

Features

- RoHS compliant*
- Low power loss and high efficiency
- High current capability
- Low profile package

Applications

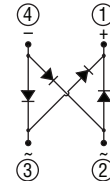
- AC operated products
- Computer monitors
- Set-top boxes
- Cable modems

CD-HD2x(L) Series Surface Mount Schottky Bridge 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 Schottky Bridge Rectifier Diodes for rectification applications in a compact chip package 0.24 " x 0.19 " size format, which offers PCB real estate savings and are considerably smaller than standard parts. The Schottky Bridge Rectifier Diodes offer a forward current of 2 A with a choice of repetitive peak reverse voltages between 40 V and 100 V.



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

Parameter	Symbol	CD-					Unit
		HD2004	HD2006	HD201	HD2006L	HD201L	
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	40	60	100	60	100	V
Maximum Average Forward Rectified Current (T _A = 55 °C)	I _{F(AV)}	2.0					A
Peak Forward Surge Current 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	I _{FSM}	50.0				60.0	A
Operating Temperature Range	T _J	-55 to +125					°C
Storage Temperature Range	T _{STG}	-55 to +125					°C

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

Parameter	Symbol	CD-HD2x(L)				Unit	
		Test Conditions		Min.	Typ.		Max.
Instantaneous Forward Voltage	V _F	I _F = 2 A	CD-HD2004		0.49	0.5	V
			CD-HD2006		0.60	0.70	
			CD-HD201		0.75	0.85	
			CD-HD2006L		0.50	0.55	
			CD-HD201L		0.74	0.80	
Repetitive Peak Reverse Current	I _{RRM}	V _R = V _{RRM} T _A = +25 °C	CD-HD2004		0.025	0.20	mA
			CD-HD2006		0.025	0.20	
			CD-HD201		0.025	0.20	
			CD-HD2006L		0.03	0.2	
			CD-HD201L		0.001	0.10	
Junction Capacitance	C _J	V _R = 4 V, f = 1.0 MHz	CD-HD2x(L)x			250	pF
Thermal Resistance, Junction to Air	R _{th(JA)}	Junction to Ambient (NOTE 1)	CD-HD2004		110		°C / W
			CD-HD2006		110		
			CD-HD201		110		
			CD-HD2006L		110		
			CD-HD201L		146		
Thermal Resistance, Junction to Lead	R _{th(JC)}	Junction to Lead (NOTE 1)	CD-HD2004		15		°C / W
			CD-HD2006		15		
			CD-HD201		15		
			CD-HD2006L		15		
			CD-HD201L		30		

NOTE 1: Measured when mounted on PCB with 5.0 mm x 5.0 mm (0.2 " x 0.2 ") copper pad areas.



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

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

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Users should verify actual device performance in their specific applications.

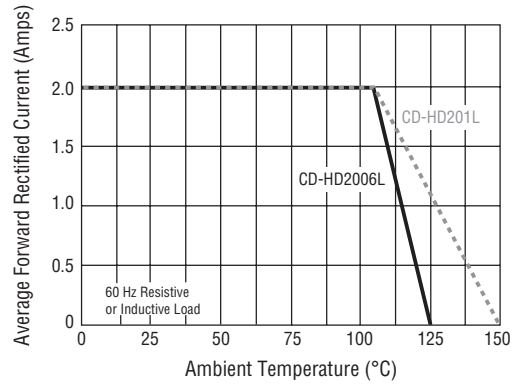
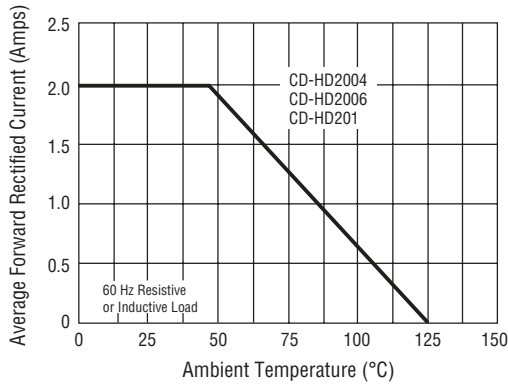
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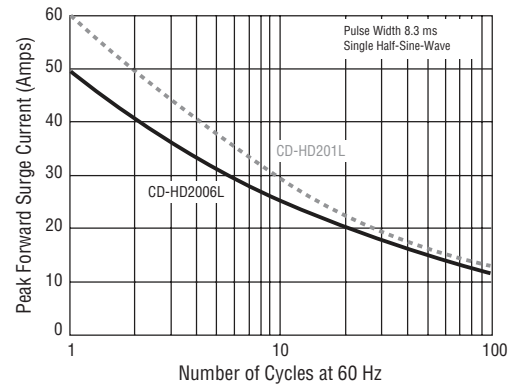
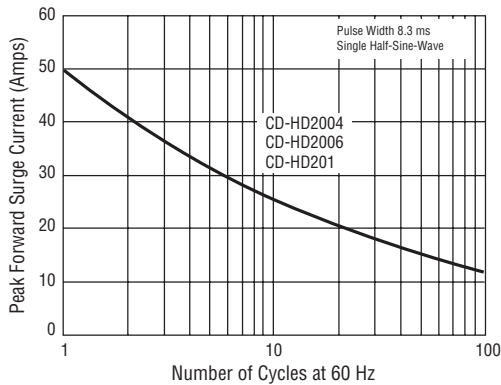


Rating and Characteristic Curves

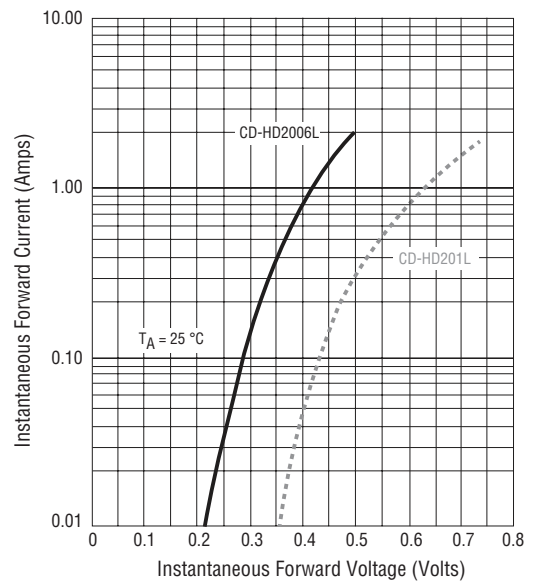
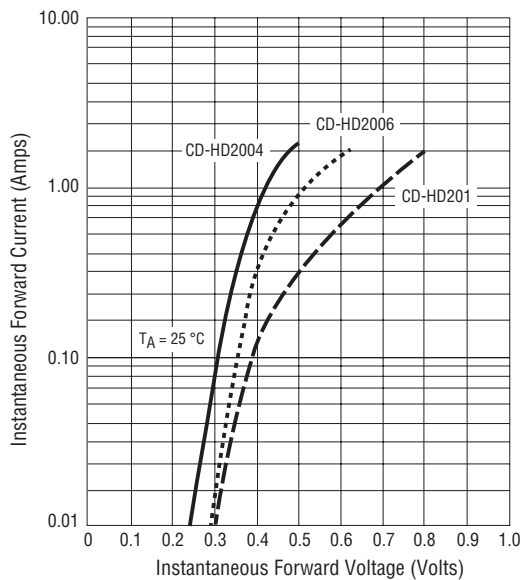
Forward Current Derating Curve



Maximum Non-Repetitive Peak Forward Surge Current



Forward Characteristics

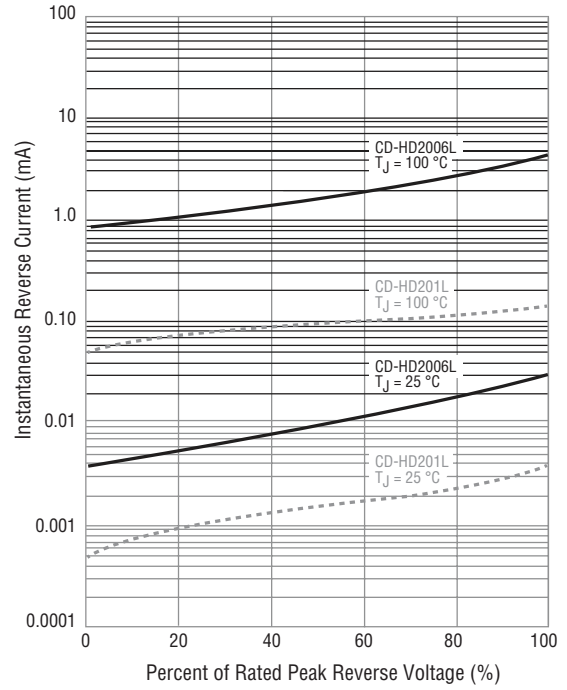
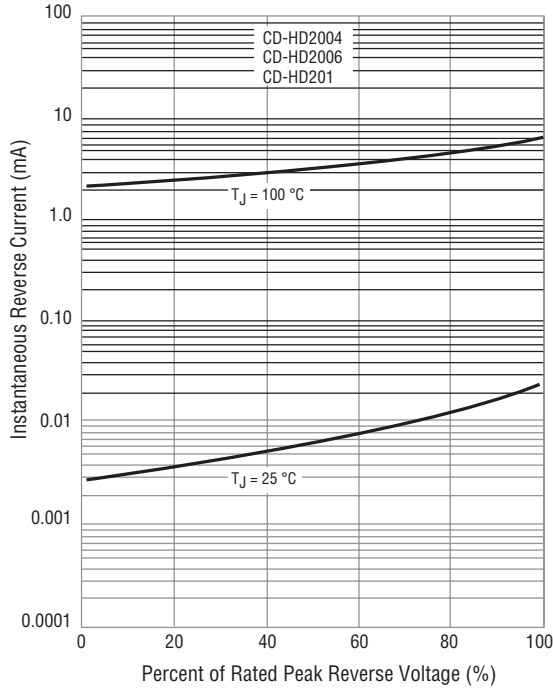


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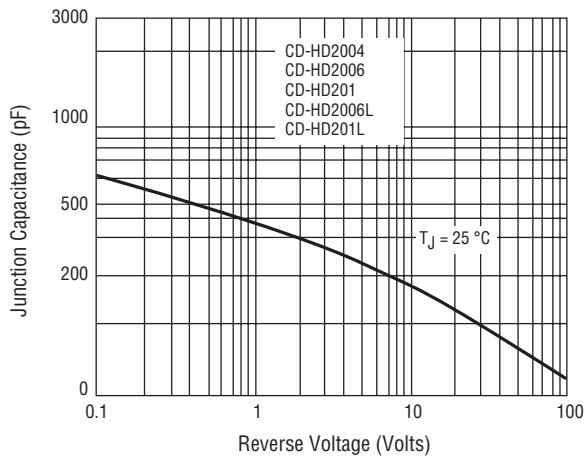


Rating and Characteristic Curves

Reverse Characteristics



Typical Junction Capacitance



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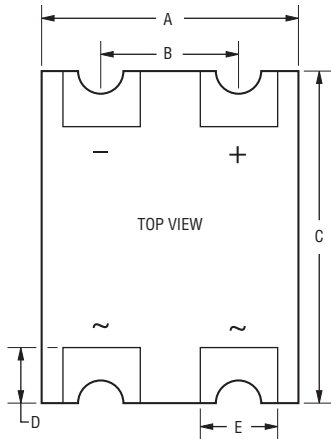
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Product Dimensions

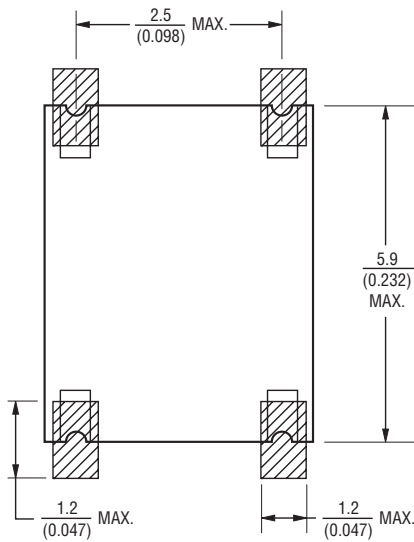
This is an RoHS2 compliant product, packaged with FRP substrate and is epoxy underfilled. The terminals are pure tin plated (lead free) and are solderable per MIL-STD-750, Method 2026. The package and dimensions are shown below.



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

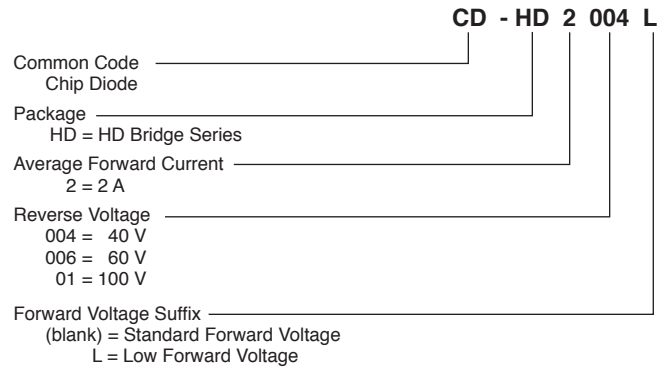
Dimensions	
A	$\frac{4.65 - 4.85}{(0.183 - 0.191)}$
B	$\frac{2.49 - 2.59}{(0.098 - 0.102)}$
C	$\frac{6.05 - 6.25}{(0.238 - 0.246)}$
D	$\frac{1.35 - 1.45}{(0.053 - 0.057)}$
E	$\frac{0.95 - 1.05}{(0.037 - 0.041)}$
F	$\frac{0.92 - 1.22}{(0.036 - 0.048)}$

Recommended Footprint

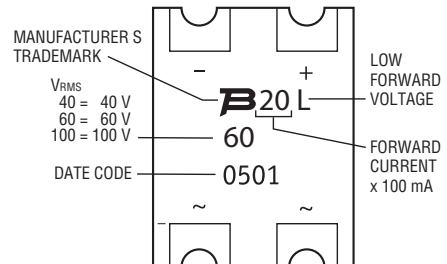


DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

How to Order



Typical Part Marking



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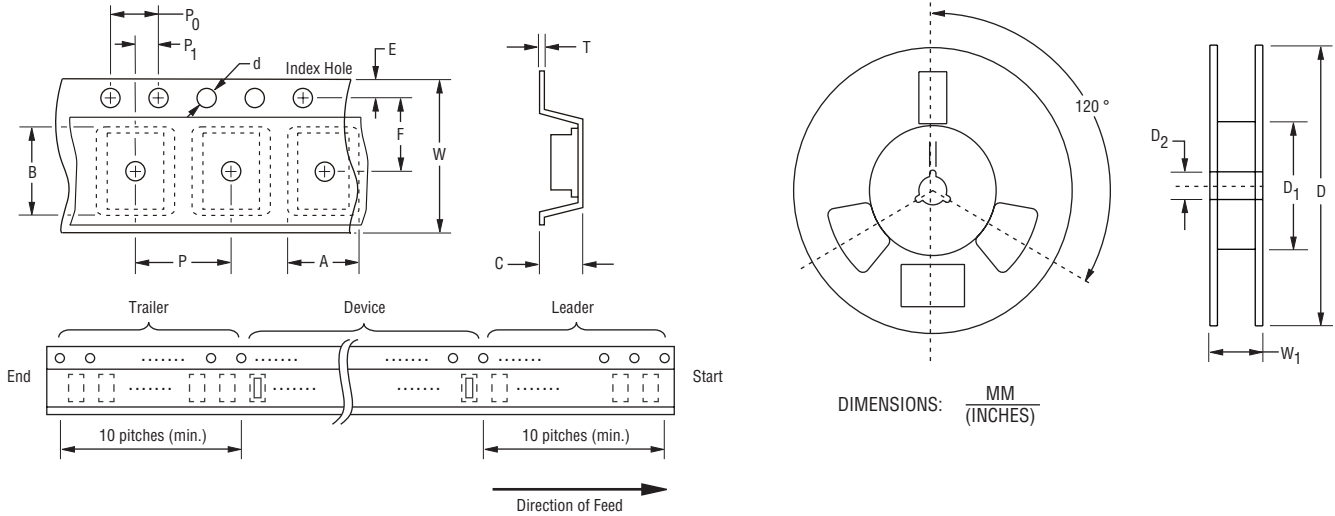
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CD-HD2x(L) Series Surface Mount Schottky Bridge Rectifier Diode

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Packaging Information

The surface mount product is packaged in a 12 mm x 8 mm tape and reel format per EIA-481 standard.



Item	Symbol	CD-HD2x(L)
Carrier Width	A	$\frac{5.20 \pm 0.30}{(0.205 \pm 0.012)}$
Carrier Length	B	$\frac{6.60 \pm 0.30}{(0.260 \pm 0.012)}$
Carrier Depth	C	$\frac{1.65 \pm 0.10}{(0.065 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.50 \pm 0.10}{(0.059 \pm 0.004)}$
Reel Outside Diameter	D	$\frac{330}{(12.992)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)}$ MIN.
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.50}{(0.512 \pm 0.02)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$
Overall Tape Thickness	T	$\frac{0.40}{(0.016)}$
Tape Width	W	$\frac{12.00 \pm 0.30}{(0.472 \pm 0.012)}$
Reel Width	W ₁	$\frac{14.4}{(0.567)}$ MAX.
Quantity per Reel	--	5,000

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REV. 09/20

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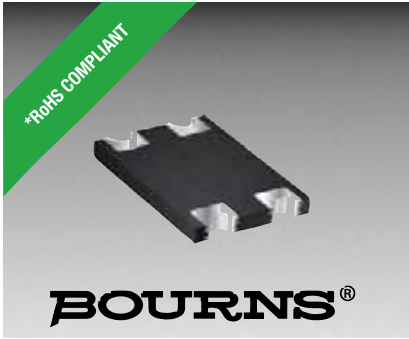
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Features

- RoHS compliant*
- Low power loss and high efficiency
- High current capability
- Low profile package

Applications

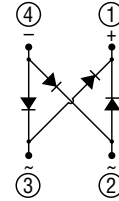
- AC operated products
- Computer monitors
- Set-top boxes
- Cable modems

CD-DF4xxS(L) Series Surface Mount Bridge 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 Bridge Rectifier Diodes for rectification applications in compact chip package 0.41" x 0.32" size format, which offers PCB real estate savings and are considerably smaller than standard parts. The Bridge Rectifier Diodes offer a forward current of 4 A with a choice of repetitive peak reverse voltages between 600 V and 1000 V.



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

Parameter	Symbol	CD-						Unit
		DF406S	DF408S	DF410S	DF406SL	DF408SL	DF410SL	
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	600	800	1000	600	800	1000	V
Maximum Average Forward Rectified Current (T _A = 55 °C)	I _{F(AV)}	4.0						A
Peak Forward Surge Current 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	I _{FSM}	150.0						A
Operating Temperature Range	T _J	-55 to +175						°C
Storage Temperature Range	T _{STG}	-55 to +175						°C

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

Parameter	Symbol	CD-DF4xxS(L)				Unit	
		Test Conditions		Min.	Typ.		Max.
Instantaneous Forward Voltage	V _F	I _F = 2 A	CD-DF4xxS		0.92	0.95	V
			CD-DF4xxSL		0.86	0.90	
Repetitive Peak Reverse Current	I _{RRM}	V _R = V _{RRM}	T _A = +25 °C		0.08	5.0	μA
Junction Capacitance	C _J	V _R = 4 V, f = 1.0 MHz	CD-DF4xxS		45		pF
			CD-DF4xxSL		45		
Thermal Resistance, Junction to Air (1)	R _{θJA}	CD-DF4xxS			35		°C / W
		CD-DF4xxSL			35		
Thermal Resistance, Junction to Lead (1)	R _{θJL}	CD-DF4xxS			15		°C / W
		CD-DF4xxSL			15		

NOTE 1: Thermal resistance, junction to ambient, measured on PC board with 50 mm² (0.03 mm thick) land areas.



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

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

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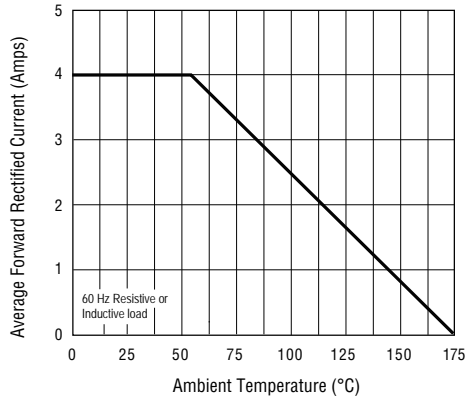
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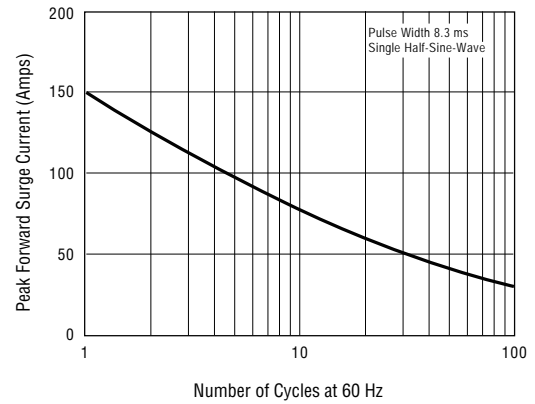


Rating and Characteristic Curves

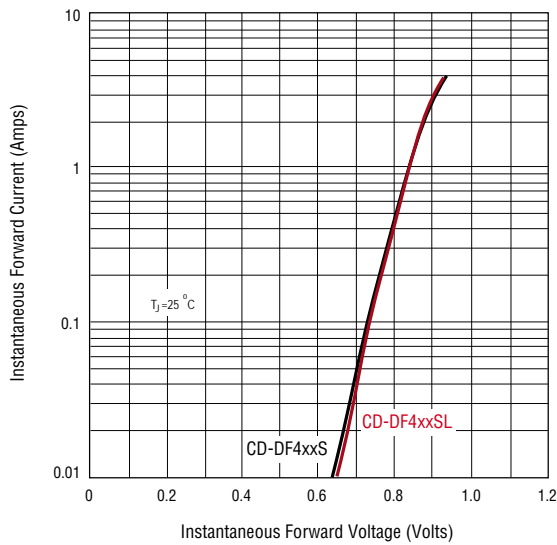
Forward Current Derating Curve



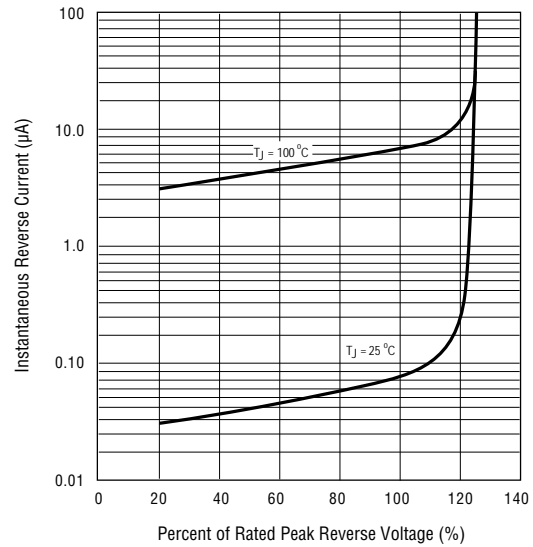
Maximum Non-Repetitive Peak Forward Surge Current



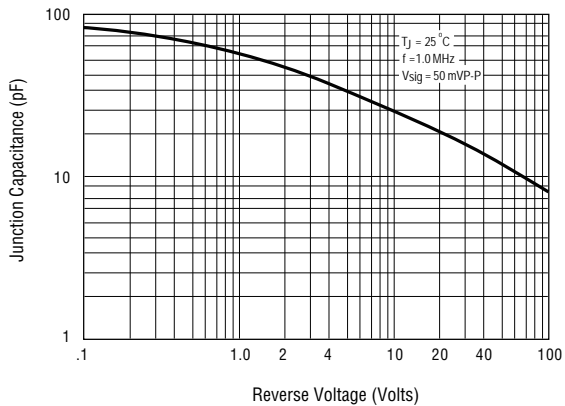
Forward Characteristics



Reverse Characteristics



Typical Junction Capacitance



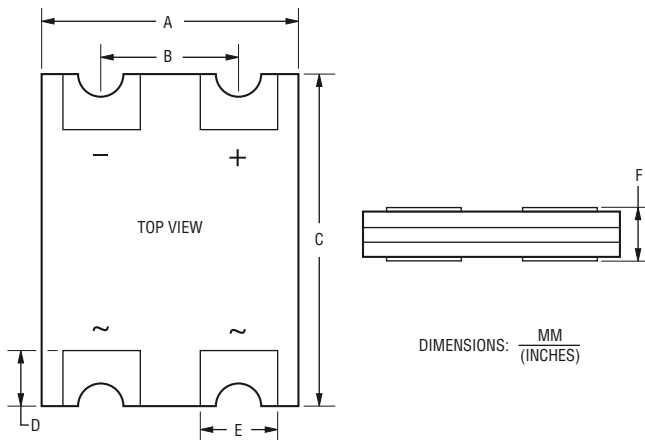
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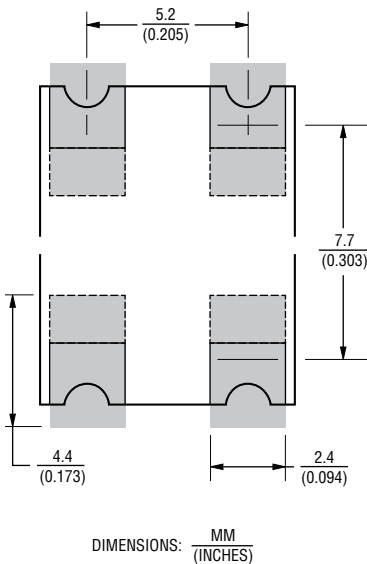
Product Dimensions

This is an ROHS2 compliant product, packaged with FRP substrate and is epoxy underfilled. The terminals are pure tin plated (lead free) and are solderable per MIL-STD-750, Method 2026. The package and dimensions are shown below.

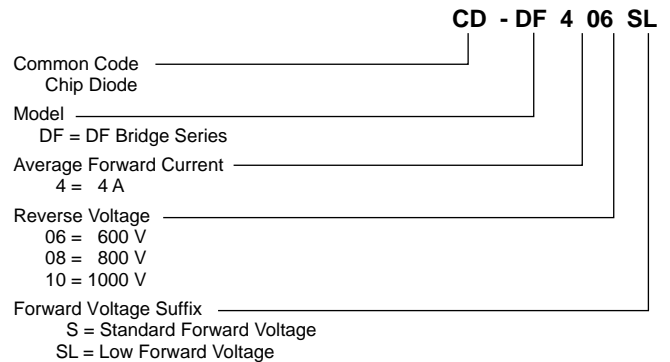


Dimensions	
A	$\frac{8.00 - 8.20}{(0.315 - 0.323)}$
B	$\frac{5.00 - 5.20}{(0.197 - 0.205)}$
C	$\frac{10.40 - 10.60}{(0.409 - 0.417)}$
D	$\frac{1.85 - 2.15}{(0.073 - 0.085)}$
E	$\frac{2.10 - 2.30}{(0.083 - 0.091)}$
F	$\frac{1.15 - 1.45}{(0.045 - 0.067)}$

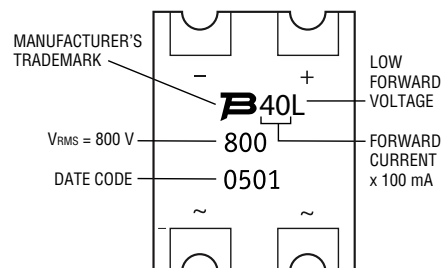
Recommended Footprint



How to Order



Typical Part Marking

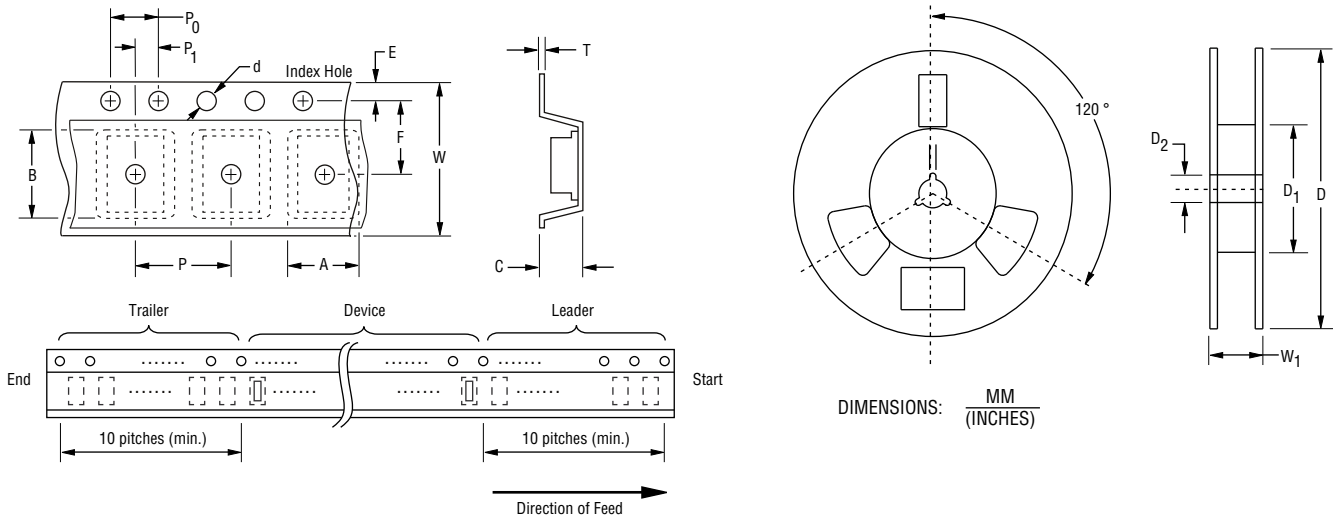


CD-DF4xxS(L) Series Surface Mount Bridge Rectifier Diode

BOURNS®

Packaging Information

The surface mount product is packaged in a 16 mm x 12 mm tape and reel format per EIA-481 standard.



Item	Symbol	CD-DF4xxS(L)
Carrier Width	A	$\frac{8.63 \pm 0.38}{(0.34 \pm 0.01)}$
Carrier Length	B	$\frac{11.03 \pm 0.38}{(0.43 \pm 0.01)}$
Carrier Depth	C	$\frac{1.93 \pm 0.38}{(0.08 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{330}{(12.992)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)}$ MIN.
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{7.50 \pm 0.10}{(0.295 \pm 0.004)}$
Punch Hole Pitch	P	$\frac{12.00 \pm 0.10}{(0.472 \pm 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.10}{(0.079 \pm 0.004)}$
Overall Tape Thickness	T	$\frac{0.40}{(0.016)}$ MAX.
Tape Width	W	$\frac{16.00 \pm 0.30}{(0.630 \pm 0.012)}$
Reel Width	W ₁	$\frac{22.7}{(0.893)}$ MAX.
Quantity per Reel	--	3,000

BOURNS®

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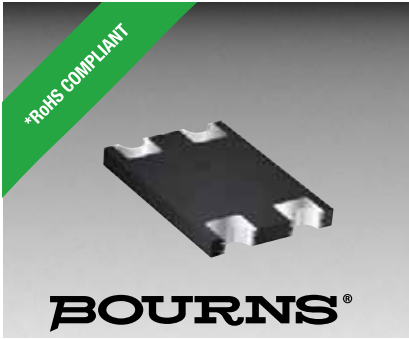
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Features

- RoHS compliant*
- Low power loss and high efficiency
- High current capability
- Low profile package

Applications

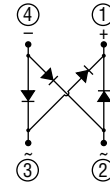
- AC operated products
- Computer monitors
- Set-top boxes
- Cable modems

CD-MBL2xxS(L) Series Surface Mount Bridge 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 Bridge Rectifier Diodes for rectification applications in compact chip package 0.23 " x 0.20 " size format, which offers PCB real estate savings and are considerably smaller than standard parts. The Bridge Rectifier Diodes offer a forward current of 2 A with a choice of repetitive peak reverse voltages between 600 V and 1000 V.



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

Parameter	Symbol	CD-						Unit
		MBL206S	MBL208S	MBL210S	MBL206SL	MBL208SL	MBL210SL	
Maximum Repetitive Peak Reverse Voltage	V _{RRM}	600	800	1000	600	800	1000	V
Maximum Average Forward Rectified Current (T _A = 55 °C)	I _{F(AV)}	2.0						A
Peak Forward Surge Current 8.3 ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method)	I _{FSM}	50.0			60.0			A
Operating Temperature Range	T _J	-55 to +175						°C
Storage Temperature Range	T _{STG}	-55 to +175						°C

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

Parameter	Symbol	CD-MBL2xxS(L)				Unit	
		Test Conditions		Min.	Typ.		Max.
Instantaneous Forward Voltage	V _F	I _F = 2 A	CD-MBL2xxS		0.95	1.0	V
			CD-MBL2xxSL		0.94	0.96	
Repetitive Peak Reverse Current	I _{RRM}	V _R = V _{RRM}	T _A = +25 °C		0.08	5.0	μA
Junction Capacitance	C _J	V _R = 4 V, f = 1.0 MHz	CD-MBL2xxS		25		pF
			CD-MBL2xxSL		35		
Thermal Resistance, Junction to Air (1)	R _{θJA}	CD-MBL2xxS			95		°C / W
		CD-MBL2xxSL			95		
Thermal Resistance, Junction to Lead (1)	R _{θJL}	CD-MBL2xxS			15		°C / W
		CD-MBL2xxSL			15		

NOTE 1: Measured when mounted on PCB with 5.0 mm x 5.0 mm (0.2 " x 0.2 ") copper pad areas.



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.

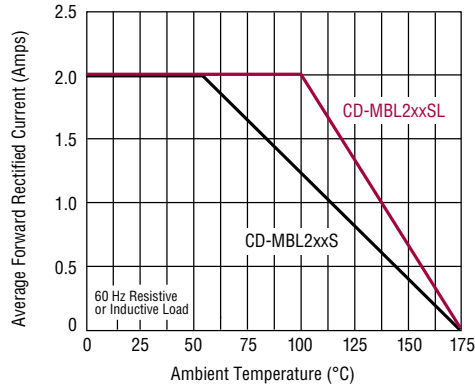
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CD-MBL2xxS(L) Series Surface Mount Bridge Rectifier Diode

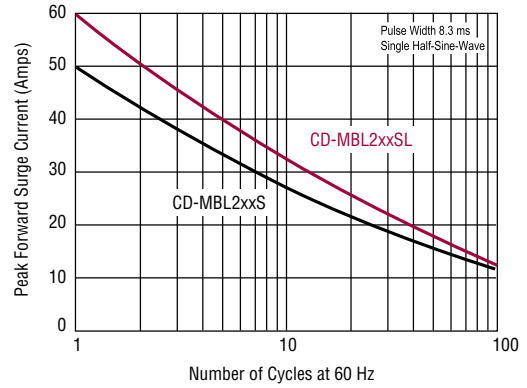


Rating and Characteristic Curves

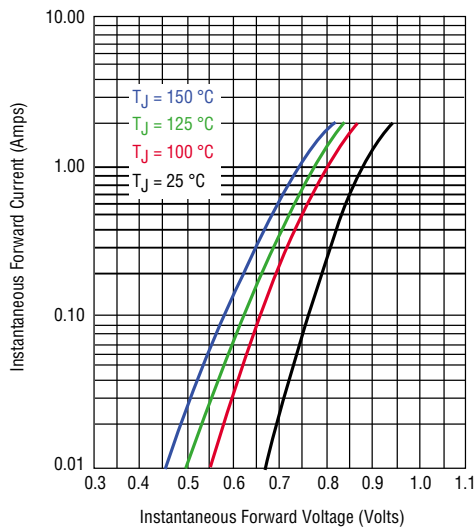
Forward Current Derating Curve



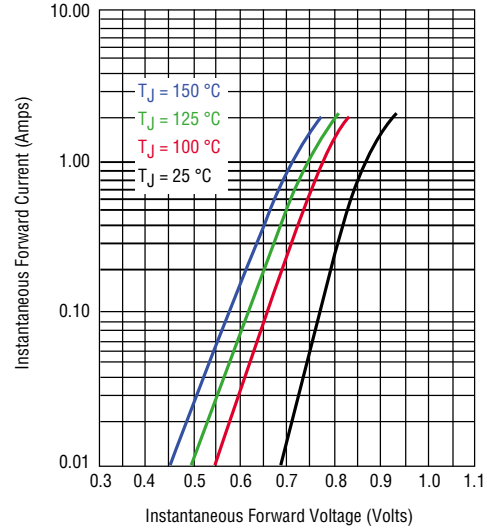
Maximum Non-Repetitive Peak Forward Surge Current



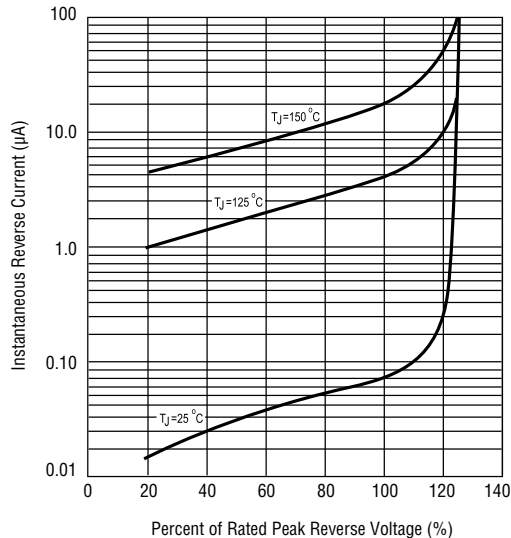
Forward Characteristics (CD2320-B2xxx)



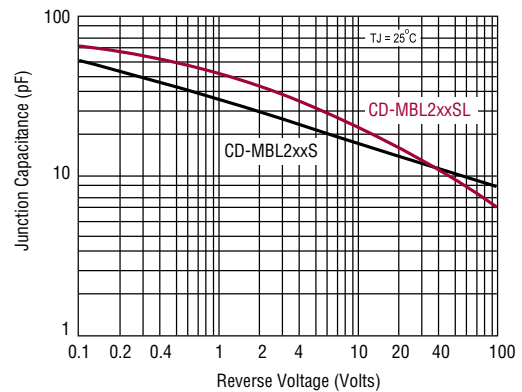
Forward Characteristics (CD-MBL2xxS(L))



Reverse Characteristics



Typical Junction Capacitance



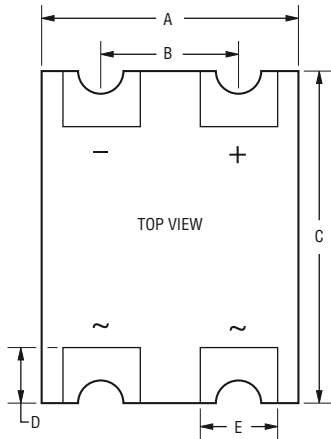
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CD-MBL2xxS(L) Series Surface Mount Bridge Rectifier Diode



Product Dimensions

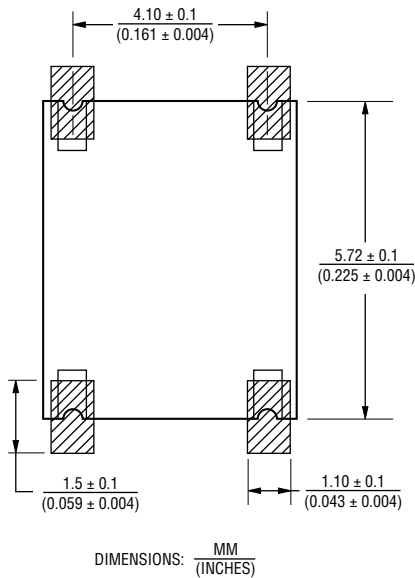
This is an RoHS2 compliant product, packaged with FRP substrate and is epoxy underfilled. The terminals are pure tin plated (lead free) and are solderable per MIL-STD-750, Method 2026. The package and dimensions are shown below.



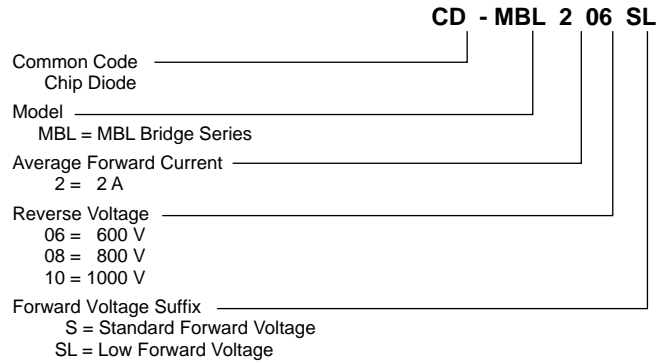
DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

Dimensions	
A	$\frac{5.20 - 5.40}{(0.205 - 0.213)}$
B	$\frac{4.10 - 4.30}{(0.161 - 0.169)}$
C	$\frac{5.70 - 5.90}{(0.224 - 0.232)}$
D	$\frac{1.00 - 1.20}{(0.039 - 0.047)}$
E	$\frac{0.85 - 0.95}{(0.033 - 0.037)}$
F	$\frac{1.05 - 1.35}{(0.0413 - 0.0531)}$

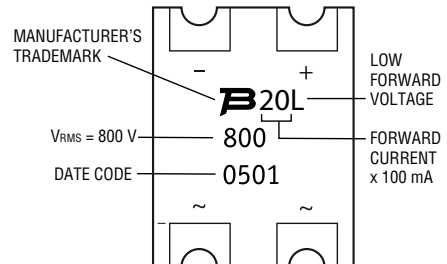
Recommended Footprint



How to Order



Typical Part Marking



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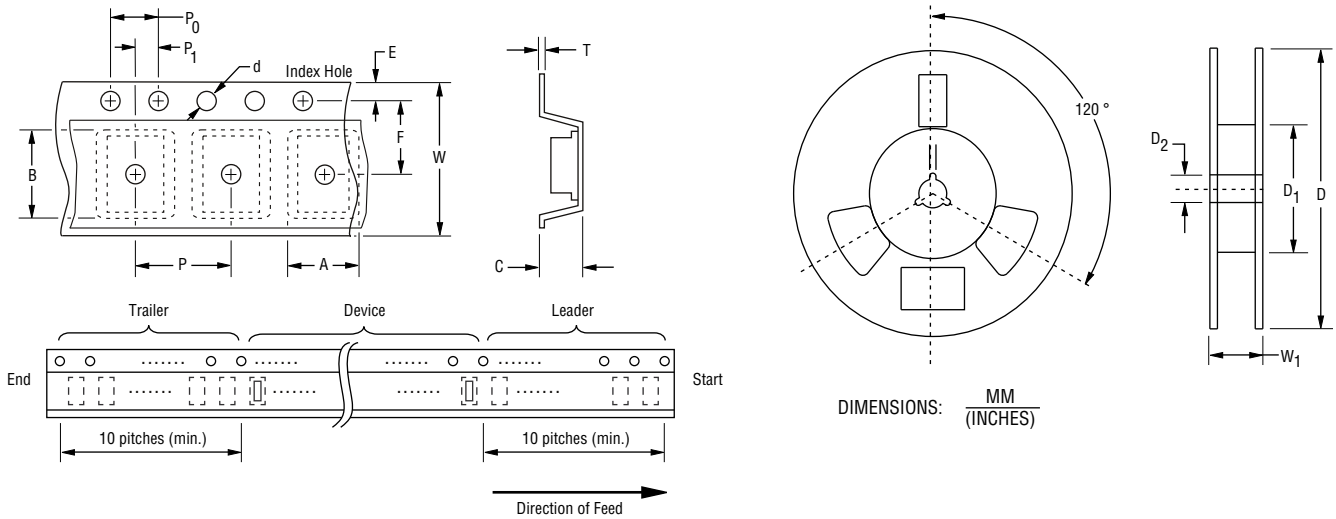
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CD-MBL2xxS(L) Series Surface Mount Bridge Rectifier Diode

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Packaging Information

The surface mount product is packaged in a 12 mm x 8 mm tape and reel format per EIA-481 standard.



Item	Symbol	CD-MBL2xxS(L)
Carrier Width	A	$\frac{5.90 \pm 0.10}{(0.232 \pm 0.004)}$
Carrier Length	B	$\frac{6.50 \pm 0.10}{(0.256 \pm 0.004)}$
Carrier Depth	C	$\frac{1.50 \pm 0.10}{(0.059 \pm 0.004)}$
Sprocket Hole	d	$\frac{1.55 \pm 0.05}{(0.061 \pm 0.002)}$
Reel Outside Diameter	D	$\frac{330}{(12.992)}$
Reel Inner Diameter	D ₁	$\frac{50.0}{(1.969)}$ MIN.
Feed Hole Diameter	D ₂	$\frac{13.0 \pm 0.20}{(0.512 \pm 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{5.50 \pm 0.05}{(0.217 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{8.00 \pm 0.10}{(0.315 \pm 0.004)}$
Sprocket Hole Pitch	P ₀	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P ₁	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.20 \pm 0.10}{(0.008 \pm 0.004)}$
Tape Width	W	$\frac{12.00 \pm 0.20}{(0.472 \pm 0.008)}$
Reel Width	W ₁	$\frac{18.7}{(0.736)}$ MAX.
Quantity per Reel	--	5,000

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