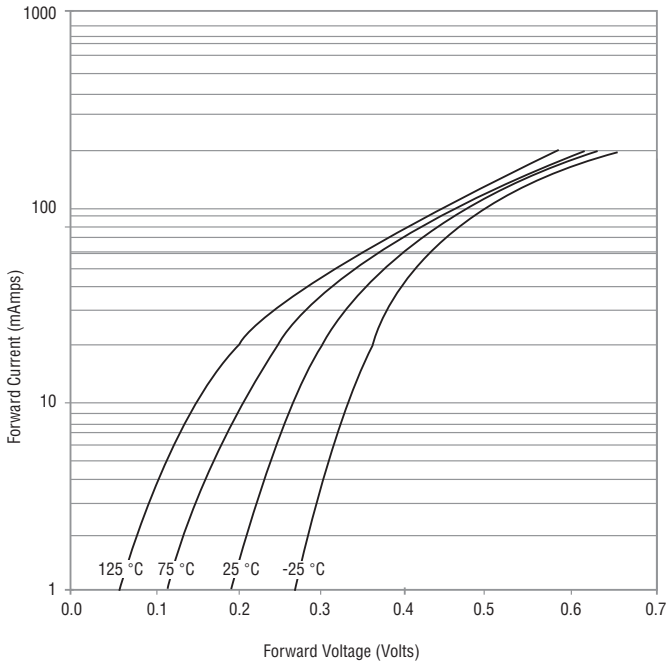
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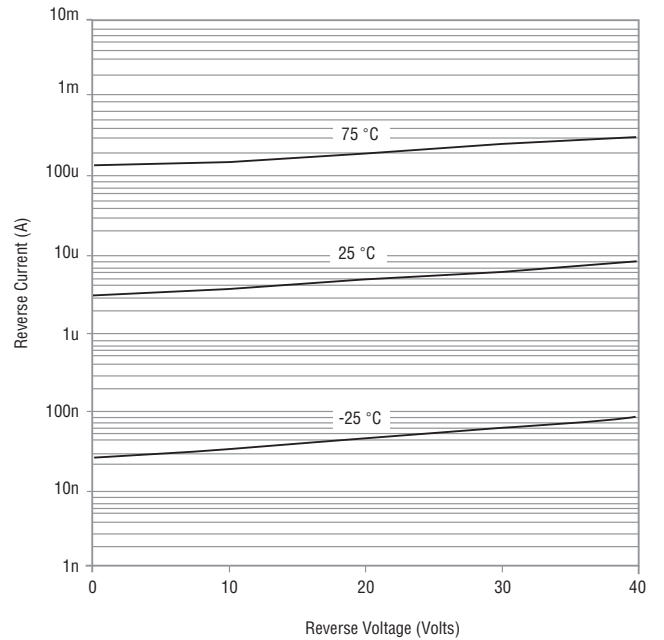
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Rating and Characteristic Curves: CDxxxx-B0140L

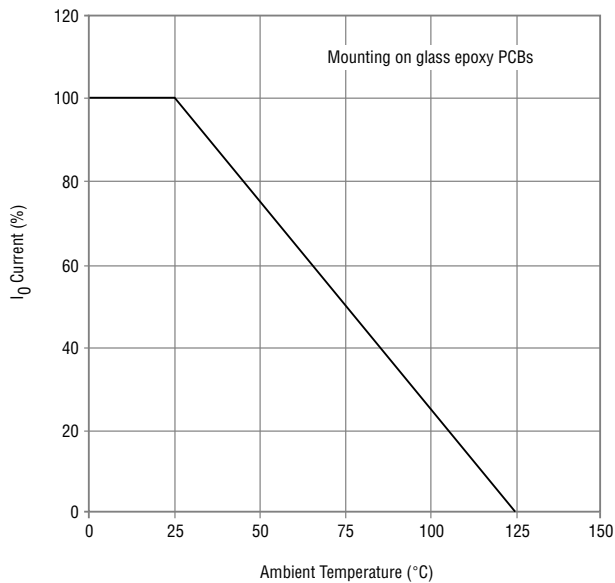
Forward Characteristics



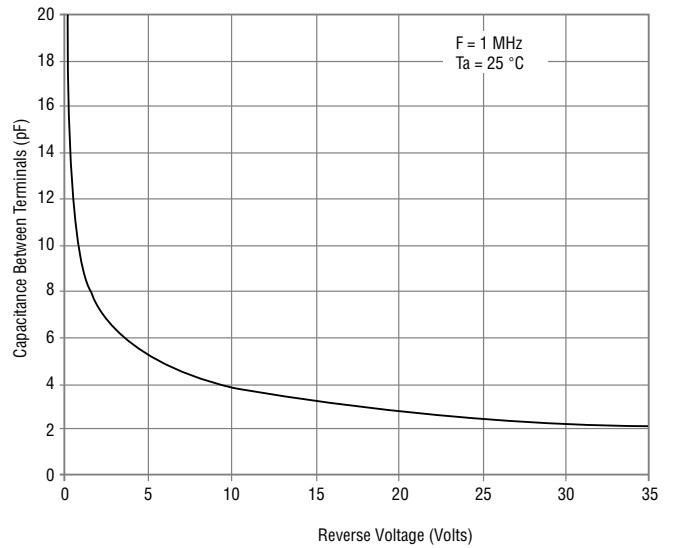
Reverse Characteristics



Derating Curve



Capacitance Between Terminals

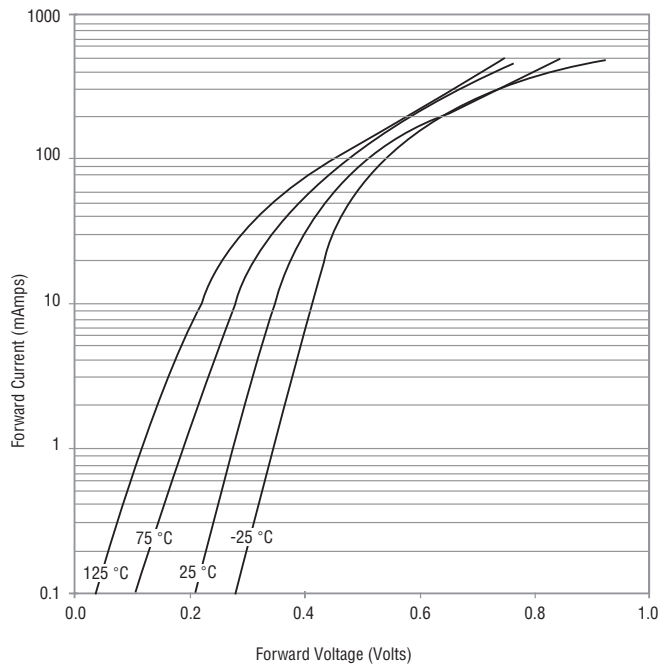


CD0603/1005 Schottky Barrier Chip Diode Series

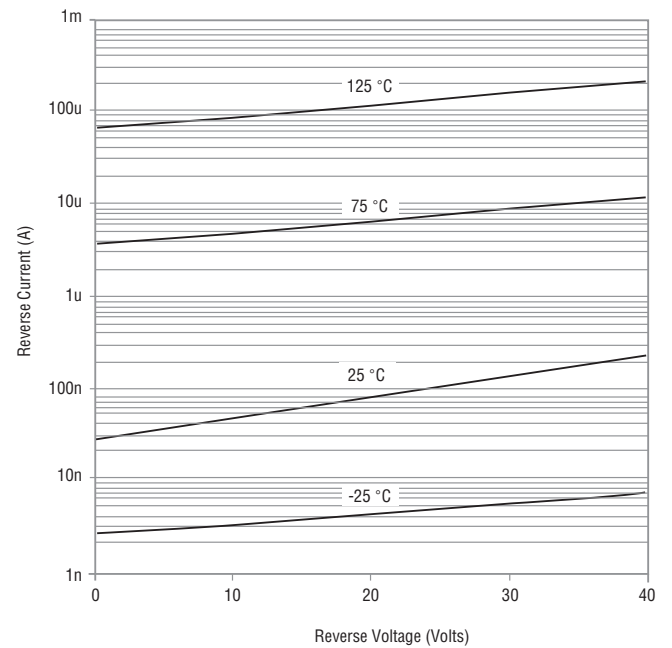


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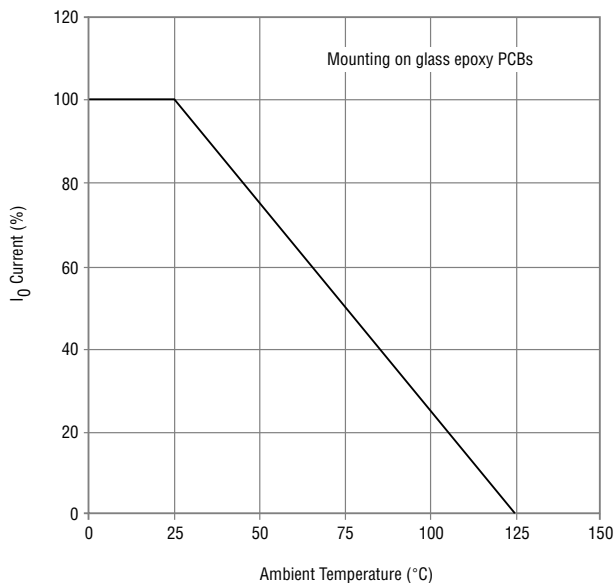
Forward Characteristics



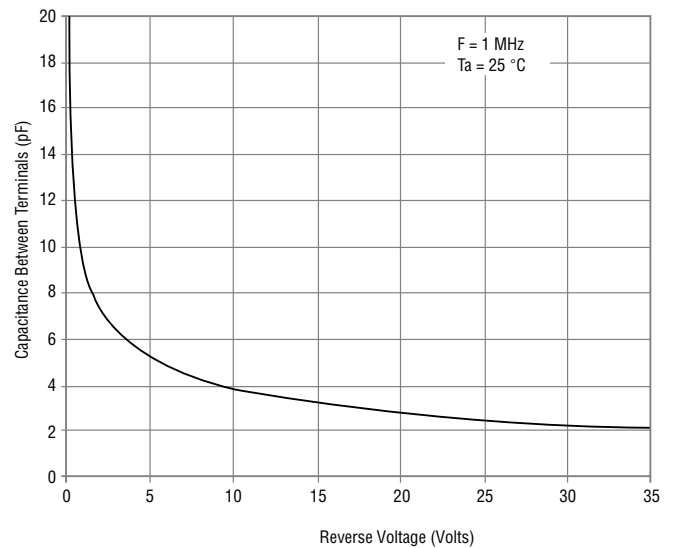
Reverse Characteristics



Derating Curve



Capacitance Between Terminals

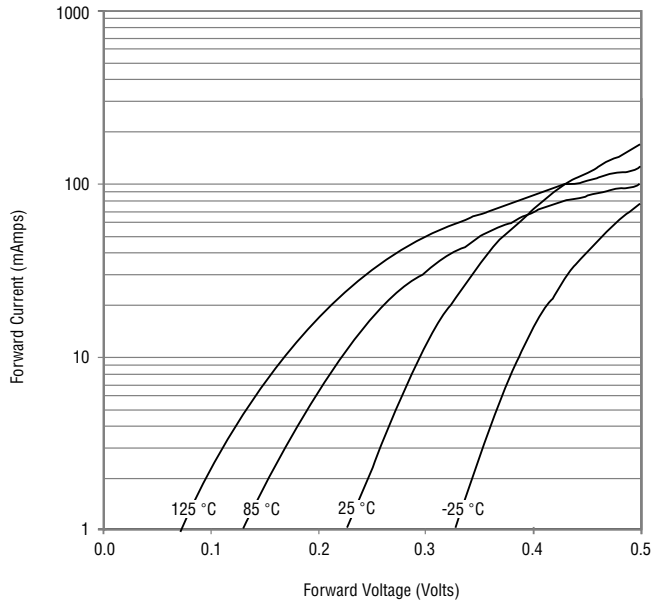


CD0603/1005 Schottky Barrier Chip Diode Series

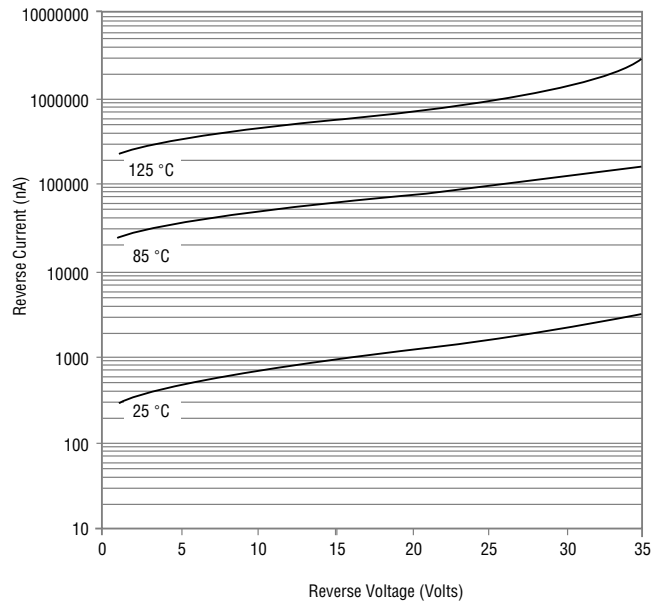
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Rating and Characteristic Curves: CDxxx-B0230

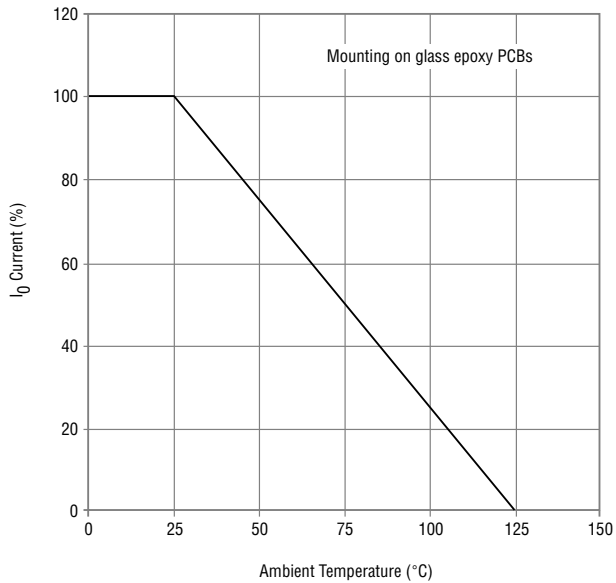
Forward Characteristics



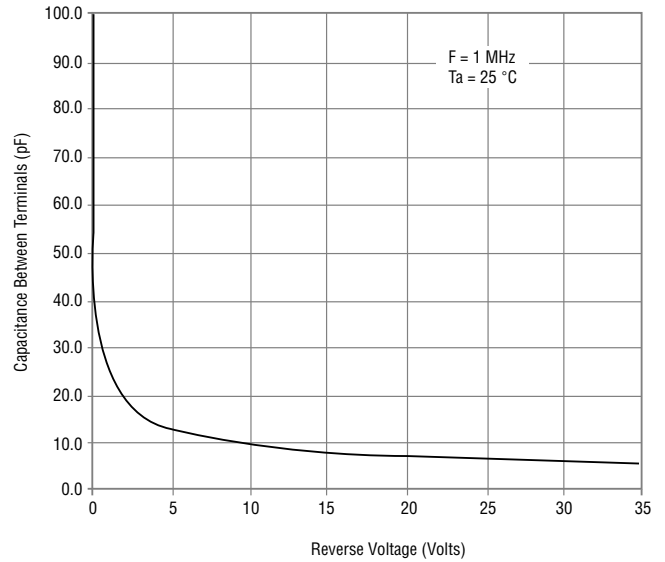
Reverse Characteristics



Derating Curve



Capacitance Between Terminals



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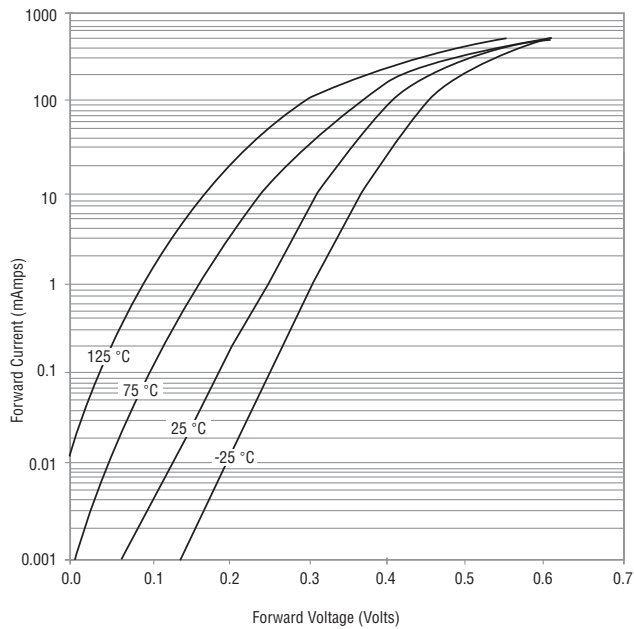
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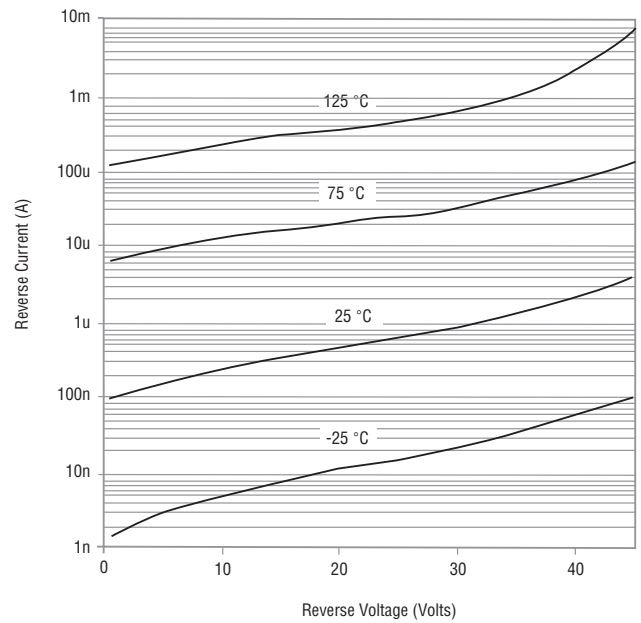


Rating and Characteristic Curves: CDxxxx-B0240

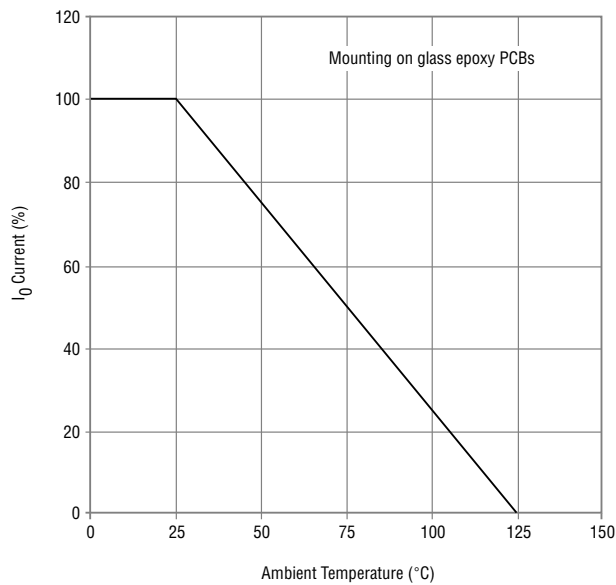
Forward Characteristics



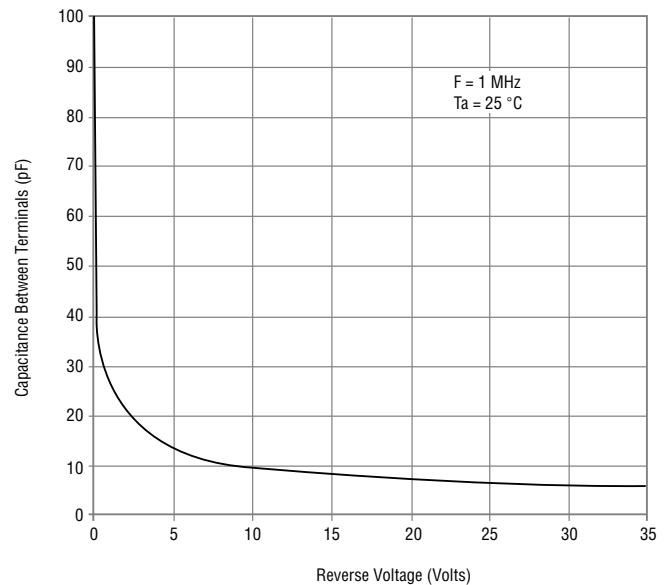
Reverse Characteristics



Derating Curve



Capacitance Between Terminals



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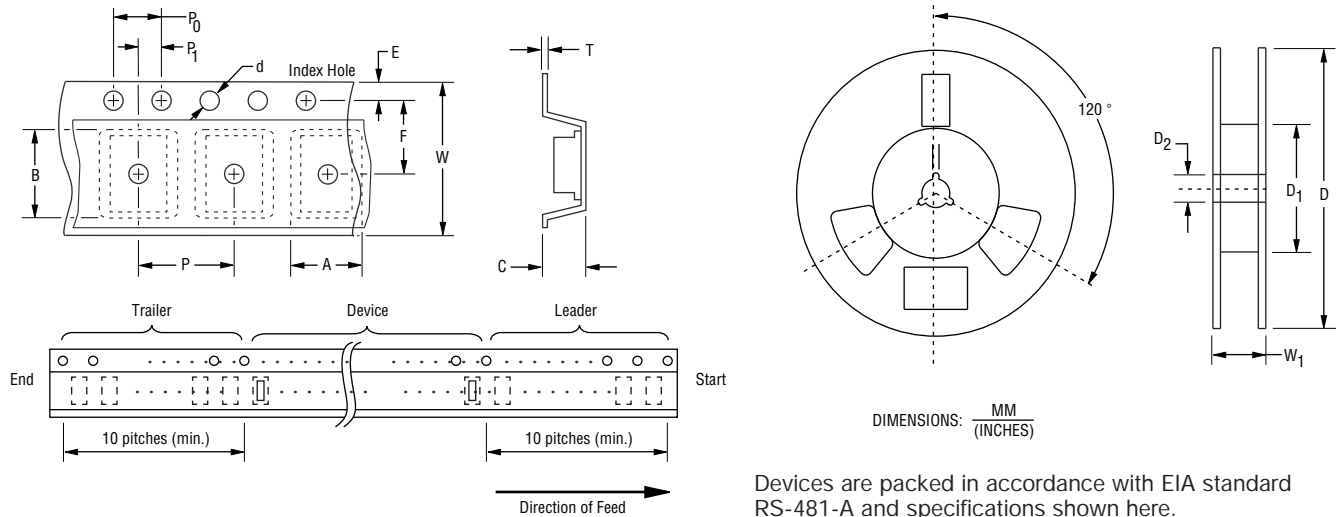
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CD0603/1005 Schottky Barrier Chip Diode Series

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Packaging Information

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



| Item | Symbol | 0603 | 1005 |
|------------------------|----------------|---|---|
| Carrier Width | A | $\frac{1.00 \pm 0.10}{(0.039 - 0.004)}$ | $\frac{1.55 \pm 0.10}{(0.061 - 0.004)}$ |
| Carrier Length | B | $\frac{1.85 \pm 0.10}{(0.073 - 0.004)}$ | $\frac{2.65 \pm 0.10}{(0.104 - 0.004)}$ |
| Carrier Depth | C | $\frac{1.00 \pm 0.10}{(0.039 - 0.004)}$ | $\frac{1.05 \pm 0.10}{(0.041 - 0.004)}$ |
| Sprocket Hole | d | $\frac{1.55 \pm 0.05}{(0.061 - 0.002)}$ | $\frac{1.55 \pm 0.10}{(0.061 - 0.004)}$ |
| Reel Outside Diameter | D | $\frac{178}{(7.008)}$ | $\frac{178}{(7.008)}$ |
| Reel Inner Diameter | D ₁ | $\frac{60.0}{(2.362)}$ MIN. | $\frac{60.0}{(2.362)}$ MIN. |
| Feed Hole Diameter | D ₂ | $\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$ | $\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$ |
| Sprocket Hole Position | E | $\frac{1.75 \pm 0.10}{(0.069 - 0.004)}$ | $\frac{1.75 \pm 0.10}{(0.069 - 0.004)}$ |
| Punch Hole Position | F | $\frac{3.50 \pm 0.05}{(0.138 - 0.002)}$ | $\frac{3.50 \pm 0.05}{(0.138 - 0.002)}$ |
| Punch Hole Pitch | P | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Sprocket Hole Pitch | P ₀ | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Embossment Center | P ₁ | $\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$ | $\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$ |
| Overall Tape Thickness | T | $\frac{0.20 \pm 0.05}{(0.008 - 0.002)}$ | $\frac{0.25 \pm 0.05}{(0.010 - 0.002)}$ |
| Tape Width | W | $\frac{8.00 \pm 0.20}{(0.315 - 0.008)}$ | $\frac{8.00 \pm 0.20}{(0.315 - 0.008)}$ |
| Reel Width | W ₁ | $\frac{13.5}{(0.531)}$ MAX. | $\frac{13.5}{(0.531)}$ MAX. |
| Quantity per Reel | -- | 4,000 | 4,000 |

REV. 08/19

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