



## Features

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

## Applications

- Cellular phones
- PDAs
- Desktop PCs and notebooks
- Digital cameras
- MP3 players

# 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<sub>A</sub> = 25 °C Unless Otherwise Noted)

| Parameter                                           | Symbol         | CDxxx-B00340                    | CDxxx-B0130L                     | CDxxx-B0140L                     | CDxxx-B0140R                      | CDxxx-B0230                      | CDxxx-B0240                      | Unit |
|-----------------------------------------------------|----------------|---------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|------|
| Forward Voltage (Max.)                              | V <sub>F</sub> | 0.37<br>(I <sub>F</sub> = 1 mA) | 0.44<br>(I <sub>F</sub> = 0.1 A) | 0.55<br>(I <sub>F</sub> = 0.1 A) | 0.45<br>(I <sub>F</sub> = 0.01 A) | 0.50<br>(I <sub>F</sub> = 0.2 A) | 0.55<br>(I <sub>F</sub> = 0.2 A) | V    |
| Capacitance Between Terminals (Max.)<br>(f = 1 MHz) | C <sub>T</sub> | 1.5<br>(V <sub>r</sub> = 1 V)   | 9<br>(V <sub>r</sub> = 10 V)     | 9<br>(V <sub>r</sub> = 10 V)     | 9<br>(V <sub>r</sub> = 10 V)      | 12<br>(V <sub>r</sub> = 10 V)    | 12<br>(V <sub>r</sub> = 10 V)    | pF   |
| Reverse Current (Max.)                              | I <sub>R</sub> | 1<br>(V <sub>r</sub> = 40 V)    | 30<br>(V <sub>r</sub> = 30 V)    | 30<br>(V <sub>r</sub> = 10 V)    | 1<br>(V <sub>r</sub> = 10 V)      | 30<br>(V <sub>r</sub> = 30 V)    | 10<br>(V <sub>r</sub> = 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<sub>o</sub>) Code \_\_\_\_\_  
003 = 30 mA  
01 = 100 mA  
02 = 200 mA  
(Code x 1000 mA = Average Forward Current)

Reverse Voltage (V<sub>R</sub>) Code \_\_\_\_\_  
30 = 30 V  
40 = 40 V

Forward Voltage Suffix \_\_\_\_\_  
L = Low Forward Voltage V<sub>f</sub> (CDxxx-B0130L)  
R = Low Reverse Current V<sub>R</sub> (CDxxx-B0140R)

# CD0603/1005 Schottky Barrier Chip Diode Series

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## Absolute Ratings (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

| Parameter                       | Symbol             | CD0603-<br>B00340 | CD0603-<br>B0130L | CD0603-<br>B0140L | CD0603-<br>B0140R | CD0603-<br>B0230 | CD0603-<br>B0240 | Unit |
|---------------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------|
| Repetitive Peak Reverse Voltage | V <sub>RRM</sub>   | 45                | 35                | 45                | 45                | 35               | 45               | V    |
| Reverse Voltage                 | V <sub>R</sub>     | 40                | 30                | 40                | 40                | 30               | 40               | V    |
| Average Forward Current         | I <sub>O</sub>     | 30                | 100               | 100               | 100               | 200              | 200              | mA   |
| Forward Current, Surge Peak     | I <sub>surge</sub> | 500*              | 1000*             | 1000*             | 1000*             | 2000*            | 2000*            | mA   |
| Power Dissipation               | PD                 |                   | 150               |                   |                   |                  |                  | mW   |
| Storage Temperature             | T <sub>STG</sub>   |                   | -40 to +125       |                   |                   |                  |                  | °C   |
| Junction Temperature            | T <sub>J</sub>     |                   | -40 to +125       |                   |                   |                  |                  | °C   |

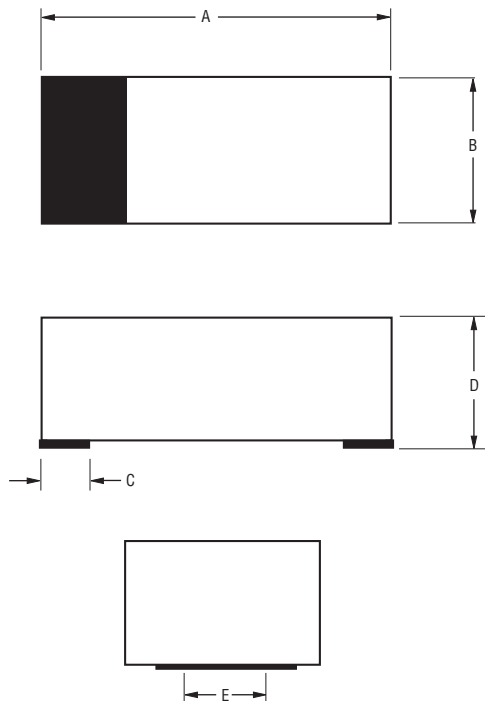
| Parameter                       | Symbol             | CD1005-<br>B00340 | CD1005-<br>B0130L | CD1005-<br>B0140L | CD1005-<br>B0140R | CD1005-<br>B0230 | CD1005-<br>B0240 | Unit |
|---------------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------|
| Repetitive Peak Reverse Voltage | V <sub>RRM</sub>   | 45                | 35                | 45                | 45                | 35               | 45               | V    |
| Reverse Voltage                 | V <sub>R</sub>     | 40                | 30                | 40                | 40                | 30               | 40               | V    |
| Average Forward Current         | I <sub>O</sub>     | 30                | 100               | 100               | 100               | 200              | 200              | mA   |
| Forward Current, Surge Peak     | I <sub>surge</sub> | 500*              | 1000*             | 1000*             | 1000*             | 3000*            | 3000*            | mA   |
| Power Dissipation               | PD                 | 200               | 250               | 250               | 250               | 250              | 250              | mW   |
| Storage Temperature             | T <sub>STG</sub>   |                   | -40 to +125       |                   |                   |                  |                  | °C   |
| Junction Temperature            | T <sub>J</sub>     |                   | -40 to +125       |                   |                   |                  |                  | °C   |

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

# CD0603/1005 Schottky Barrier Chip Diode Series

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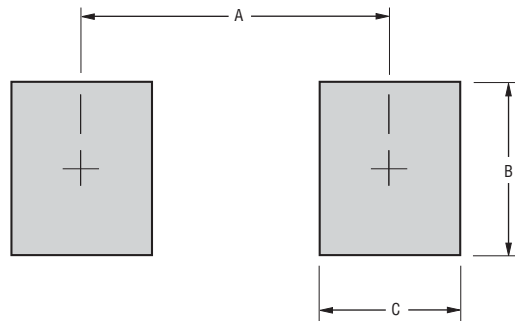
## Product Dimensions



| 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

Case .....0603(1608) / 1005(2512) Molded plastic  
 Terminals.....Gold plated, solderable per MIL-STD-750,  
 Method 2026  
 Polarity .....Indicated by cathode band  
 Mounting Position .....Any  
 Weight .....0.000159 ounces / 0.0045 grams

## Typical Part Marking

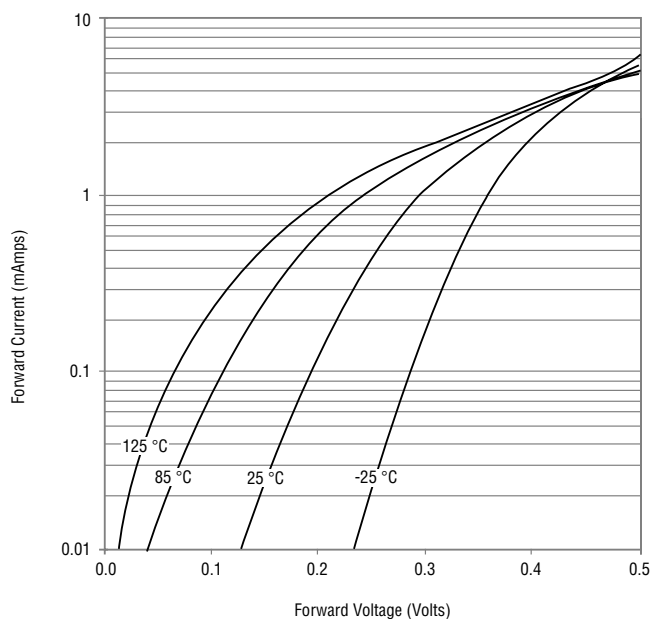
CDxxxx-B00340 .....B2  
 CDxxxx-B0130L .....B3  
 CDxxxx-B0140L .....B8  
 CDxxxx-B0140R.....B9  
 CDxxxx-B0230 .....B5  
 CDxxxx-B0240 .....B7

# CD0603/1005 Schottky Barrier Chip Diode Series

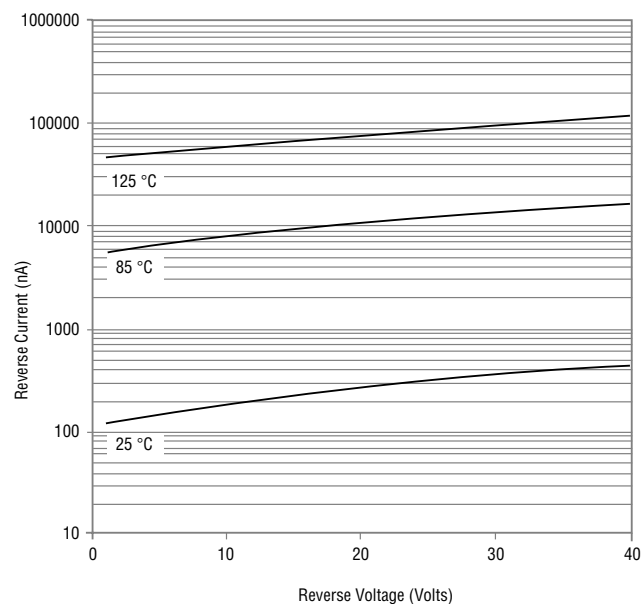
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## Rating and Characteristic Curves: CDxxx-B00340

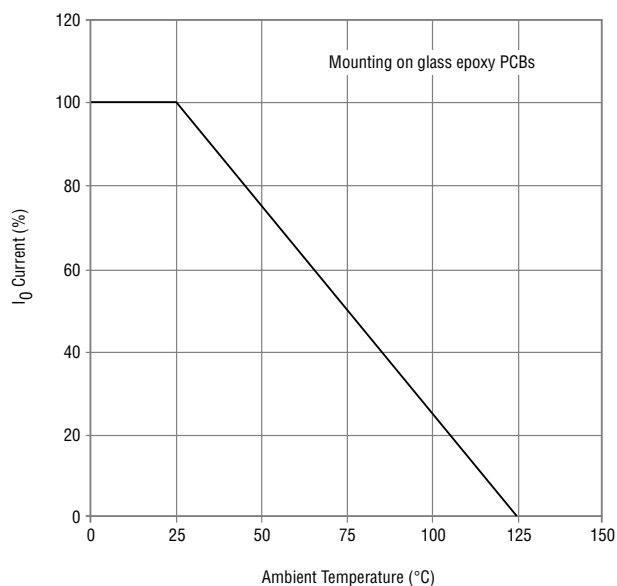
### Forward Characteristics



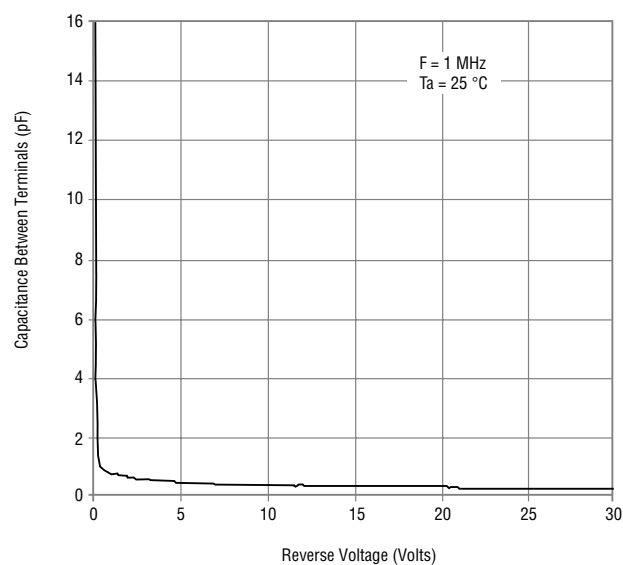
### Reverse Characteristics



### Derating Curve



### Capacitance Between Terminals



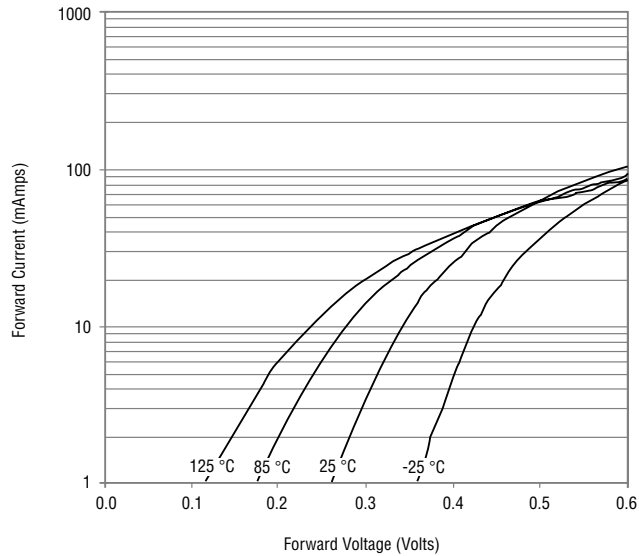
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications.

# CD0603/1005 Schottky Barrier Chip Diode Series

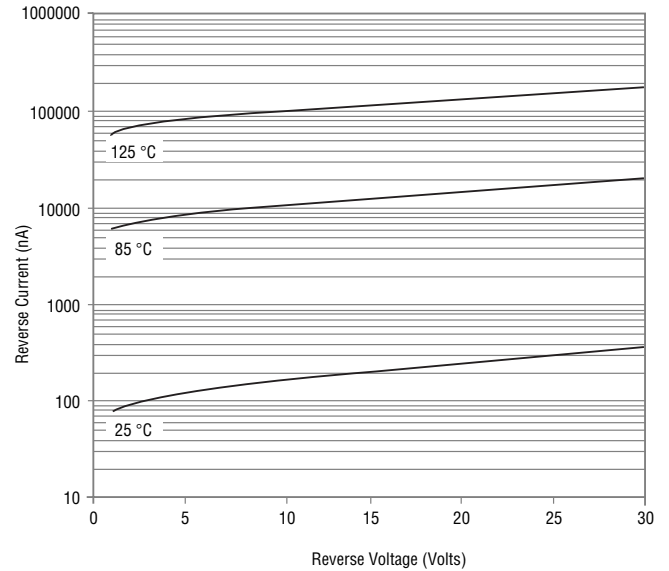
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## Rating and Characteristic Curves: CDxxxx-B0130L

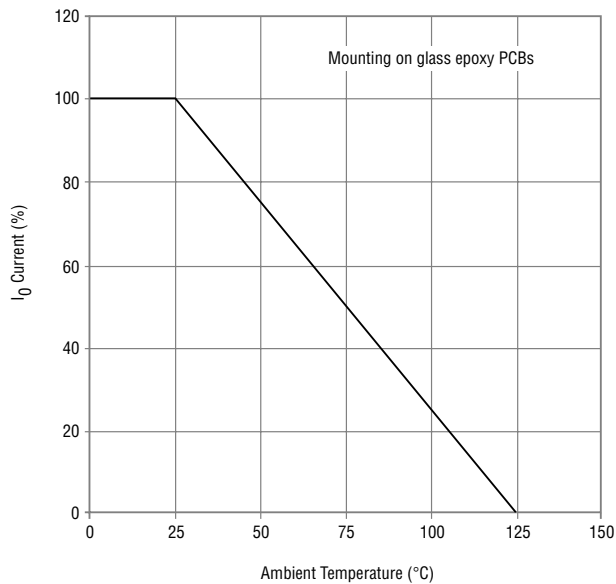
### Forward Characteristics



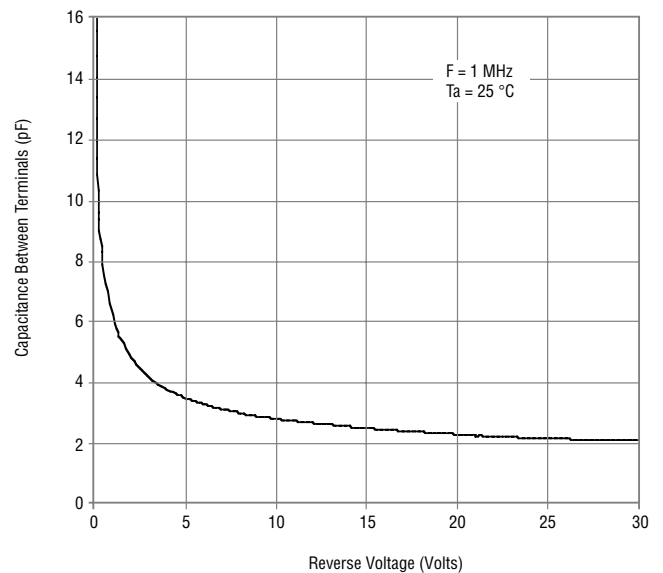
### Reverse Characteristics



### Derating Curve



### Capacitance Between Terminals

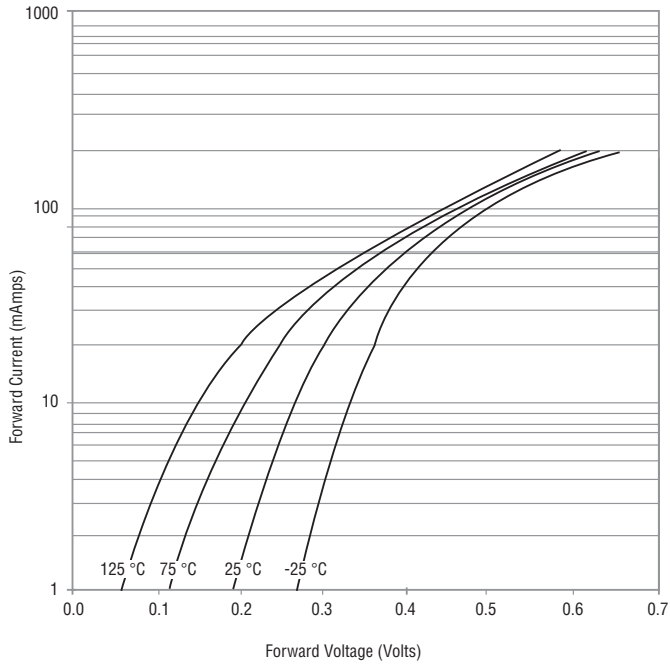


# CD0603/1005 Schottky Barrier Chip Diode Series

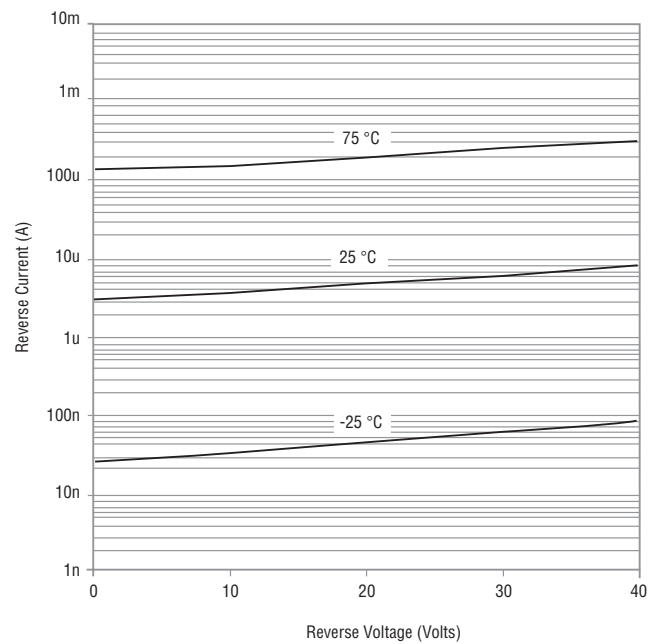
**BOURNS®**

## Rating and Characteristic Curves: CDxxxx-B0140L

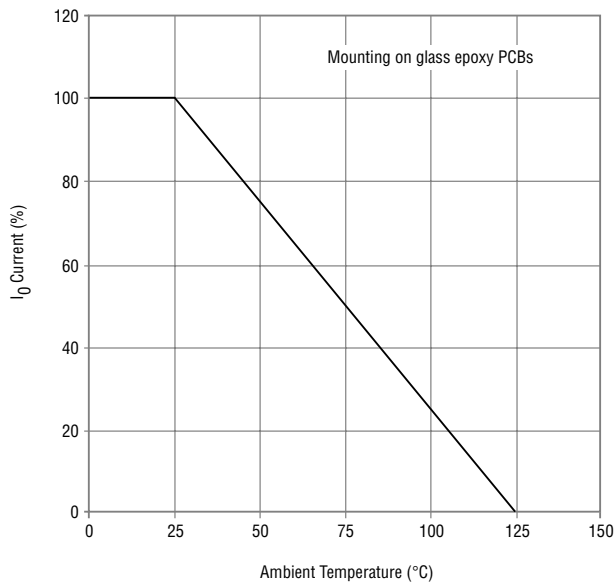
### Forward Characteristics



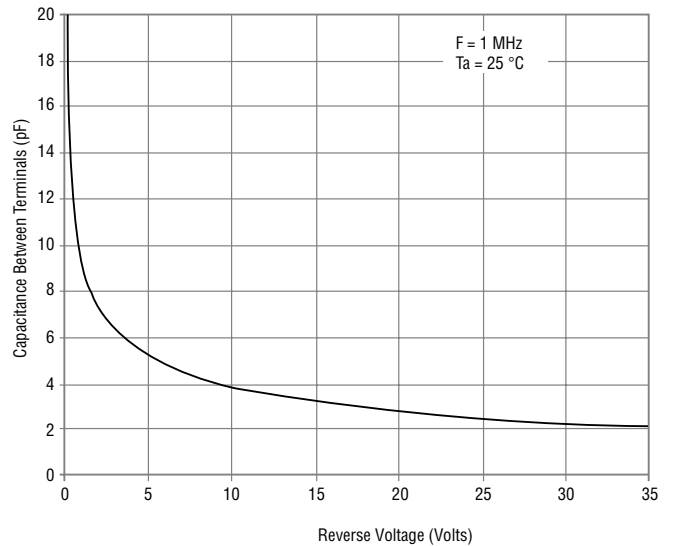
### Reverse Characteristics



### Derating Curve



### Capacitance Between Terminals



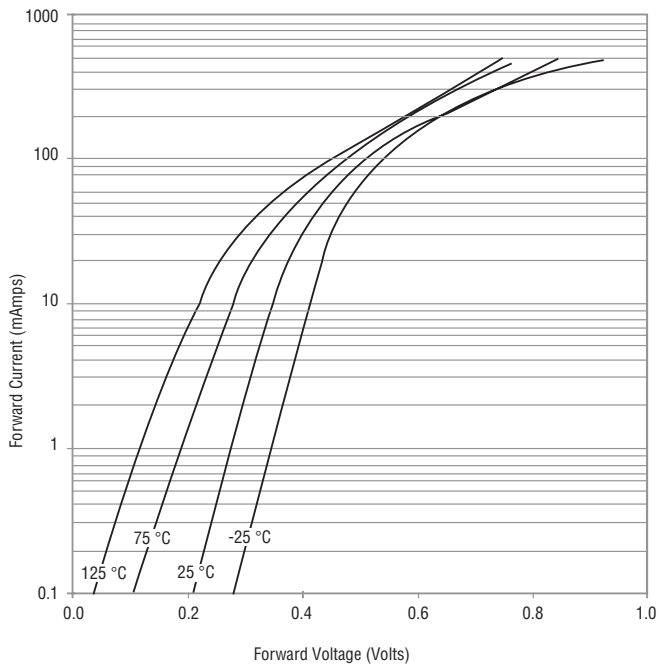
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# CD0603/1005 Schottky Barrier Chip Diode Series

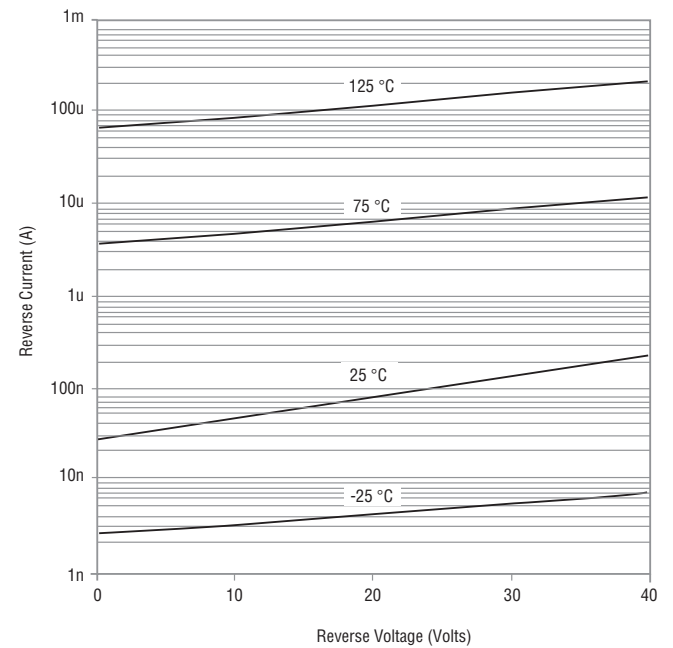
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## Rating and Characteristic Curves: CDxxxx-B0140R

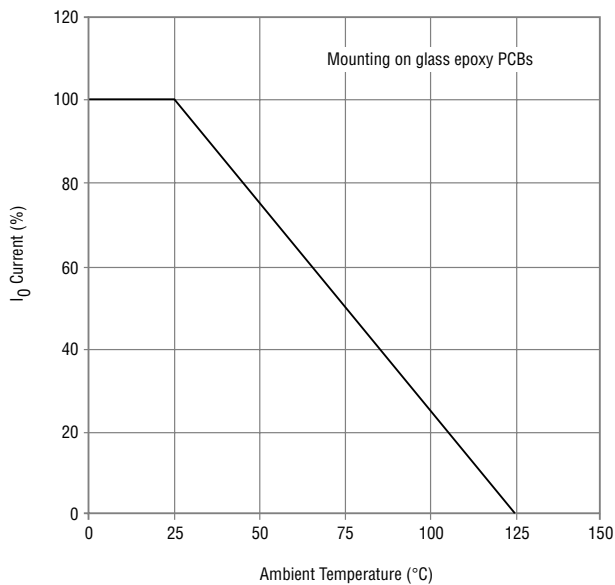
### Forward Characteristics



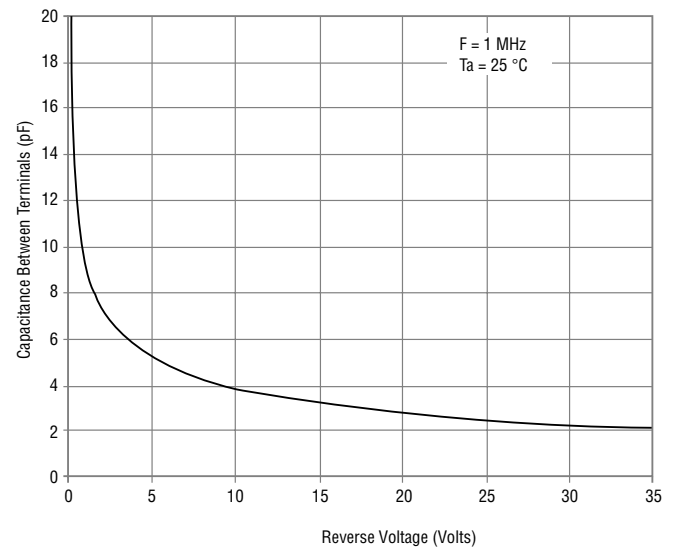
### Reverse Characteristics



### Derating Curve



### Capacitance Between Terminals

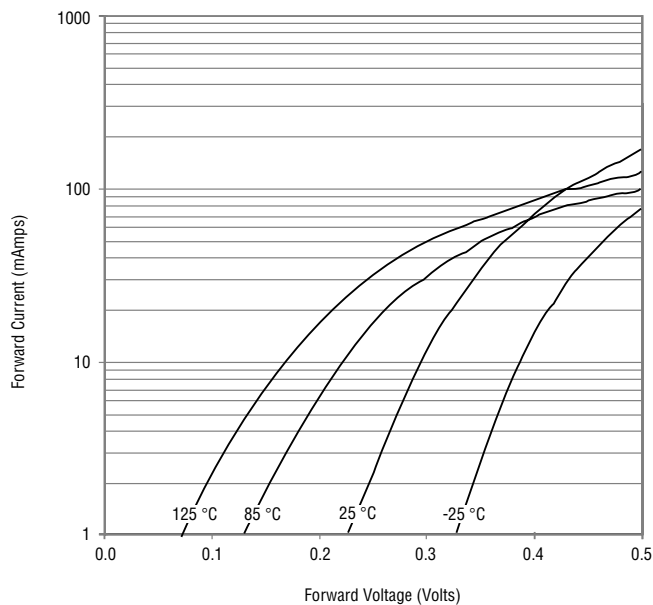


# CD0603/1005 Schottky Barrier Chip Diode Series

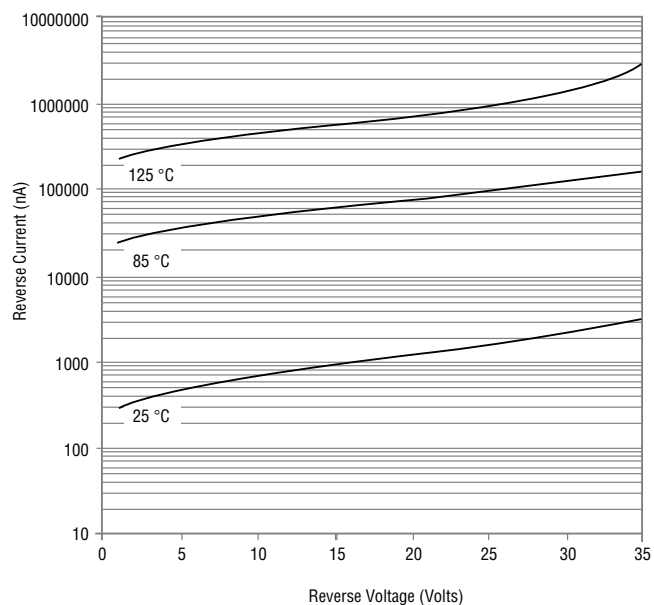
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## Rating and Characteristic Curves: CDxxx-B0230

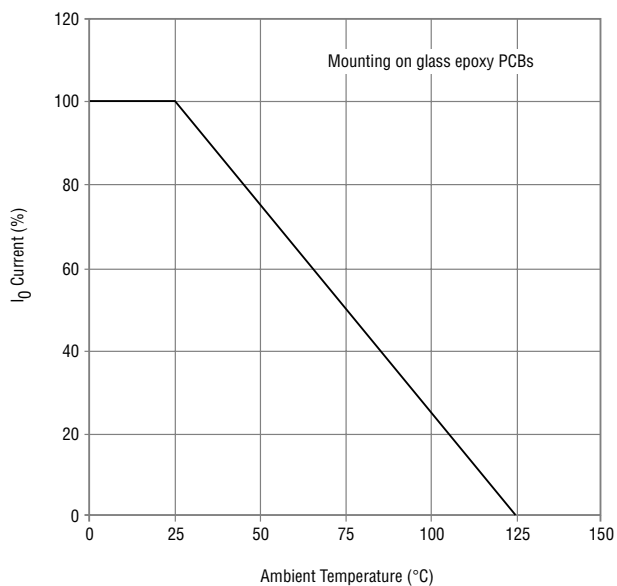
### Forward Characteristics



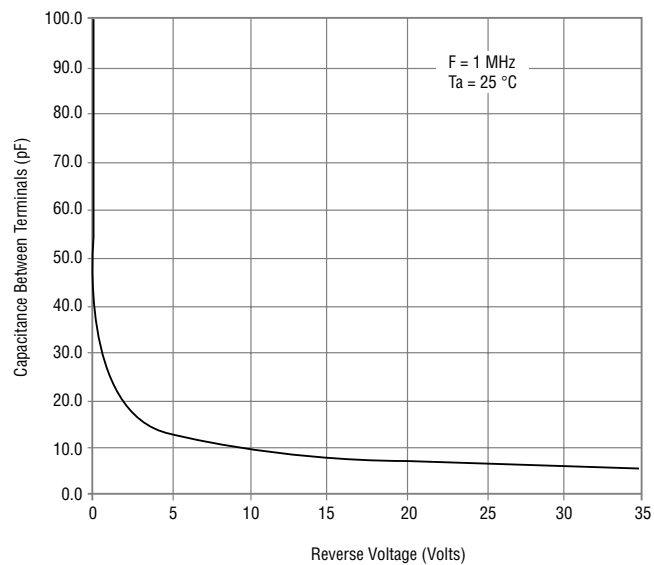
### Reverse Characteristics



### Derating Curve



### Capacitance Between Terminals

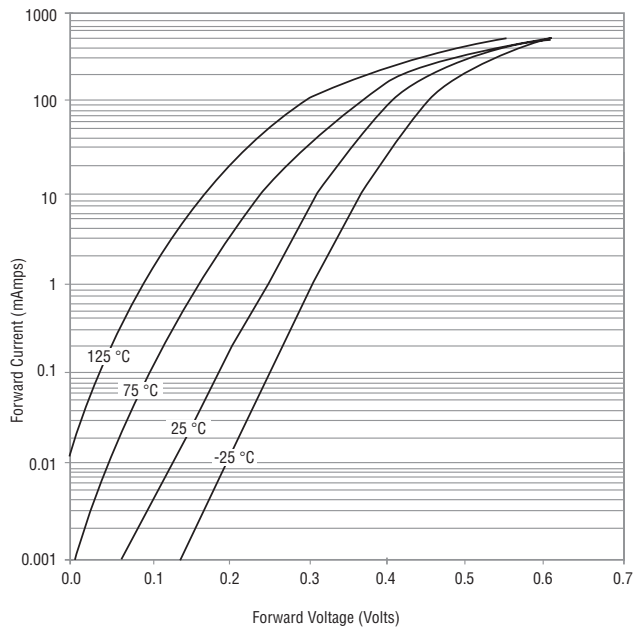


# CD0603/1005 Schottky Barrier Chip Diode Series

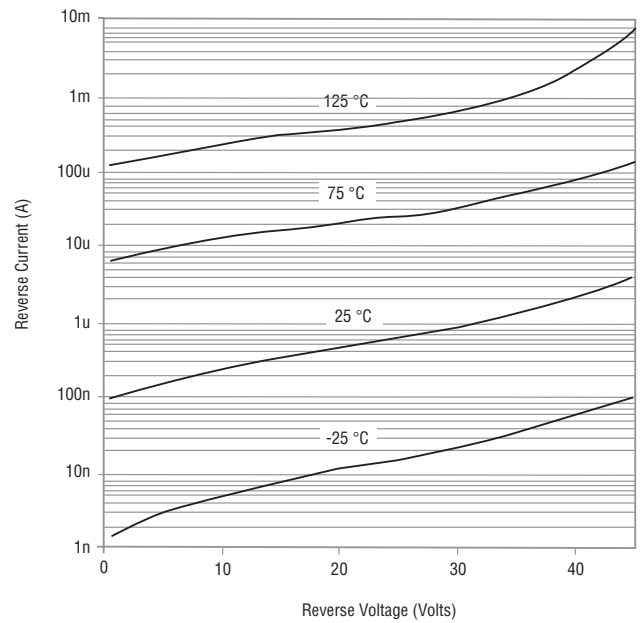
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## Rating and Characteristic Curves: CDxxxx-B0240

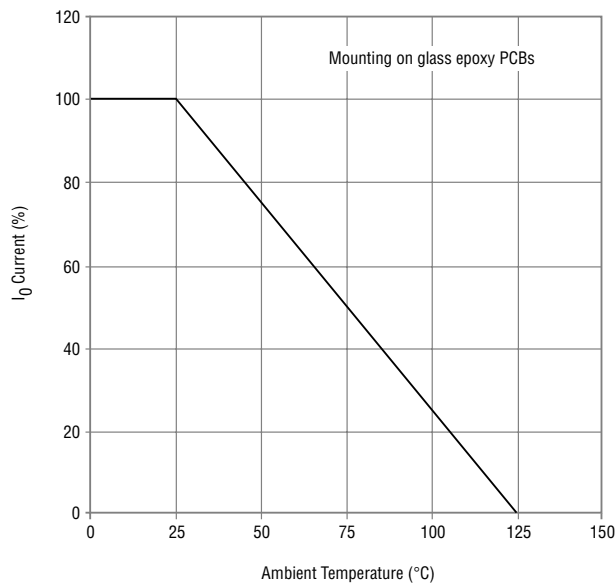
### Forward Characteristics



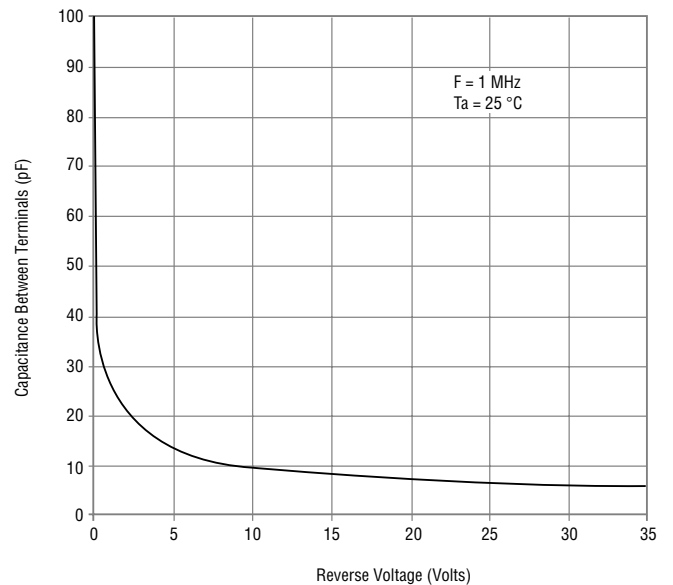
### Reverse Characteristics



### Derating Curve



### Capacitance Between Terminals

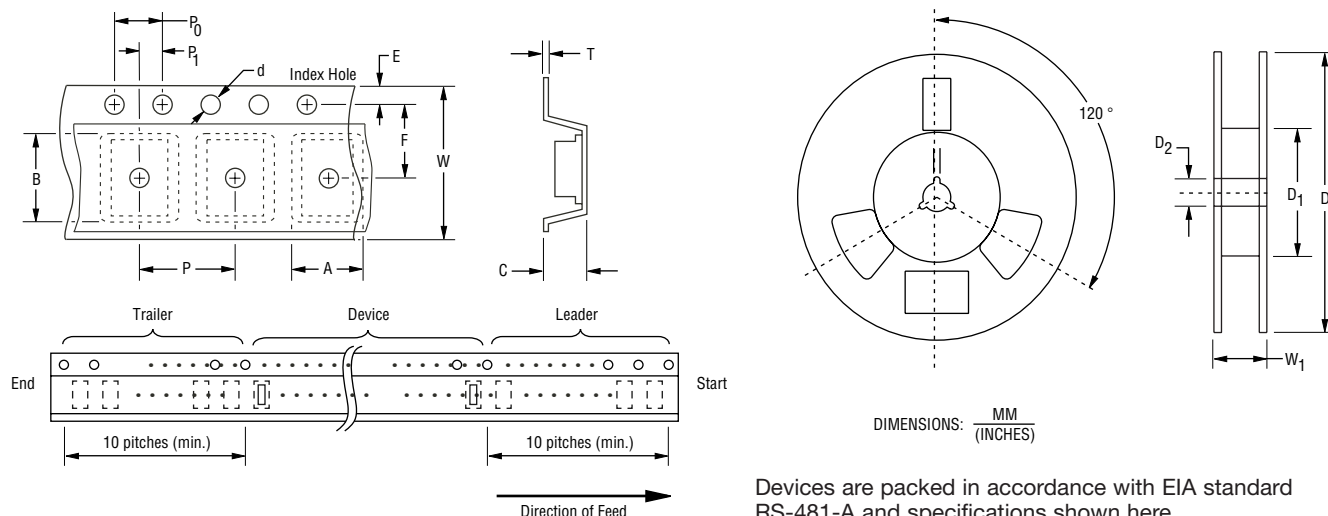


# CD0603/1005 Schottky Barrier Chip Diode Series

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## Packaging Information

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



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

| 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 <sub>1</sub> | $\frac{60.0}{(2.362)} \text{ MIN.}$     | $\frac{60.0}{(2.362)} \text{ MIN.}$     |
| Feed Hole Diameter     | D <sub>2</sub> | $\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$ | $\frac{13.0 \pm 0.20}{(0.512 - 0.008)}$ |
| 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 <sub>0</sub> | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ | $\frac{4.00 \pm 0.10}{(0.157 - 0.004)}$ |
| Embossment Center      | P <sub>1</sub> | $\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$ | $\frac{2.00 \pm 0.05}{(0.079 - 0.002)}$ |
| 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 <sub>1</sub> | $\frac{13.5}{(0.531)} \text{ MAX.}$     | $\frac{13.5}{(0.531)} \text{ MAX.}$     |
| Quantity per Reel      | --             | 4,000                                   | 4,000                                   |

REV. 10/09

Specifications are subject to change without notice.

Customers should verify actual device performance in their specific applications.

# AMEYA360

## Components Supply Platform

Authorized Distribution Brand :



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