

# 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:**

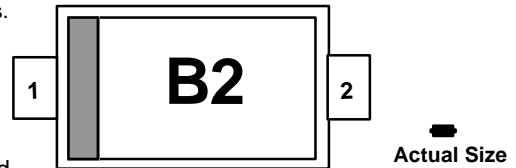
- 7 inch reel (178 mm); 8 mm Tape; 3,000 units per reel.

**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.



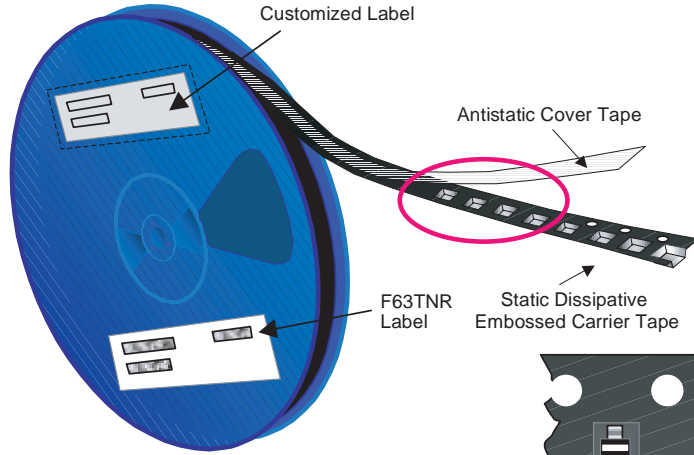
**Electrical Characteristics** TA = 25°C unless otherwise noted

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

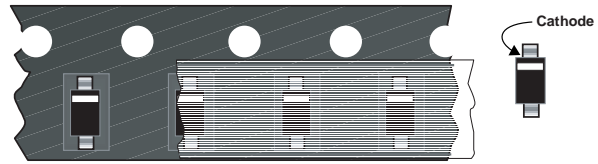
# SOD-123 Tape and Reel Data and Package Dimensions



## SOD123 Packaging Configuration: Figure 1.0

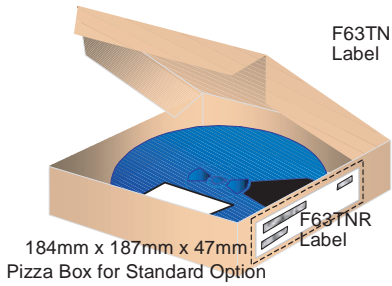
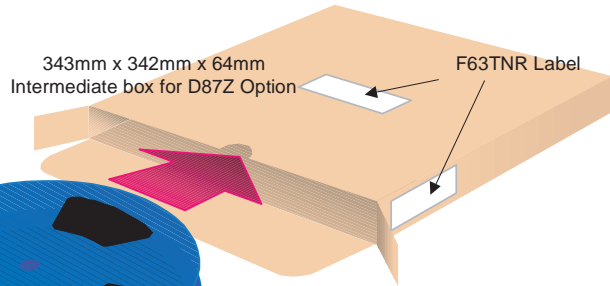


**Packaging Description:**  
 SOD123 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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

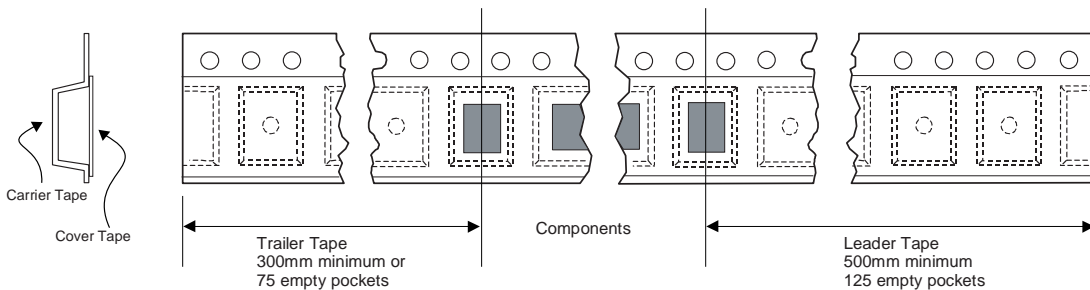
SOD123 Packaging Information			
Packaging Option	Standard (no flow code)	L99Z	D87Z
Packaging type	TNR	TNR	TNR
Qty per Reel/Tube/Bag	3,000	3,000	10,000
Reel Size	7" Dia	7" Dia	13"
Box Dimension (mm)	184x187x47	184x187x47	343x343x64
Max qty per Box	9,000	9,000	30,000
Weight per unit (gm)	0.01	0.01	0.01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



F63TNR Label sample

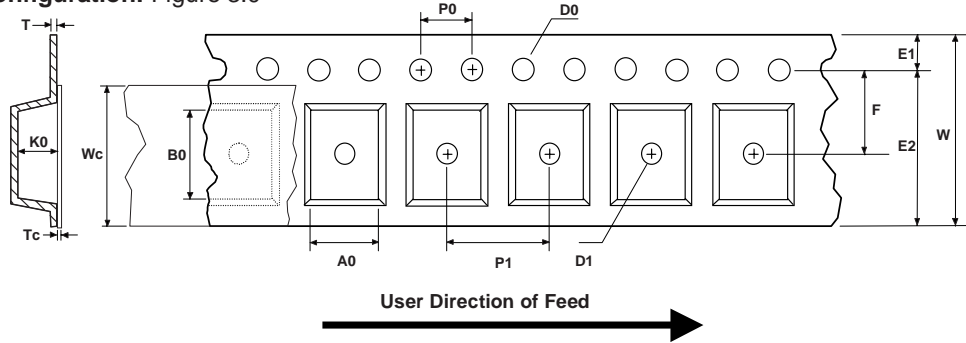


## SOD123 Tape Leader and Trailer Configuration: Figure 2.0



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

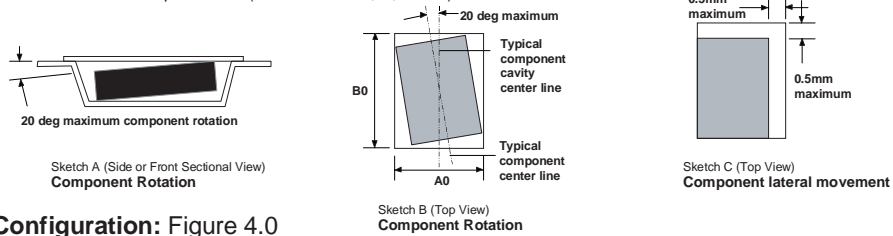
## SOD123 Embossed Carrier Tape Configuration: Figure 3.0



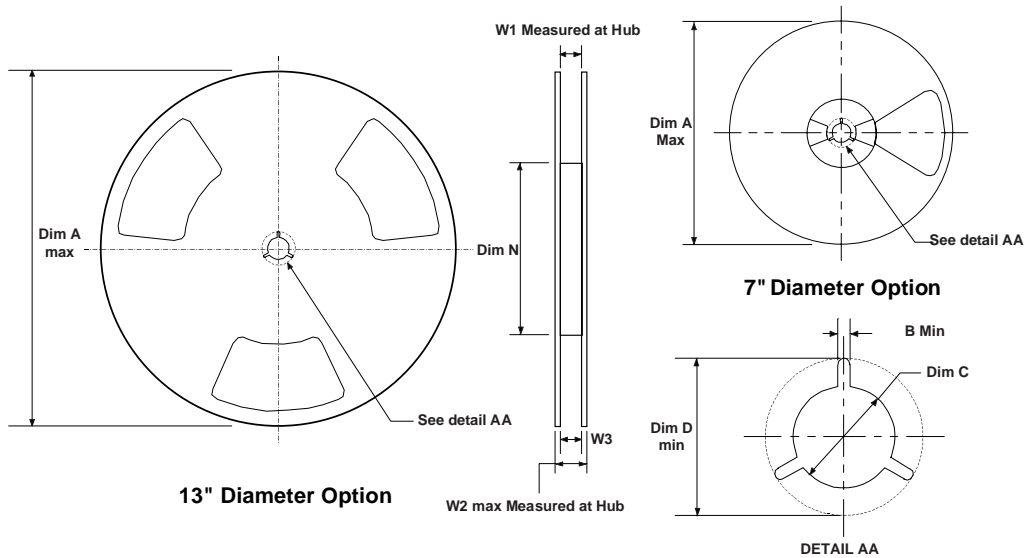
Dimensions are in millimeter

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).



## SOD123 Reel Configuration: Figure 4.0

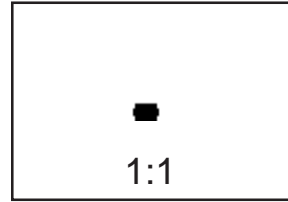


Dimensions are in inches and millimeters

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

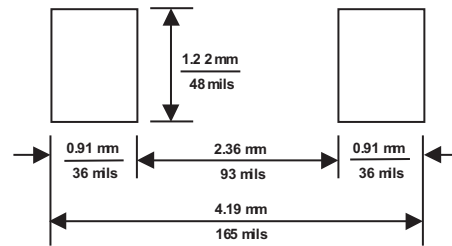
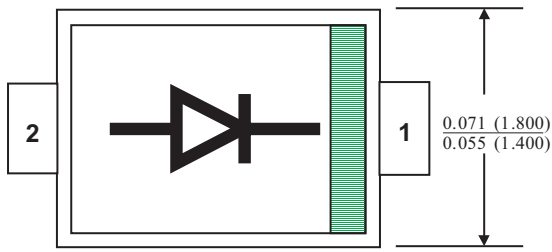
SOD-123 (FS PKG Code D6)



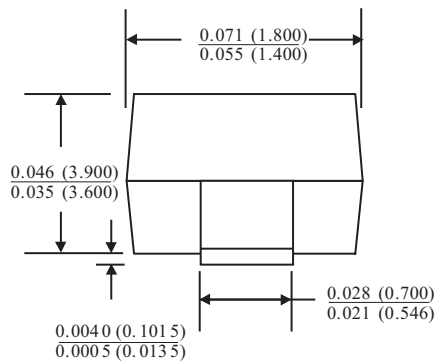
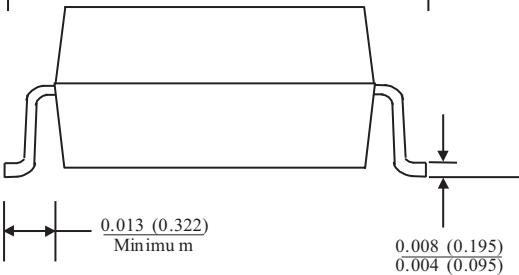
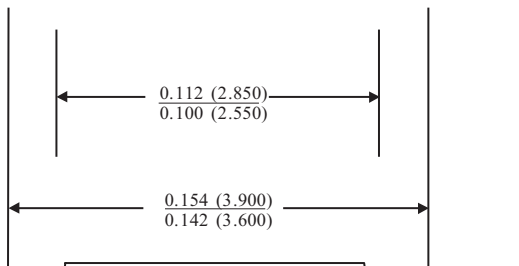
Scale 1:1 on letter size paper

Dimensions shown below are in:  
inches [millimeters]

Part Weight per unit (gram): 0.01



SOD-123 LAND PADS



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FAST®	Quiet Series™	
FASTr™	SuperSOT™-3	
GTO™	SuperSOT™-6	

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