



Features

- Lead free as standard
- RoHS compliant*
- Leadless
- High speed

Applications

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



CD0805-xxxx products are currently available, although not recommended for new designs. Use CD1005-xxxx products as an alternative.

Switching Chip Diode Series - 0805 / 1206

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 Switching Diodes for switching digital signal applications, in compact chip package 0805 and 1206 size format, which offer PCB real estate savings and are considerably smaller than competitive parts. The Switching Diodes offer a forward current of 100 mA or 150 mA, a reverse voltage of 80 V or 75 V and also have a low leakage reverse current 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 (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	CDxxxx-S0180	CDxxxx-S01575	CDxxxx-S0180R	Unit
Forward Voltage (Max.)	V_F	1.00 ($I_f = 100\text{ mA}$)	1.00 ($I_f = 50\text{ mA}$)	1.00 ($I_f = 100\text{ mA}$)	V
Capacitance Between Terminals (Max.)	C_T	3 ($f = 100\text{ MHz}$, $V_r = 1\text{ V DC}$)			pF
Reverse Recovery Time (Max.)	t_{rr}	4 ($V_r = 6\text{ V}$, $I_f = 10\text{ mA}$, $R_L = 50\ \Omega$)			nS
Reverse Current (Max.)	I_R	0.1 ($V_r = 80\text{ V}$)	2.5 ($V_r = 75\text{ V}$)	0.05 ($V_r = 75\text{ V}$)	μA

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

Parameter	Symbol	CDxxxx-S0180	CDxxxx-S01575	CDxxxx-S0180R	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	90	100	90	V
Reverse Voltage	V_R	80	75	80	V
Average Forward Current	I_O	100	150	100	mA
Forward Current, Surge Peak	I_{surge}	1*	4**	1*	A
Power Dissipation	PD	300	350	300	mW
Storage Temperature	T_{STG}	-55 to +125			$^\circ\text{C}$
Junction Temperature	T_J	-55 to +125			$^\circ\text{C}$

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

** Condition: 1.0 μs single half sine-wave superimposed on rate load (JEDEC method).

How To Order

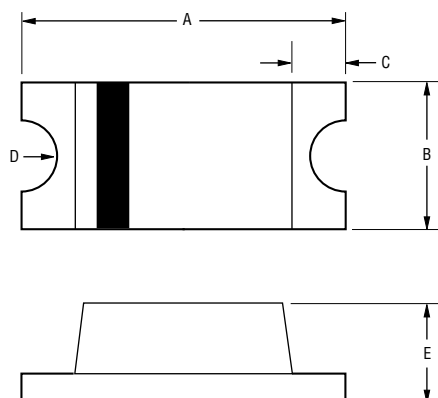
CD 0805 - S 01 80 R

Common Code	_____	_____	_____	_____	_____
Chip Diode	_____	_____	_____	_____	_____
Package	_____	_____	_____	_____	_____
• 0805					
• 1206					
Model	_____	_____	_____	_____	_____
S = High Speed Switching					
Average Forward Current (I_O) Code	_____	_____	_____	_____	_____
01 = 100 mA					
015 = 150 mA					
(Code x 1000 mA = Average Forward Current)					
Reverse Voltage (V_R) Code	_____	_____	_____	_____	_____
80 = 80 V					
75 = 75 V					
Reverse Current Suffix	_____	_____	_____	_____	_____
R = Low Leakage I_R (CDxxxx-S0180R)					

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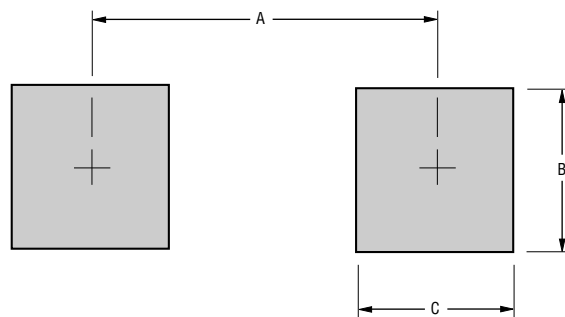
Product Dimensions



Dimension	0805	1206
A	$\frac{2.00 - 2.20}{(0.079 - 0.087)}$	$\frac{3.00 - 3.20}{(0.118 - 0.126)}$
B	$\frac{1.20 - 1.40}{(0.047 - 0.055)}$	$\frac{1.40 - 1.60}{(0.055 - 0.063)}$
C	$\frac{0.40}{(0.016)}$ Typ.	$\frac{0.50}{(0.020)}$ Typ.
D	$\frac{0.20}{(0.008)}$ R Typ.	$\frac{0.25}{(0.010)}$ R Typ.
E	$\frac{0.90 - 1.10}{(0.035 - 0.043)}$	$\frac{0.90 - 1.10}{(0.035 - 0.043)}$

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

Recommended Pad Layout



Dimension	0805	1206
A (Max.)	$\frac{2.10}{(0.082)}$	$\frac{3.00}{(0.118)}$
B (Min.)	$\frac{1.20}{(0.047)}$	$\frac{1.60}{(0.063)}$
C (Min.)	$\frac{1.20}{(0.047)}$	$\frac{1.40}{(0.055)}$

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

Physical Specifications

Case0805(2012) / 1206(3216) Molded plastic
 TerminalsSolder plated, solderable per MIL-STD-750,
 Method 2026
 PolarityIndicated by cathode band
 Mounting PositionAny

Typical Part Marking

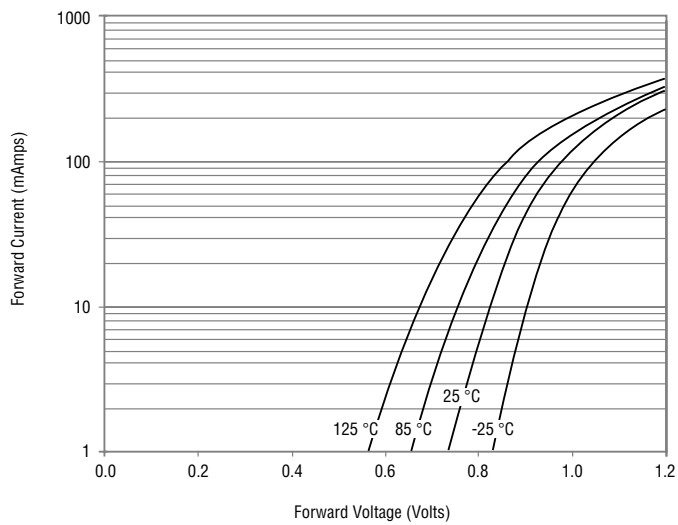
CDxxxx-S0180S1
 CDxxxx-S01575S3
 CDxxxx-S0180RS2

Switching Chip Diode Series - 0805 / 1206

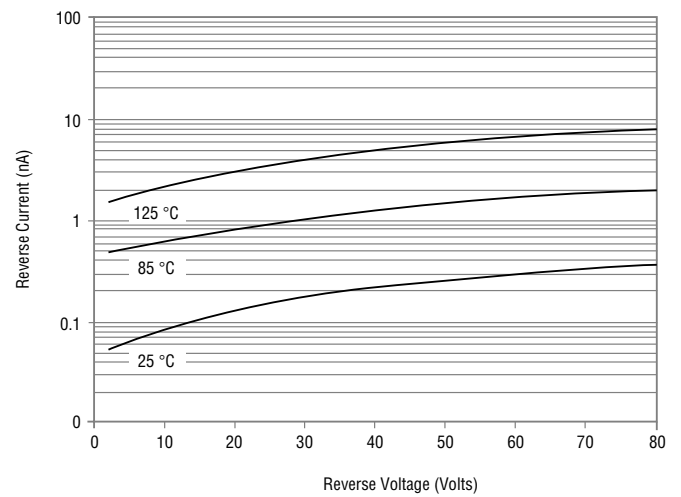
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Rating and Characteristic Curves: CDxxxx-S0180

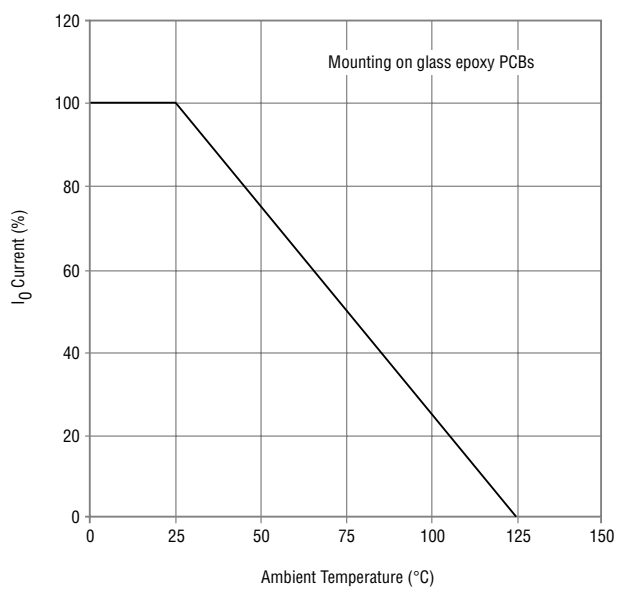
Forward Characteristics



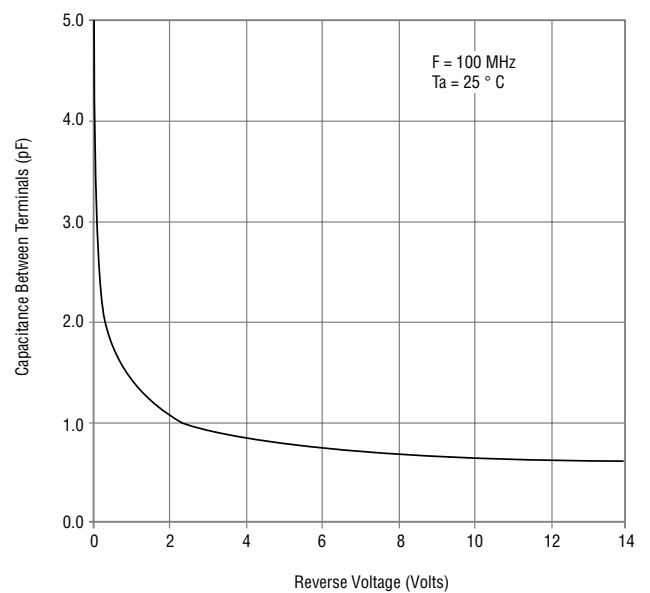
Reverse Characteristics



Derating Curve



Capacitance Between Terminals

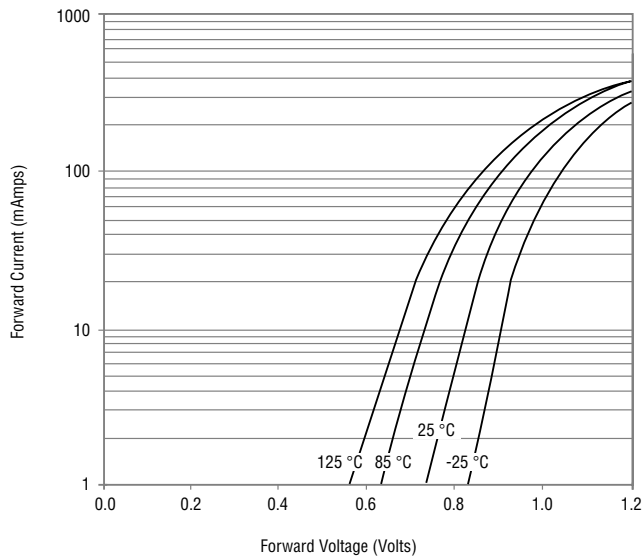


Switching Chip Diode Series - 0805 / 1206

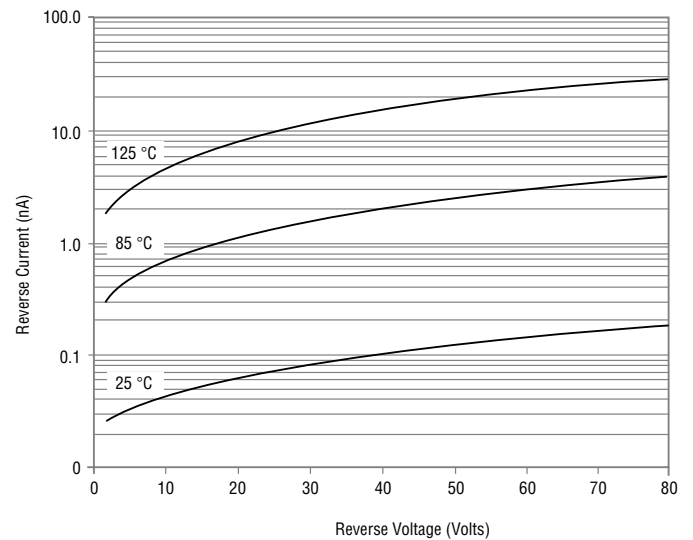
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Rating and Characteristic Curves: CDxxx-S01575

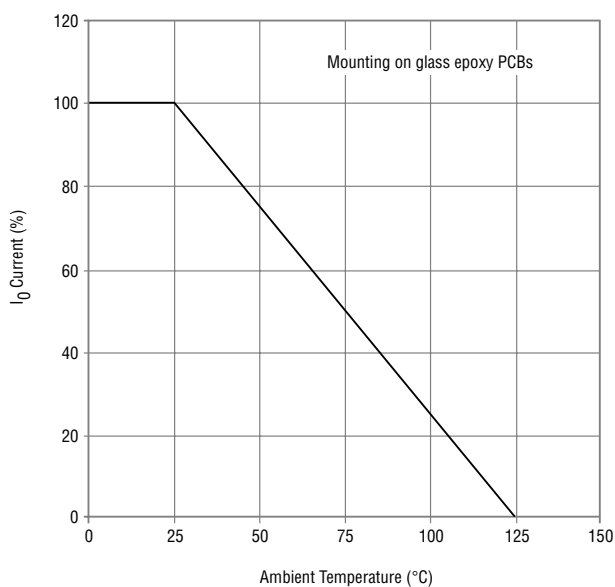
Forward Characteristics



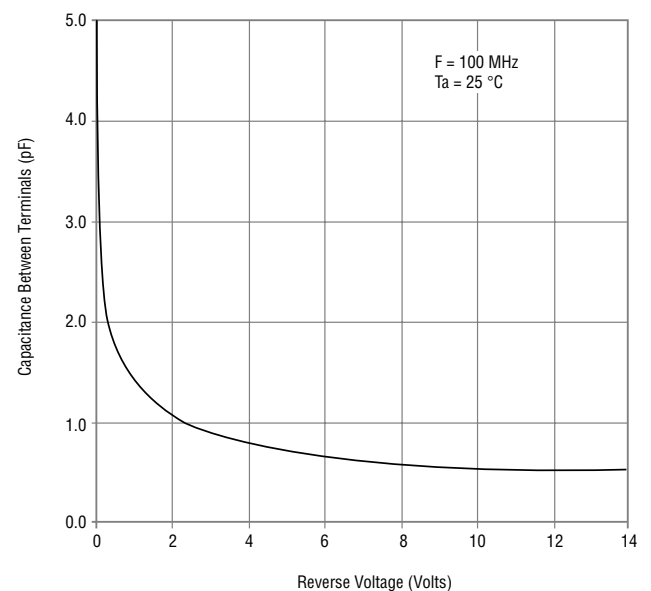
Reverse Characteristics



Derating Curve



Capacitance Between Terminals

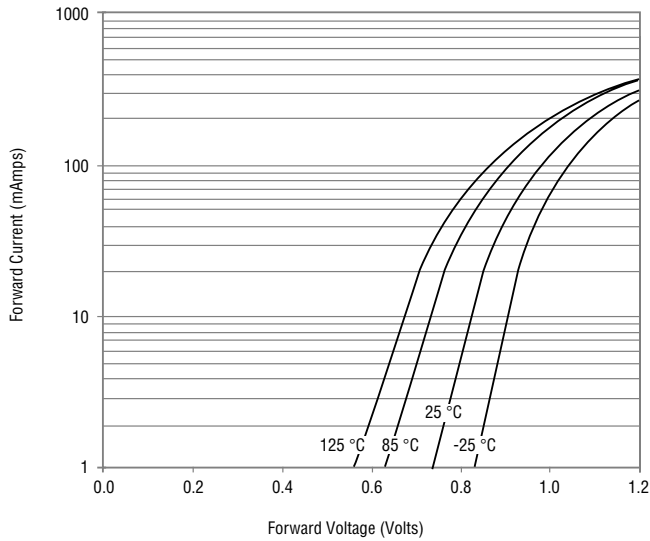


Switching Chip Diode Series - 0805 / 1206

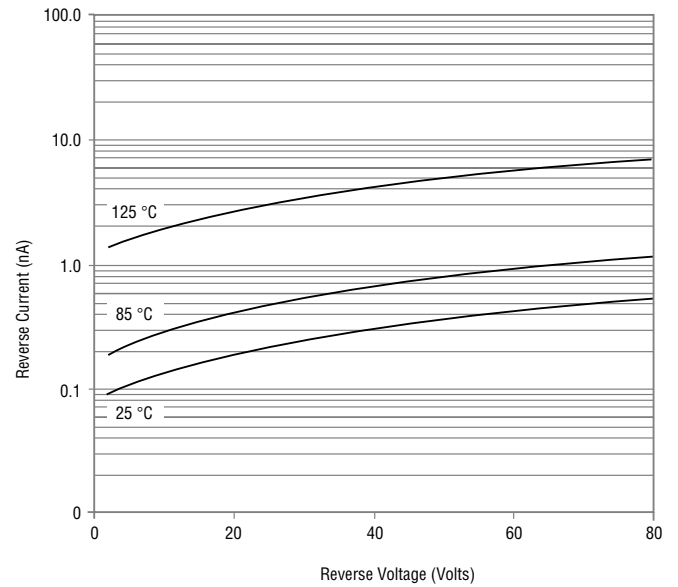
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Rating and Characteristic Curves: CDxxx-S0180R

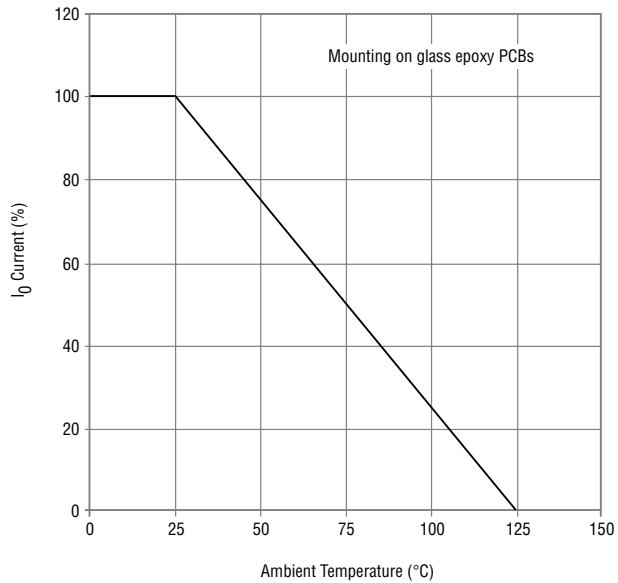
Forward Characteristics



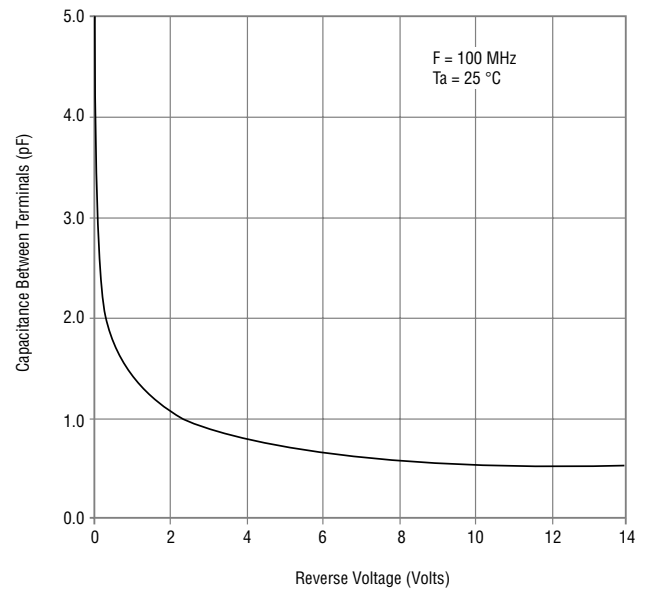
Reverse Characteristics



Derating Curve



Capacitance Between Terminals

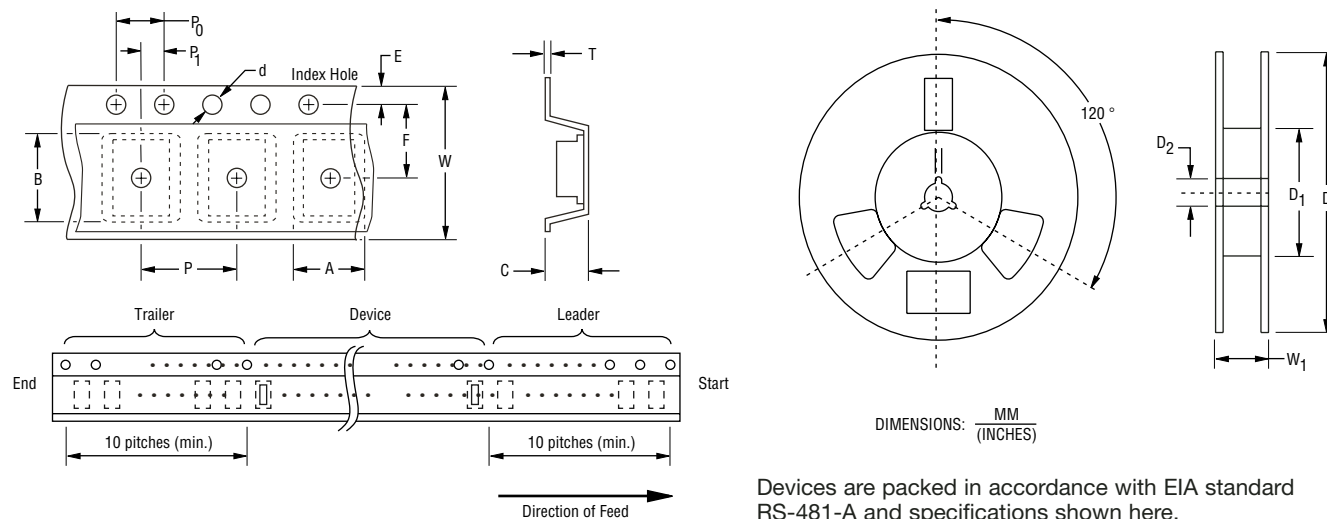


Switching Chip Diode Series - 0805 / 1206

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Packaging Information

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



Item	Symbol	0805	1206
Carrier Width	A	$\frac{1.55 \pm 0.10}{(0.061 - 0.004)}$	$\frac{1.70 \pm 0.10}{(0.067 - 0.004)}$
Carrier Length	B	$\frac{2.30 \pm 0.10}{(0.091 - 0.004)}$	$\frac{3.40 \pm 0.10}{(0.134 - 0.004)}$
Carrier Depth	C	$\frac{1.25 \pm 0.10}{(0.049 - 0.004)}$	$\frac{1.25 \pm 0.10}{(0.049 - 0.004)}$
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	$\frac{60.0}{(2.362)} \text{ MIN.}$	$\frac{60.0}{(2.362)} \text{ MIN.}$
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	$\frac{0.25 \pm 0.05}{(0.010 - 0.002)}$	$\frac{0.20 \pm 0.05}{(0.008 - 0.002)}$
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	$\frac{13.5}{(0.531)} \text{ MAX.}$	$\frac{13.5}{(0.531)} \text{ MAX.}$
Quantity per Reel	--	3,000	3,000