

Bourns®

Chip Diode Short Form Catalog



Reliable Electronic Solutions

Small Signal Switching Diodes Selection Guide

- Features**
- Leadless
 - Lead free
 - High-speed

- Applications**
- Desktop PCs & Notebooks
 - PDAs
 - Cellular Phones
 - Digital Cameras
 - MP3 Players

Application	Size	Part No	Absolute Maximum Rating (Ta = 25 °C)				Electrical Characterization (Ta = 25 °C)						
			V _{RRM} (v)	V _R (V)	I _O (mA)	I _{SURGE} (A)	V _F Max (V)		I _R Max (μA)		T _{rr} Max (ns)		
							I _F (mA)		V _R (V)		V _R (V)	I _F (mA)	
High Speed	0603	CD0603-S0180	90	80	100	1 (8.3 mS)	1	100	0.1	80	4	6	10
	0805	CD0805-S0180	90	80	100	1 (8.3 mS)	1	100	0.1	80	4	6	10
	1005	CD1005-S0180	90	80	100	1 (8.3 mS)	1	100	0.1	80	4	6	10
	1206	CD1206-S0180	90	80	100	1 (8.3 mS)	1	100	0.1	80	4	6	10
	0603	CD0603-S01575	100	75	150	4 (1.0 μS)	1	50	2.5	75	4	6	10
	0805	CD0805-S01575	100	75	150	4 (1.0 μS)	1	50	2.5	75	4	6	10
	1005	CD1005-S01575	100	75	150	4 (1.0 μS)	1	50	2.5	75	4	6	10
	1206	CD1206-S01575	100	75	150	4 (1.0 μS)	1	50	2.5	75	4	6	10
Low Leakage	0603	CD0603-S0180R	90	80	100	1 (8.3 mS)	1	100	0.05	75	4	6	10
	0805	CD0805-S0180R	90	80	100	1 (8.3 mS)	1	100	0.05	75	4	6	10
	1005	CD1005-S0180R	90	80	100	1 (8.3 mS)	1	100	0.05	75	4	6	10
	1206	CD1206-S0180R	90	80	100	1 (8.3 mS)	1	100	0.05	75	4	6	10

Schottky Barrier Diodes Selection Guide

- Features**
- Leadless
 - Lead free
 - Low Storage Charge

- Applications**
- Cellular Phones
 - PDAs
 - Desktop PCs & Notebooks
 - Digital Cameras
 - MP3 Players

Application	Size	Part No	Absolute Maximum Rating (Ta = 25 °C)				Electrical Characterization (Ta = 25 °C)						
			V _{RRM} (v)	V _R (V)	I _O (mA)	I _{SURGE} (A) 60Hz, 1 Cycle	V _F Max (V)		I _R Max (μA)		C _T Max (pF)		
							I _F (mA)		V _R (V)		V _R (V)	f (MHz)	
Small Signal I _O < 0.5 A	0603	CD0603-B00340	45	40	30	0.5	0.37	1	1	40	1.5	1	1
	0805	CD0805-B00340	45	40	30	0.5	0.37	1	1	40	2	1	1
	1005	CD1005-B00340	45	40	30	0.5	0.37	1	1	40	1.5	1	1
	0805	CD0805-B0130	30	30	100	1	1	100	2	25	6	10	1
	0603	CD0603-B0130L	35	30	100	1	0.44	100	30	30	9	10	1
	0805	CD0805-B0130L	35	30	100	1	0.44	100	30	30	12	10	1
	1005	CD1005-B0130L	35	30	100	1	0.44	100	30	30	9	10	1
	0603	CD0603-B0145	50	45	100	1	0.55	100	1	10	9	10	1
	0805	CD0805-B0145	50	45	100	1	0.55	100	1	10	10	10	1
	1005	CD1005-B0145	50	45	100	1	0.55	100	1	10	9	10	1
	0603	CD0603-B0230	35	30	200	2	0.50	200	30	30	12	10	1
	0805	CD0805-B0230	35	30	200	3	0.50	200	30	30	12	10	1
	1005	CD1005-B0230	35	30	200	3	0.50	200	30	30	12	10	1
	0603	CD0603-B0245	50	45	200	2	0.55	200	1	10	12	10	1
	0805	CD0805-B0245	50	45	200	3	0.55	200	1	10	12	10	1
	1005	CD1005-B0245	50	45	200	3	0.55	200	1	10	12	10	1

Schottky Rectifier Diodes Selection Guide

Features

- Surface Mount
- Low Profile
- Low Forward Voltage Drop

Applications

- Cellular Phones
- PDAs
- Desktop PCs & Notebooks
- Digital Cameras
- MP3 Players

Application	Size	Part No	Absolute Maximum Rating (Ta = 25 °C)				Electrical Characterization (Ta = 25 °C)						
			V _{RRM} (V)	V _R (V)	I _O (A)	I _{SURGE} (A) 60 Hz, 1 Cycle	V _F Max (V)		I _R Max (µA)		C _T Typ (pF)		
							I _F (A)	V _R (V)	V _R (V)	f (MHz)			
Rectification I ₀ = 1 A	SMA DO-214AC	CD214A-B120	20	20	1	30	0.50	1	500	20	110	4	1
		CD214A-B130	30	30	1	30	0.50	1	500	30	110	4	1
		CD214A-B130L	30	30	1	25	0.41	1	1000	25	100	4	1
		CD214A-B140	40	40	1	30	0.50	1	500	40	110	4	1
		CD214A-B150	50	50	1	30	0.70	1	500	50	110	4	1
		CD214A-B160	60	60	1	30	0.70	1	500	60	110	4	1
		CD214A-B170	70	70	1	30	0.79	1	500	70	30	4	1
		CD214A-B180	80	80	1	30	0.79	1	500	80	30	4	1
		CD214A-B190	90	90	1	30	0.79	1	500	90	30	4	1
	CD214A-B1100	100	100	1	30	0.79	1	500	100	30	4	1	
	Mini SMA 1607	CD1607-B120	20	20	1	30	0.50	1	500	20	110	4	1
		CD1607-B120L	20	20	1	30	0.38	1	500	20	100	4	1
		CD1607-B140	40	40	1	30	0.50	1	500	40	110	4	1
		CD1607-B140L	40	40	1	30	0.40	1	500	40	110	4	1
CD214A-B220		20	20	2	50	0.50	2	500	20	200	4	1	
Rectification I ₀ = 2 A	SMA DO-214AC	CD214A-B230	30	30	2	50	0.50	2	500	30	200	4	1
		CD214A-B240	40	40	2	50	0.50	2	500	40	200	4	1
		CD214A-B240L	40	40	2	25	0.43	2	2000	40	200	4	1
		CD214A-B250	50	50	2	50	0.70	2	500	50	200	4	1
		CD214A-B260	60	60	2	50	0.70	2	500	60	200	4	1
		CD214A-B320	20	20	3	100	0.50	3	500	20	250	4	1
Rectification I ₀ = 3 A	SMA DO-214AC	CD214A-B330	30	30	3	100	0.50	3	500	30	250	4	1
		CD214A-B340	40	40	3	100	0.50	3	500	40	250	4	1
		CD214A-B340L	40	40	3	70	0.45	3	1000	40	300	4	1
		CD214A-B350	50	50	3	100	0.70	3	500	50	250	4	1
		CD214A-B360	60	60	3	100	0.70	3	500	60	250	4	1

MITE Diode Selection Guide

Features

- Surface Mount
- Low Profile
- Low Forward Voltage
- Low Reverse Current

Applications

- Cellular Phones
- PDAs
- Desktop PCs & Notebooks
- Digital Cameras
- MP3 Players

Application	Size	Part No	Absolute Maximum Rating (Ta = 25 °C)				Electrical Characterization (Ta = 25 °C)						
			V _{RRM} (V)	V _R (V)	I _O (A)	I _{SURGE} (A) 60Hz, 1 Cycle	V _F Max (V)		I _R Max (µA)		C _T Typ (pF)		
							I _F (A)	V _R (V)	V _R (V)	f (MHz)			
Rectification I ₀ = 1 A	DO-216AA	CD216A-B120R	20	20	1	50	0.53	1	10	20	75	4	1
		CD216A-B120L	20	20	1	50	0.45	1	400	20	90	4	1
		CD216A-B130L	30	30	1	50	0.38	1	410	30	70	4	1
		CD216A-B140	40	40	1	40	0.55	1	500	40	60	4	1

Available Packages

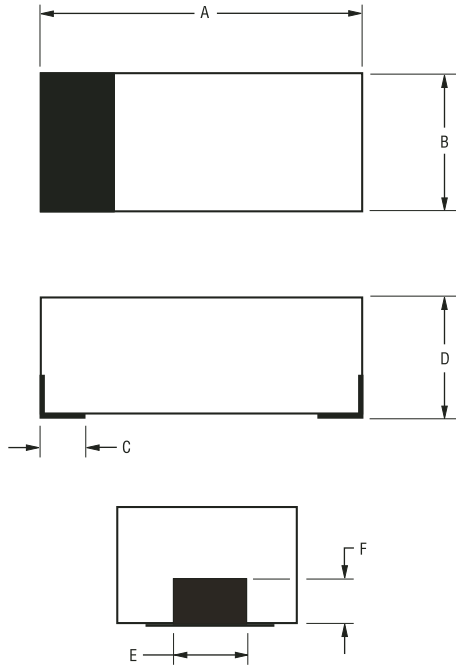


Figure 1

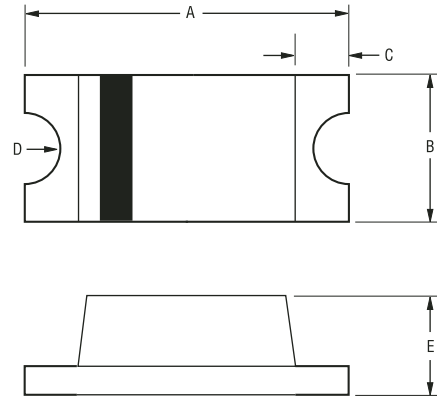


Figure 2

Package	0603	0805	1005	1206
Competition Package	SOD-523	MicroMELF	SOD-323	SOD-123 SOD-80C MiniMELF
Dimension Outline	Figure 1	Figure 2	Figure 1	Figure 2
A	1.60 - 1.80 (0.063 - 0.071)	2.00 - 2.20 (0.079 - 0.087)	2.40 - 2.60 (0.095 - 0.102)	3.00 - 3.20 (0.118 - 0.126)
B	0.80 - 1.00 (0.031 - 0.039)	1.20 - 1.40 (0.047 - 0.055)	1.10 - 1.30 (0.043 - 0.051)	1.40 - 1.60 (0.055 - 0.063)
C	0.25 (0.010) Typ	0.40 (0.016) Typ	0.35 (0.014) Typ	0.50 (0.020) Typ
D	0.70 - 0.85 (0.027 - 0.033)	0.20 (0.008) R Typ	0.70 - 0.90 (0.027 - 0.035)	0.25 (0.010) R Typ
E	0.35 (0.014) Typ	0.90 - 1.10 (0.035 - 0.043)	0.35 (0.014) Typ	0.90 - 1.10 (0.035 - 0.043)
F	0.30 (0.012) Typ		0.30 (0.012) Typ	

$$\text{Dimensions} = \frac{\text{mm}}{\text{(inches)}}$$

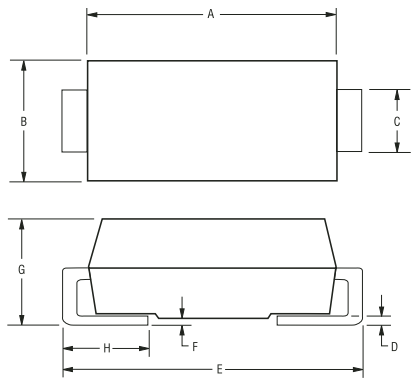


Figure 3

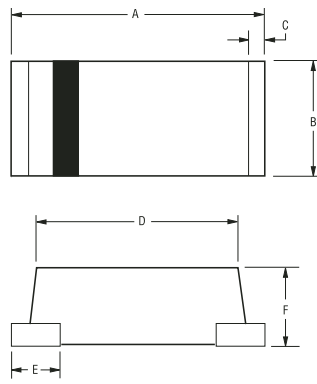


Figure 4

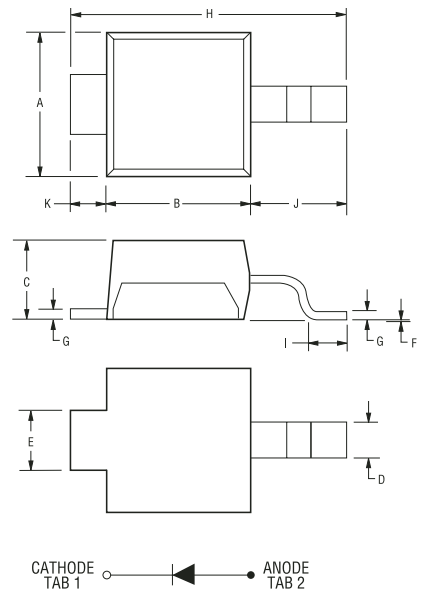
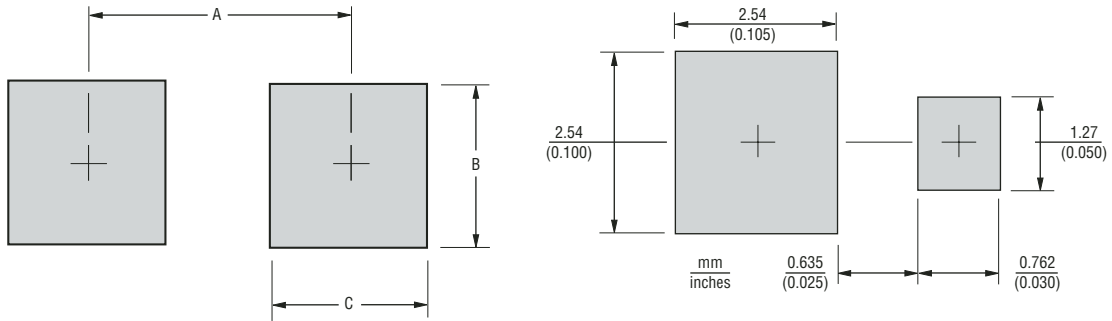


Figure 5

Package	214A SMA	1607 Mini SMA	216A
Competition Package	DO-214AC SMA	SOD-123	DO-216AA
Dimension Outline	Figure 3	Figure 4	Figure 5
A	$\frac{4.06 - 4.57}{(0.160 - 0.180)}$	$\frac{3.70 - 4.10}{(0.146 - 0.161)}$	$\frac{1.75 - 2.05}{(0.068 - 0.081)}$
B	$\frac{2.29 - 2.92}{(0.090 - 0.115)}$	$\frac{1.40 - 1.80}{(0.055 - 0.071)}$	$\frac{1.80 - 2.20}{(0.071 - 0.087)}$
C	$\frac{1.27 - 1.63}{(0.050 - 0.064)}$	$\frac{0.30}{(0.012)}$ Typ	$\frac{0.95 - 1.25}{(0.037 - 0.049)}$
D	$\frac{0.15 - 0.31}{(0.006 - 0.110)}$	$\frac{2.40 - 2.80}{(0.094 - 0.110)}$	$\frac{0.42 - 0.68}{(0.016 - 0.027)}$
E	$\frac{4.83 - 5.59}{(0.190 - 0.220)}$	$\frac{0.90}{(0.035)}$ Typ	$\frac{0.70 - 1.00}{(0.027 - 0.040)}$
F	$\frac{0.05 - 0.20}{(0.002 - 0.008)}$	$\frac{1.40 - 1.60}{(0.055 - 0.063)}$	$\frac{-0.05 - +0.10}{(-0.0002 - +0.004)}$
G	$\frac{2.01 - 2.62}{(0.080 - 0.103)}$		$\frac{0.10 - 0.25}{(0.004 - 0.010)}$
H	$\frac{0.76 - 1.52}{(0.030 - 0.060)}$		$\frac{3.65 - 3.95}{(0.144 - 0.155)}$
I			$\frac{0.40 - 0.70}{(0.016 - 0.027)}$
J			$\frac{1.10 - 1.50}{(0.043 - 0.059)}$
K			$\frac{0.20 - 0.80}{(0.008 - 0.031)}$

$$\text{Dimensions} = \frac{\text{mm}}{\text{(inches)}}$$

Recommended Pad Layout



216A Pad Layout

Package Comparison

Package	0603	0805	1005	1206	1607	214A
Competition Package	SOD-523	SOD-323 MicroMELF	SOD-323 MicroMELF	SOD-80C MicroMELF	SOD-123 Mini SMA	DO-214A SMA
A (Max.)	1.70 (0.067)	2.10 (0.082)	2.10 (0.082)	3.00 (0.118)	3.50 (0.138)	3.70 (0.146)
B (Max.)	0.80 (0.031)	1.20 (0.047)	1.20 (0.047)	1.60 (0.063)	1.50 (0.059)	2.10 (0.083)
C (Max.)	0.60 (0.024)	1.20 (0.047)	1.20 (0.047)	1.40 (0.055)	1.50 (0.059)	1.27 (0.050)

How To Order

CD 1206 - S 01 80 R

Common Code	Package	Model	1-3 Digit / I	2-3 Digit / Vr	1 Digit / Suffix
Chip Diode	0603: Dimension	S: High Speed Switching	Exp: Digit x 1000mA	Exp: Digit x Volts	R: Low Leakage
	0805: Dimension	B: Schottky Barrier	1: 1 A	10: 10 V	L: Low Vf
	1005: Dimension		01: 100 mA	40: 40 V	
	1206: Dimension		003: 30 mA	80: 80 V	
	1607: Mini SMA				
	214A: SMA/DO-214AC				
	216A: DO-216AA				

Chip Diode Products

The Chip Diode product family offers small-signal High-Speed Switching Diodes, Schottky Barrier Diodes and Schottky Rectifier Diodes. The Chip Diode products are designed to meet the industry demand for smaller electronic components with extremely low power consumption and maximum stand-by time.

The Bourns® Chip Diode product range provides distinct advantages, such as:

- *Package Size: The 0603, 0805, 1005 and 1206 Chip Diodes are LEADLESS, allowing designers to make real estate savings on PCB layouts.*
- *Environmental: All small-signal diode terminations are LEAD FREE due to the Cu/Ni/Au plating. Units meet many worldwide industry and government regulations on lead free components.*
- *Manufacturing Friendly: Bourns® Chip Diodes conform to JEDEC standards, are easy to handle on standard pick and place equipment and their flat configuration minimizes roll away.*

Chip Diodes are the economical choice for applications in the telecom, industrial, automotive and computer markets. Typical end product applications for the Chip Diode product series include Cellular Phones, PDAs, Desktop PCs, Notebooks, Digital Cameras and MP3 Players.

High-Speed Switching Chip Diode Series

Bourns offers small-signal high-speed Switching Diodes for switching digital signal applications in compact chip packages such as 0603, 0805, 1005 and 1206 size formats, which offer PCB real estate savings and are considerably smaller than competi-

tive parts. The Switching Diodes offer a forward current of 100 mA or 150 mA, a reverse voltage of 80 V or 75 V and a low leakage reverse current option.

Schottky Barrier Chip Diode Series

Bourns offers small-signal Schottky Barrier Diodes for switching and rectification applications in compact chip packages such as 0603, 0805 and 1005 size formats, which offer PCB real estate savings and are considerably smaller than competitive parts. The Schottky Barrier Diodes offer a forward current of 30 mA, 100 mA or 200 mA, a reverse voltage of 30 V, 40 V or 45V and a low forward voltage option.

Schottky Rectifier Chip Diode Series

Bourns offers Schottky Rectifier Diodes for rectification applications in standard chip package DO-214AC (SMA) and 1607 (MiniSMA) size format which offer PCB real estate savings and are considerably smaller than competitive parts. The CD214-B1 Schottky Rectifier Diode Series offers a forward current of 1 A with a choice of repetitive peak reverse voltage of 20 V up to 100 V while the CD1607-B1 series offers a forward current of 1 A with repetitive peak reverse voltage of 20 V up to 40 V. The CD214-B2 and CD214-B3 Schottky Rectifier Diodes offer a forward current of 2 A and 3 A respectively with repetitive peak reverse voltage of 20 V up to 60 V.

The Chip Diode Series are available in 7 inch tape and reel packaging and can be picked and placed by most standard equipment. Sample quantities are available for evaluation.

Symbols & Terms

I_O Average Rectified Current

I_F Forward Current

I_R Reverse Current

I_{SURGE} Non-Repetitive Forward Peak Current

V_F Forward Voltage

V_R Reverse Voltage

V_{RRM} Repetitive Reverse Peak Voltage

T_{RR} Reverse Recovery Time

C_T Diode Capacitance

P_D Power Dissipation

T_J Junction Temperature

T_{STG} Storage Temperature



Worldwide Sales Offices

Country	Phone	Fax
Benelux:	+31 (0)70 300 4333	+31 (0)70 300 4345
China:	+86 21 64821250	+86 21 64821249
France:	+33 (0)2 5473 5151	+33 (0)2 5473 5156
Germany:	+49 (0)69 800 78212	+49 (0)69 800 78299
Hong Kong:	+852 2411 5599	+852 2412 3611
Ireland:	+44 (0)1276 691087	+44 (0)1276 691088
Italy:	+390 2 389 00041	+390 2 389 00042
Japan:	+81 49 269 3204	+81 49 269 3297
Malaysia (KL Office):	+603 71183138	+603 71183139
Malaysia (Penang Office):	+604 6581771	+604 6582771
Singapore:	+65 63461933	+65 63461911
Switzerland:	+41 (0)41 768 5555	+41 (0)41 768 5510
Taiwan:	+886 2 25624117	+886 2 25624116
UK:	+44 (0)1276 691087	+44 (0)1276 691088
USA:	+1-909-781-5500 +1-951-781-5500	+1-909-781-5006 +1-951-781-5006 (after 7/17/04)
Non-Listed European Countries:	+41 (0)41 768 5555	+41 (0)41 768 5510

Technical Assistance

Region	Phone	Fax
Asia-Pacific:	+886 2 25624117	+886 2 25624116
Europe:	+41 (0)41 768 5555	+41 (0)41 768 5510
North America:	+1-909-781-5500 +1-951-781-5500	+1-909-781-5700 +1-951-781-5700 (after 7/17/04)

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Reliable Electronic Solutions

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