FAIRCHILD SEMICONDUCTOR™

MBR0520L

SCHOTTKY POWER RECTIFIER

General Description:

Schottky Barrier Diodes make use of the rectification effect of a metal to silicon barrier. They are ideally suited for high frequency rectification in switching regulators & converters. This device offers a low forward voltage performance in a power surface mount package in applications where size and weight are critical.

Features:

- Compact surface mount with same footprint as mini-melf
- 400 milliwatt Power Dissipation package.
- 1.0 Ampere, forward voltage less than 600 mv

Ordering:

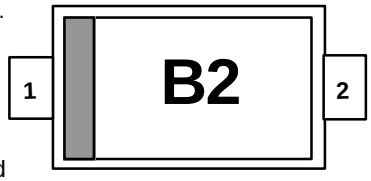
- 7 inch reel (178 mm); 8 mm Tape; 3,000 units per reel.

Absolute Maximum Ratings (note 1) TA = 25°C unless otherwise noted

Parameter	Value	Units
Storage Temperature	-65 to +150	°C
Maximum Junction Temperature	-65 to +125	°C
Repetitive Peak Reverse Voltage (V_{RRM})	20	V
Working Peak Reverse Voltage (V_{RWM})	20	V
DC Blocking Voltage (V_R)	20	V
Average Rectified Forward Current (Rated V_R)	500	mA
Surge Non Repetitive Forward Current (Surge applied at rated load conditions half wave, single phase, 60 Hz)	5.5	A
Thermal Resistance ($R_{\Theta JA}$) Junction to Ambient (note 2)	340	°C/W
Thermal Resistance ($R_{\Theta JL}$) Junction to Lead	150	°C/W

Note 1: These ratings are limiting values above which the serviceability of any semiconductor device may be impaired

Note 2: FR-4 or FR-5 = 3.5 x 1.5 inches using minimum recommended Land Pads.



Actual Size

Electrical Characteristics TA = 25°C unless otherwise noted

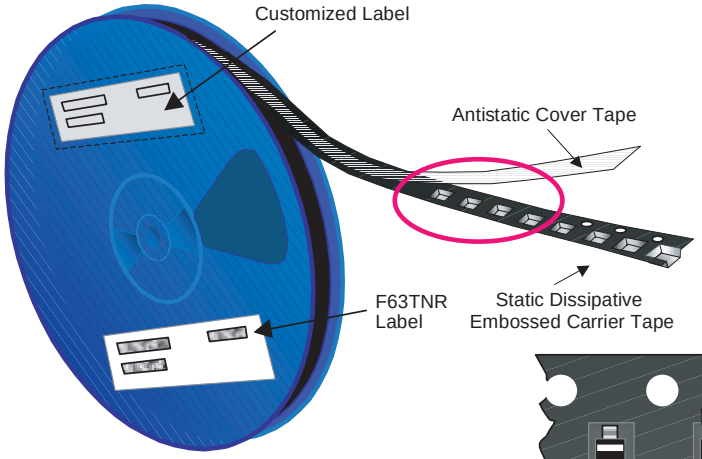
SYM	CHARACTERISTICS	MIN	MAX	UNITS	TEST CONDITIONS
I_R	Reverse Leakage		75	uA	V_R = 10 V T_A = 25°C
			5.0	mA	V_R = 10 V T_A = 100°C
			250	uA	V_R = 20 V T_A = 25°C
			8.0	mA	V_R = 20 V T_A = 100°C
V_F	Forward Voltage		300	mV	I_F = 100 mA T_A = 25°C
	V_F Pulse width = 300 us, Duty Cycle ≤ 2%		220	mV	I_F = 100 mA T_A = 100°C
			385	mV	I_F = 500 mA T_A = 25°C
			330	mV	I_F = 500 mA T_A = 100°C

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SOD-123 Tape and Reel Data and Package Dimensions

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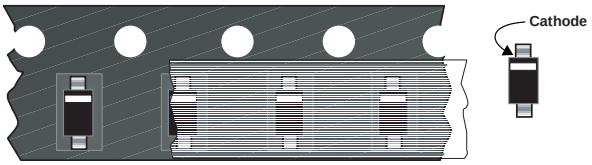
SOD123 Packaging
Configuration: Figure 1.0



Packaging Description:

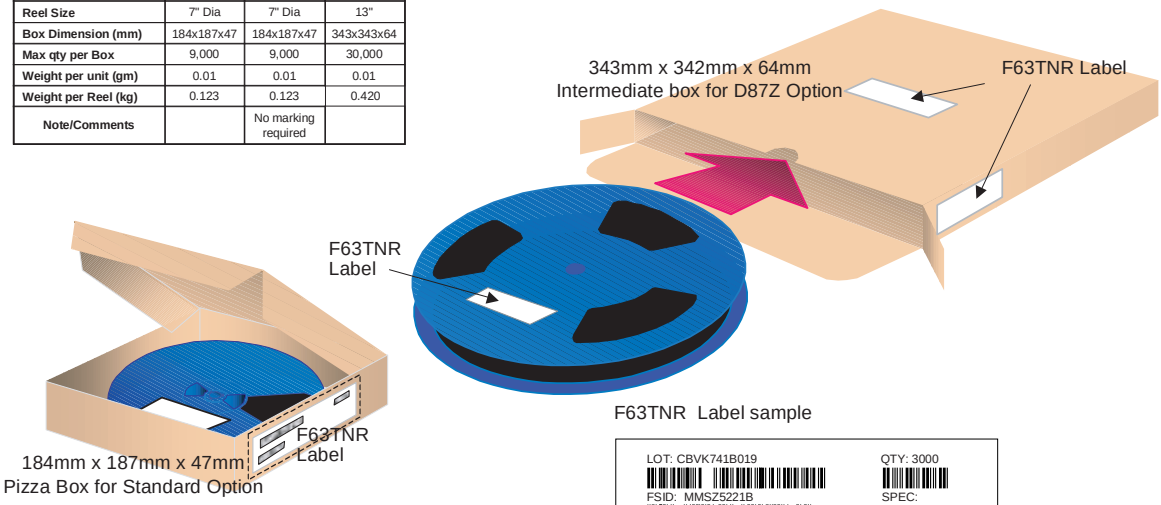
SOD123 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 177cm diameter reel. The reels are dark blue in color and is made of polystyrene plastic (anti-static coated). Other option comes in 10,000 units per 13" or 330cm diameter reel. This and some other options are described in the Packaging Information table.

These full reels are individually barcode labeled and placed inside a pizza box (illustrated in figure 1.0) made of recyclable corrugated brown paper with a Fairchild logo printing. One pizza box contains three reels maximum. And these pizza boxes are placed inside a barcode labeled shipping box which comes in different sizes depending on the number of parts shipped.



SOD123 Unit Orientation

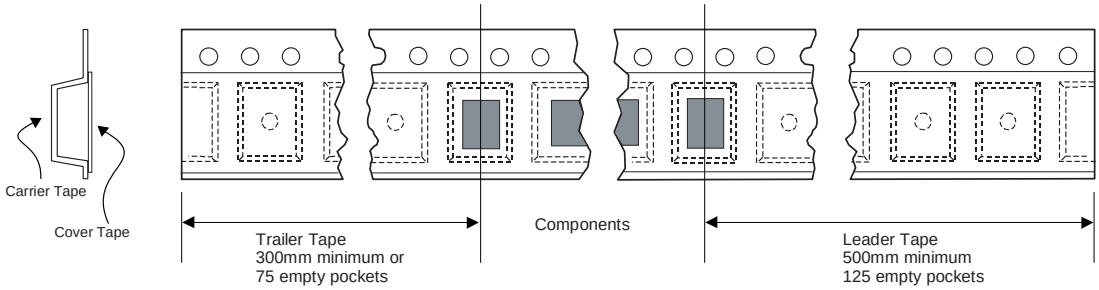
SOD123 Packaging Information			
Packaging Option	Standard (no flow code)	L99Z	D87Z
Packaging type	TNR	TNR	TNR
Qty per Reel/Tube/Bag	3,000	3,000	10,000
Reel Size	7" Dia	7" Dia	13"
Box Dimension (mm)	184x187x47	184x187x47	343x343x64
Max qty per Box	9,000	9,000	30,000
Weight per unit (gm)	0.01	0.01	0.01
Weight per Reel (kg)	0.123	0.123	0.420
Note/Comments		No marking required	



F63TNR Label sample



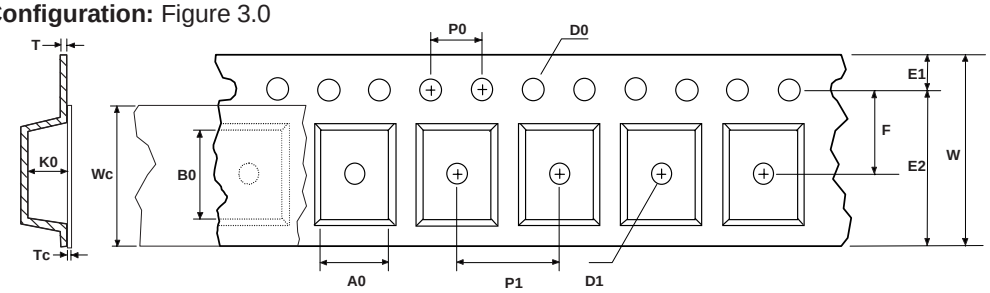
SOD123 Tape Leader and Trailer
Configuration: Figure 2.0



SOD-123 Tape and Reel Data and Package Dimensions, continued

SOD123 Embossed Carrier Tape

Configuration: Figure 3.0



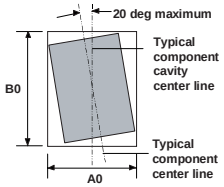
User Direction of Feed

Dimensions are in millimeter														
Pkg type	**A0**	**B0**	**W**	**D0**	**D1**	**E1**	**E2**	**F**	**P1**	**P0**	**K0**	**T**	**Wc**	**Tc**
SOD123 (8mm)	1.85 +/-0.10	3.94 +/-0.10	8.0 +/-0.3	1.50 +/-0.10	1.125 +/-0.125	1.75 +/-0.10	6.25 min	3.50 +/-0.05	4.0 +/-0.1	4.0 +/-0.1	1.50 +/-0.10	0.200 +/-0.020	5.2 +/-0.2	0.06 +/-0.02

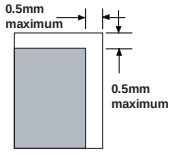
Notes: A0, B0, and K0 dimensions are determined with respect to the EIA/Jedec RS-481 rotational and lateral movement requirements (see sketches A, B, and C).



Sketch A (Side or Front Sectional View)
Component Rotation

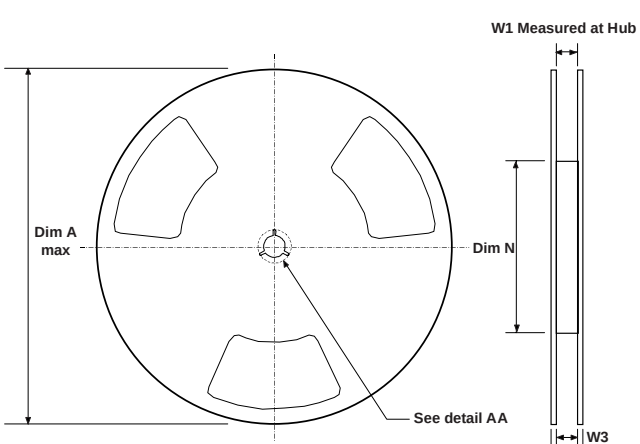


Sketch B (Top View)
Component Rotation

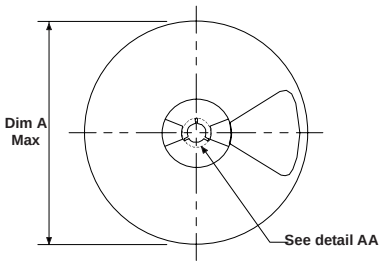


Sketch C (Top View)
Component lateral movement

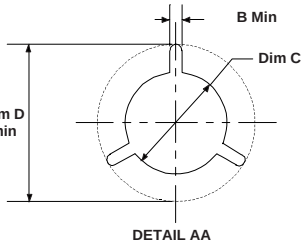
SOD123 Reel Configuration: Figure 4.0



13" Diameter Option



7" Diameter Option



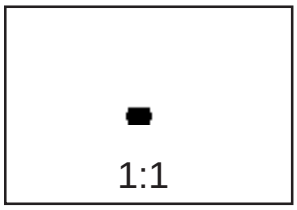
DETAIL AA

Dimensions are in inches and millimeters									
Tape Size	**Reel Option**	**Dim A**	**Dim B**	**Dim C**	**Dim D**	**Dim N**	**Dim W1**	**Dim W2**	**Dim W3 (LSL-USL)**
8mm	7" Dia	7.00 177.8	0.059 1.5	512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	2.165 55	0.331 +0.059/-0.000 8.4 +1.5/0	0.567 14.4	0.311 – 0.429 7.9 – 10.9
8mm	13" Dia	13.00 330	0.059 1.5	512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	4.00 100	0.331 +0.059/-0.000 8.4 +1.5/0	0.567 14.4	0.311 – 0.429 7.9 – 10.9

SOD-123 Tape and Reel Data and Package Dimensions, continued

SOD-123 (FS PKG Code D6)

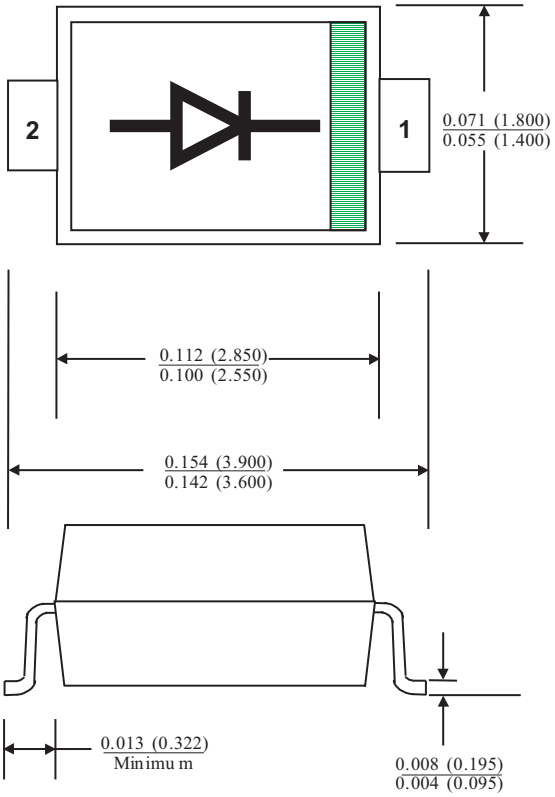


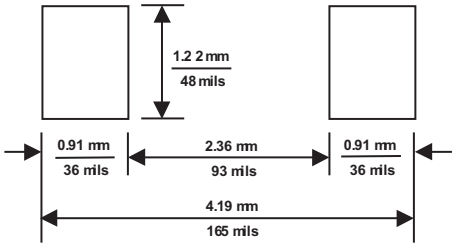


Scale 1:1 on letter size paper

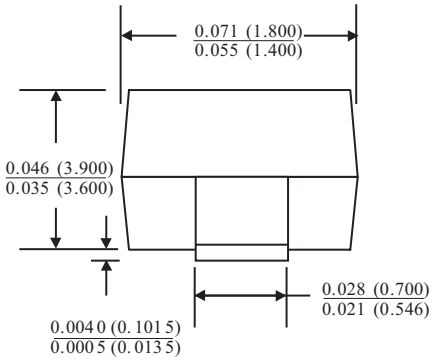
Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.01





SOD-123 LAND PADS



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