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_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)

*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.

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_{RRM}	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

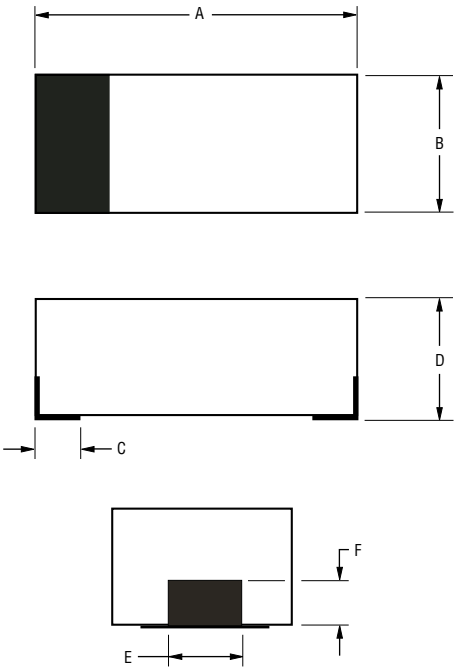
Parameter	Symbol	CD1005-B00340	CD1005-B0130L	CD1005-B0140L	CD1005-B0140R	CD1005-B0230	CD1005-B0240	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	45	35	45	45	35	45	V
Reverse Voltage	V_R	40	30	40	40	30	40	V
Average Forward Current	I_o	30	100	100	100	200	200	mA
Forward Current, Surge Peak	I_{surge}	500*	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).

CD0603/1005 Schottky Barrier Chip Diode Series

BOURNS®

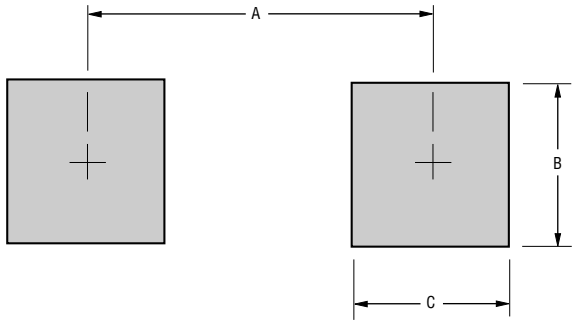
Product Dimensions



Dimension	0603	1005
A	1.60 - 1.80 (0.063 - 0.071)	2.40 - 2.60 (0.095 - 0.102)
B	0.80 - 1.00 (0.031 - 0.039)	1.10 - 1.30 (0.043 - 0.051)
C	0.25 (0.010) Typ.	0.35 (0.014) Typ.
D	0.70 - 0.85 (0.027 - 0.033)	0.70 - 0.90 (0.027 - 0.035)
E	0.35 (0.014) Typ.	0.35 (0.014) Typ.
F	0.30 (0.012) Typ.	0.30 (0.012) Typ.

DIMENSIONS: MM / (INCHES)

Recommended Pad Layout



Dimension	0603	1005
A (Max.)	1.70 (0.067)	2.10 (0.082)
B (Min.)	0.80 (0.031)	1.20 (0.047)
C (Min.)	0.60 (0.024)	1.20 (0.047)

DIMENSIONS: MM / (INCHES)

Physical Specifications

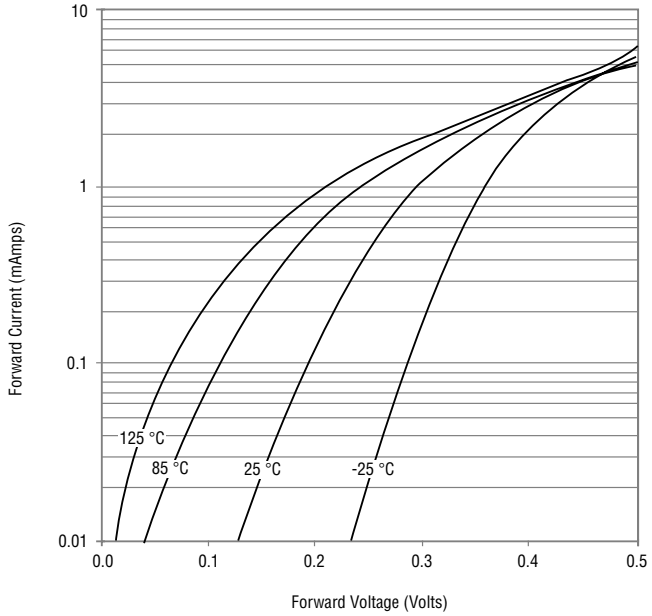
Case .....0603(1608) / 1005(2512) Molded plastic
Terminals .....Solder plated, solderable per MIL-STD-750, Method 2026
Polarity .....Indicated by cathode band
Mounting Position .....Any
Weight .....0.000159 ounces / 0.0045 grams

Typical Part Marking

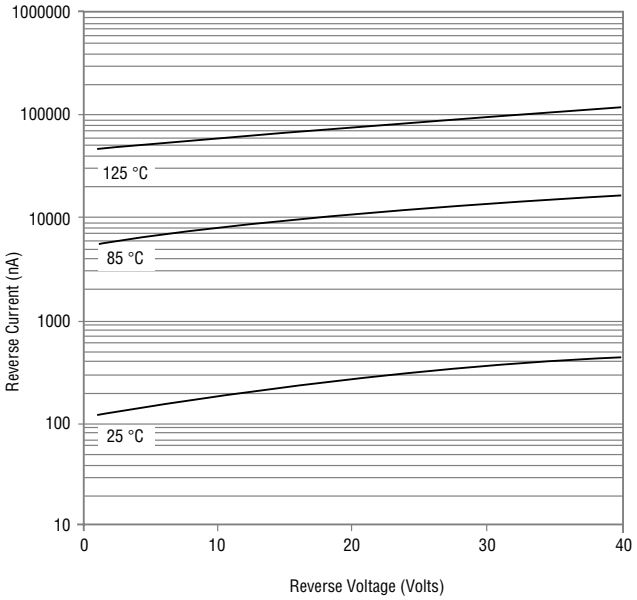
CDxxxx-B00340 .....B2
CDxxxx-B0130L B3
CDxxxx-B0140L B7
CDxxxx-B0140R.....B8
CDxxxx-B0230 .....B5
CDxxxx-B0240 .....B9

Rating and Characteristic Curves: CDxxxx-B00340

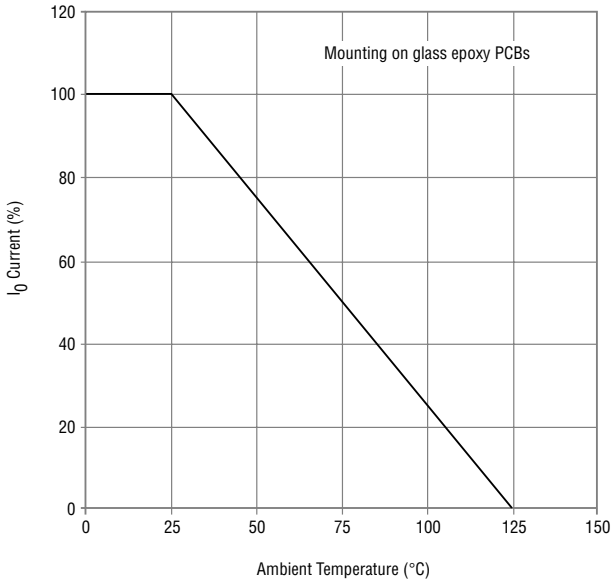
Forward Characteristics



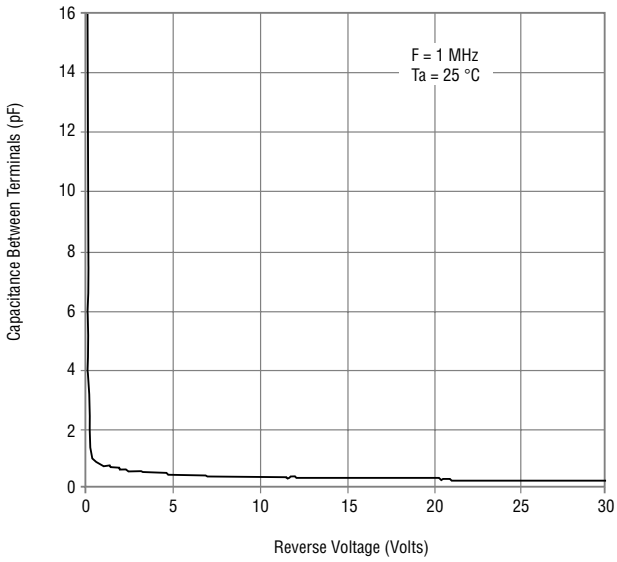
Reverse Characteristics



Derating Curve

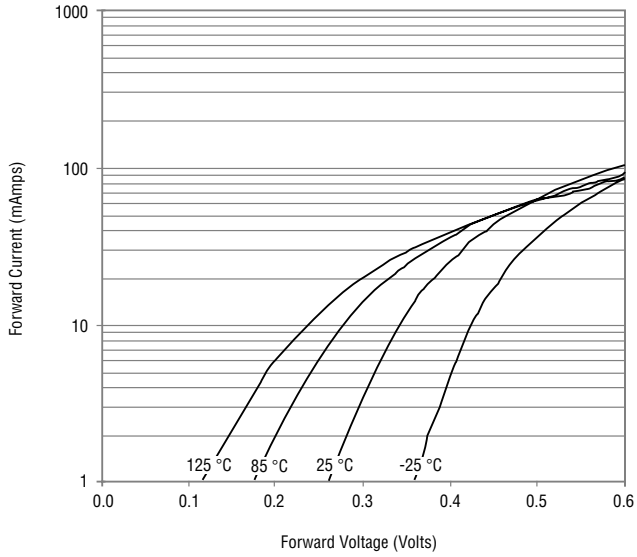


Capacitance Between Terminals

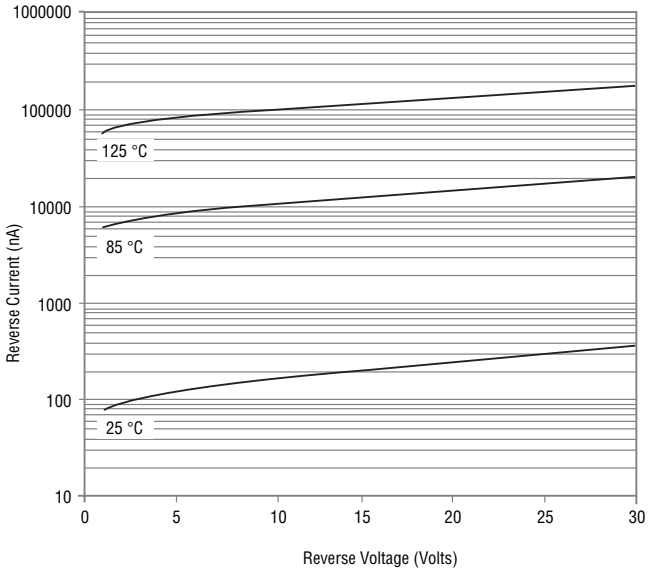


Rating and Characteristic Curves: CDxxxx-B0130L

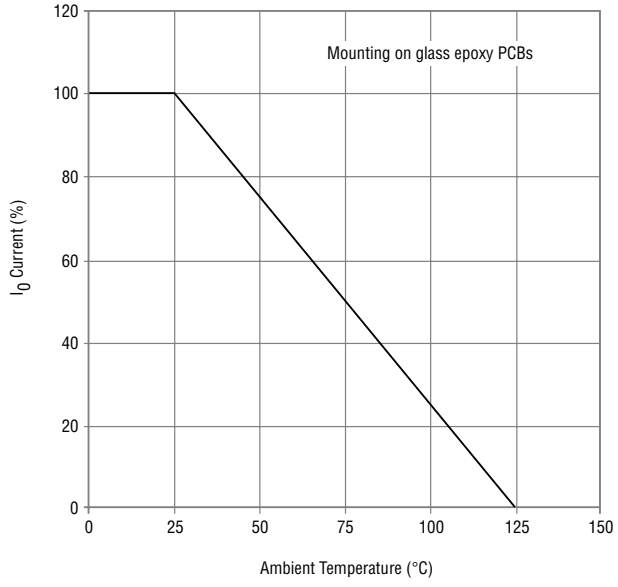
Forward Characteristics



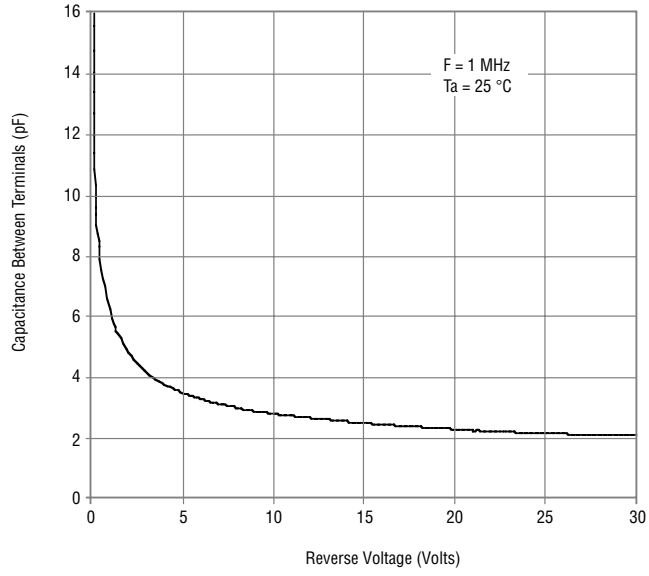
Reverse Characteristics



Derating Curve

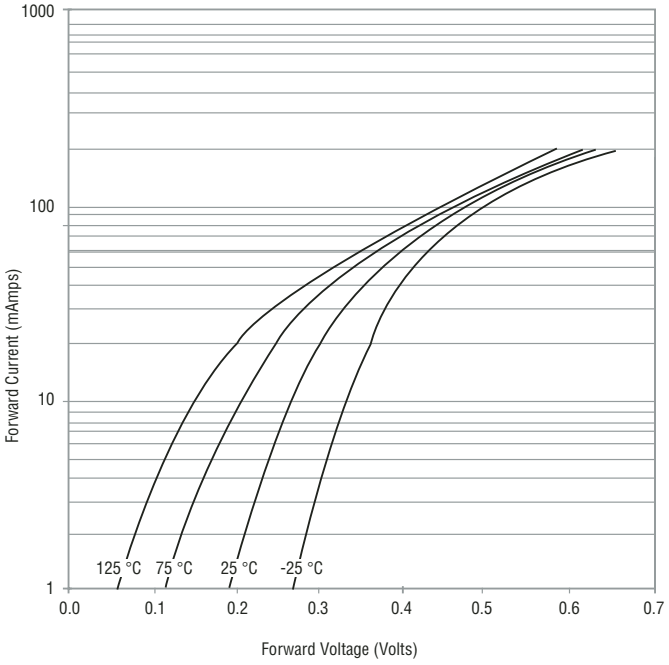


Capacitance Between Terminals

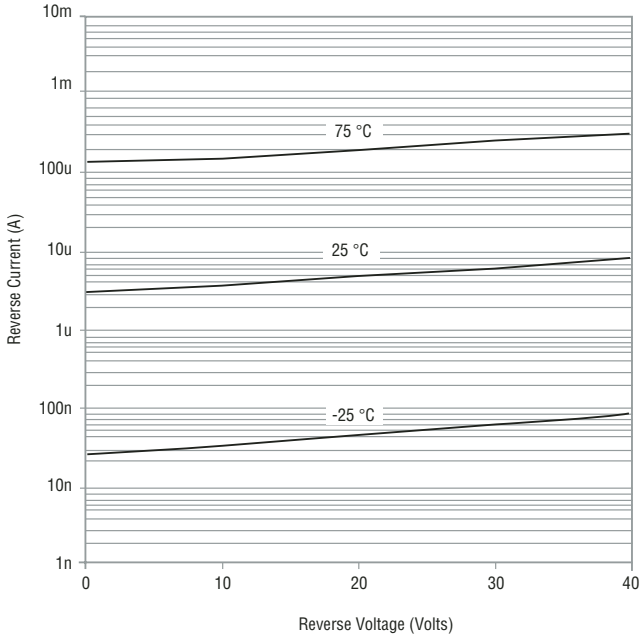


Rating and Characteristic Curves: CDxxxx-B0140L

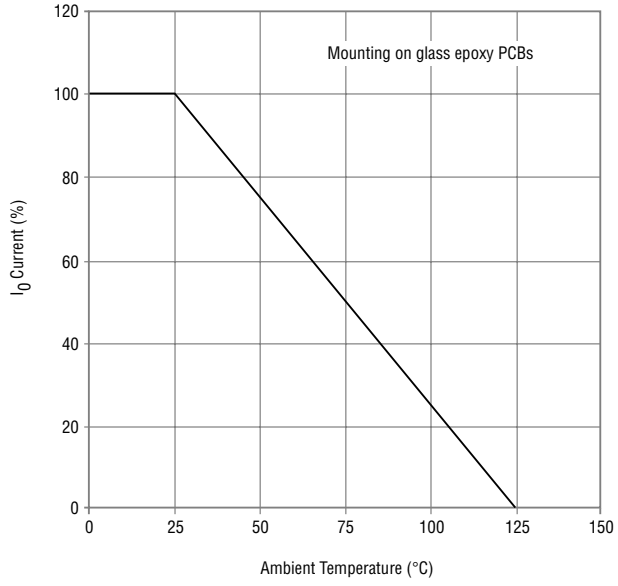
Forward Characteristics



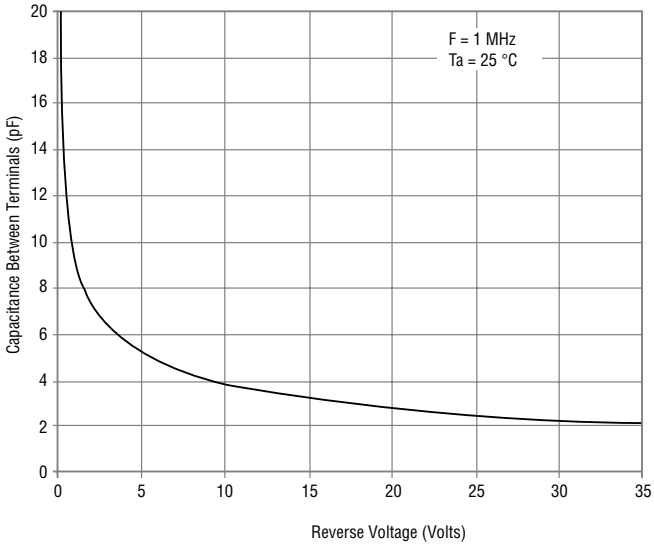
Reverse Characteristics



Derating Curve

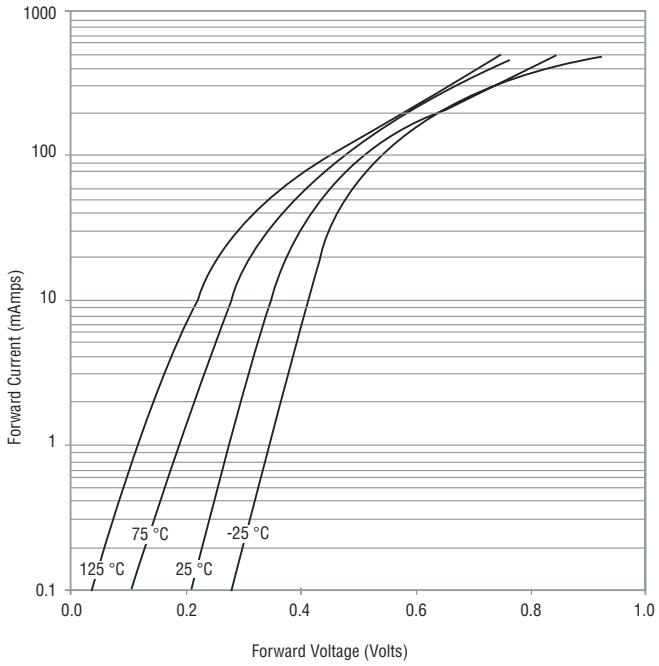


Capacitance Between Terminals

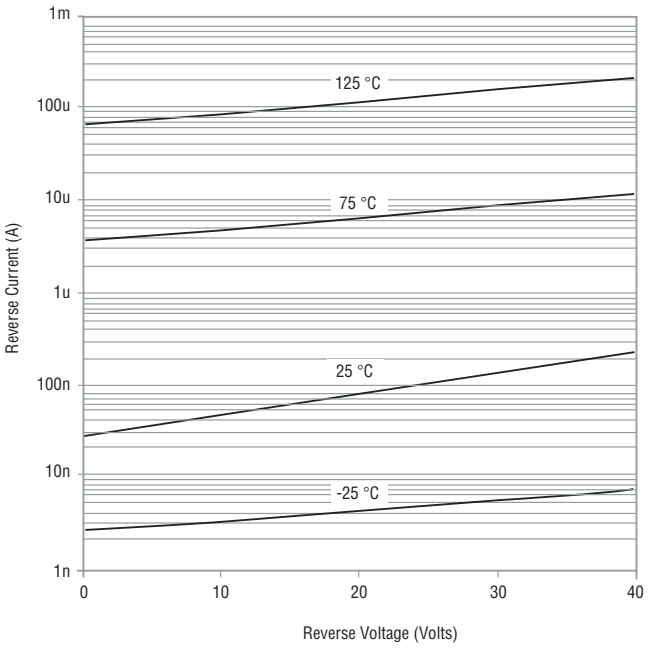


Rating and Characteristic Curves: CDxxxx-B0140R

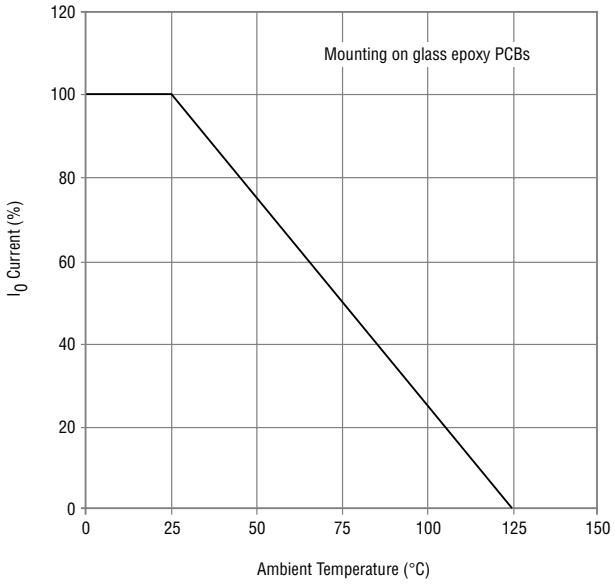
Forward Characteristics



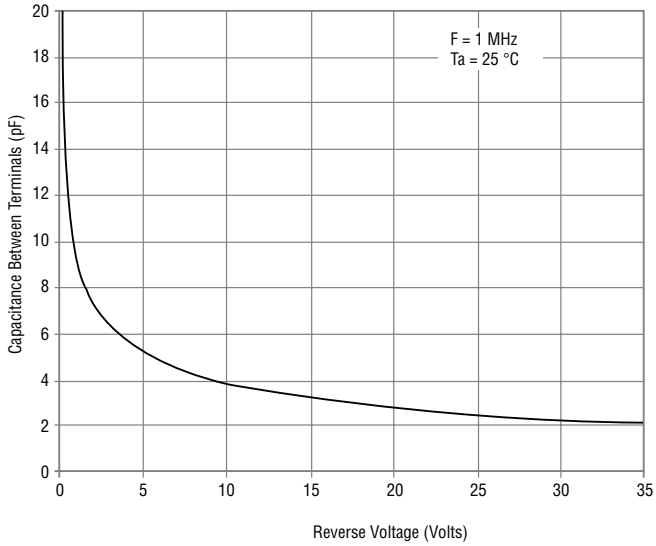
Reverse Characteristics



Derating Curve

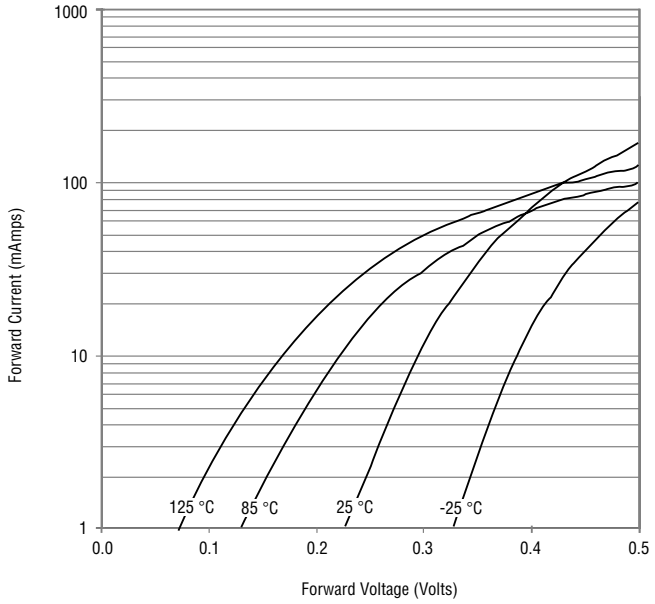


Capacitance Between Terminals

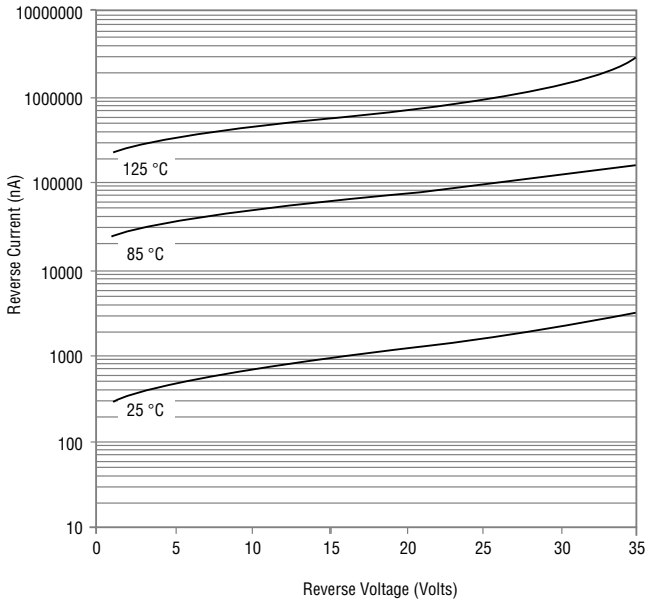


Rating and Characteristic Curves: CDxxxx-B0230

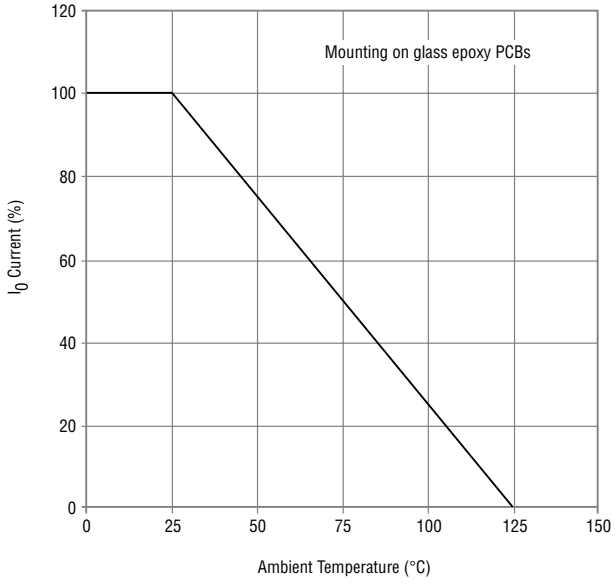
Forward Characteristics



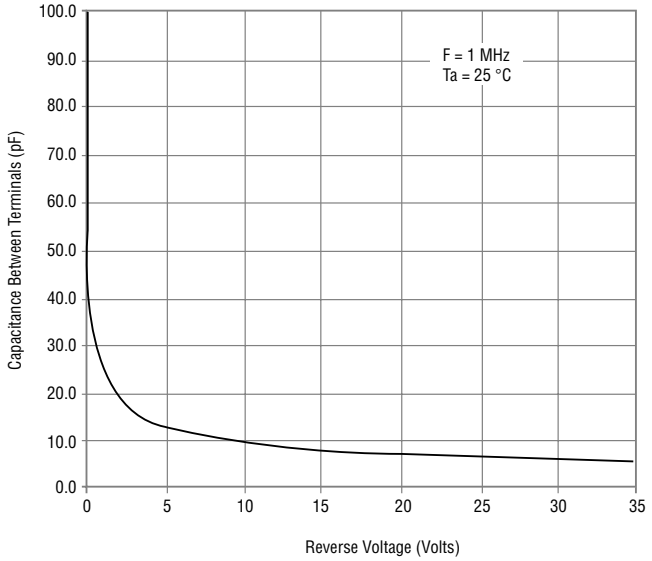
Reverse Characteristics



Derating Curve

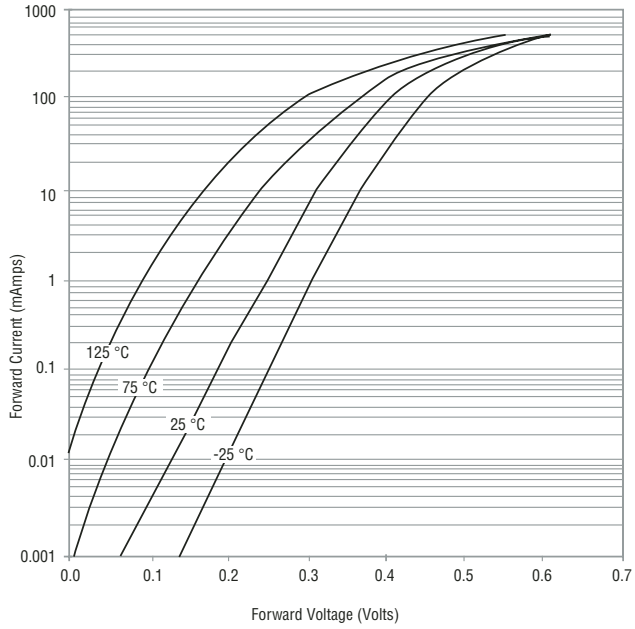


Capacitance Between Terminals

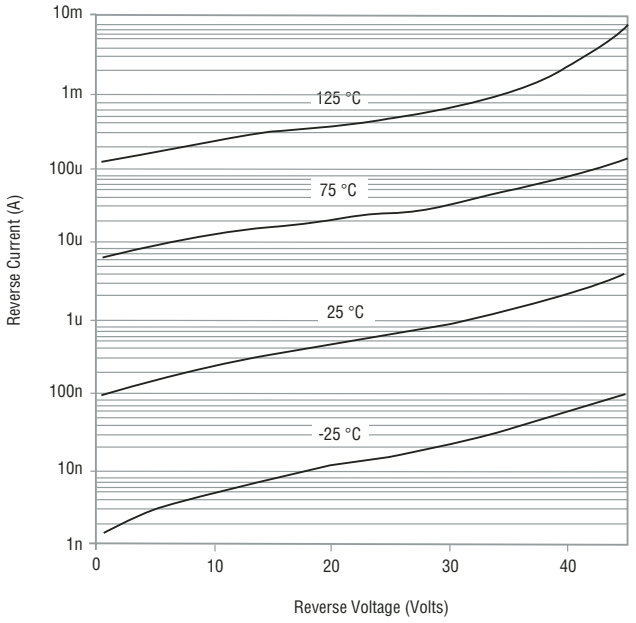


Rating and Characteristic Curves: CDxxxx-B0240

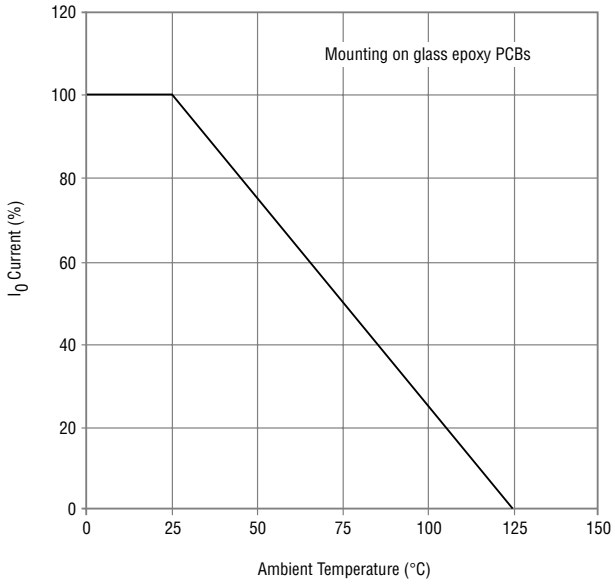
Forward Characteristics



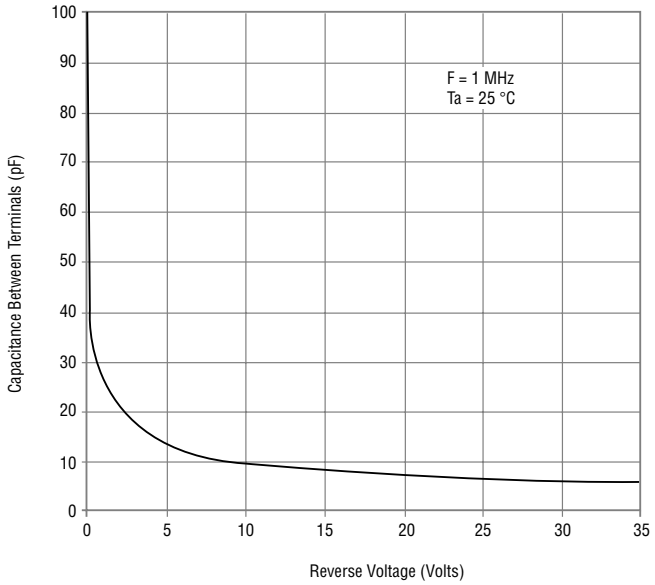
Reverse Characteristics



Derating Curve

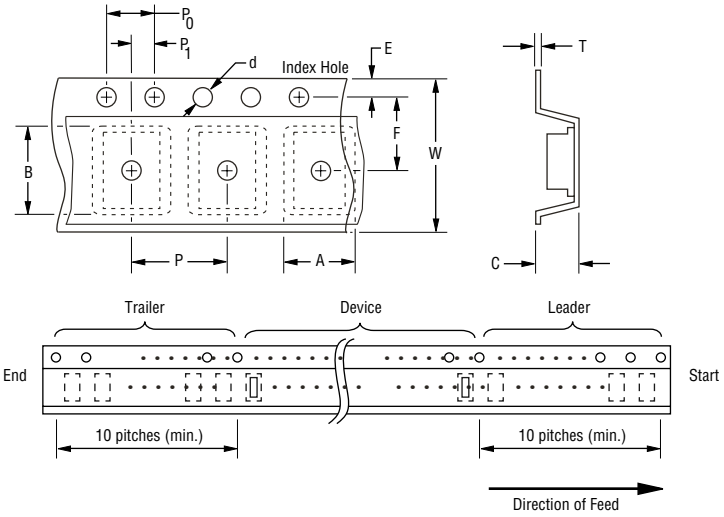


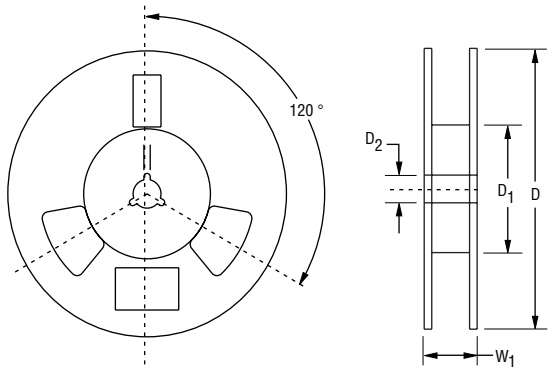
Capacitance Between Terminals



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	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