

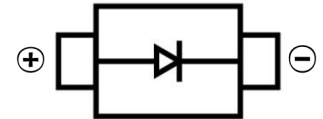
SCHOTTKY BARRIER DIODE

Features

- Ultra Thin Profile – Maximum Height of 1.08 mm
- High Surge Capacity
- UL Flammability 94V-0 Classification
- MSL 1
- RoHS Compliant / Green Mold Compound
- Industrial Device Qualified per AEC-Q101 Standards.
- * see authorized use policy



SOD-123FL



Ordering Information

Part Number	Top Mark	Package	Packing Method
MBR1020VL	RL	SOD-123F	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	20	V
$I_{F(AV)}$	Average Rectified Forward Current	1.0	A
I_{FSM}	Non-Repetitive Peak Surge Current: Surge Applied at Rated Load Conditions, Half wave, Single Phase, 60Hz	45	A
dv/dt	Voltage Rate of Change	1000	V/ μs
T_J	Operating Junction Temperature Range	-55 to +125	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-55 to +125	$^\circ\text{C}$

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Thermal Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Typical Thermal Resistance, Junction-to-Ambient ⁽¹⁾	200	$^\circ\text{C/W}$
ψ_{JL}	Typical Thermal Characteristics, Junction-to-Lead ⁽²⁾	70	$^\circ\text{C/W}$

Notes:

1. Mounted with minimum recommended pad size, PC board FR4.
2. Mounted on a FR4 PCB, single-sided copper, with 10cm * 10cm copper pad area.

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Instantaneous Forward Voltage ⁽³⁾	$I_F = 0.1 \text{ A}$			0.275	V
		$I_F = 0.1 \text{ A}, T_A = 85^\circ\text{C}$			0.205	
		$I_F = 0.5 \text{ A}$			0.315	
		$I_F = 0.5 \text{ A}, T_A = 85^\circ\text{C}$			0.270	
		$I_F = 1.0 \text{ A}$			0.340	
		$I_F = 1.0 \text{ A}, T_A = 85^\circ\text{C}$			0.300	
I_R	Instantaneous Reverse Current at Rated DC Voltage ⁽³⁾	$T_A = 25^\circ\text{C}$			0.60	mA
		$T_A = 85^\circ\text{C}$			15	
T_{rr}	Reverse Recovery Time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = 0.25 \text{ A}$		12.4		ns

Note:

3. Pulse test: pulse width = 300 μs , duty cycle < 2%

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Typical Performance Characteristics

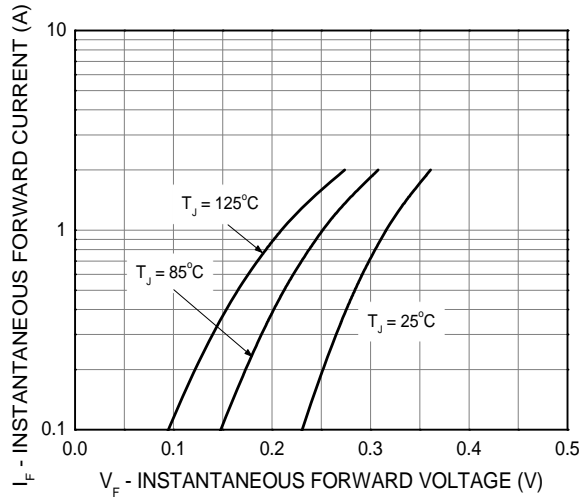


Figure 1. Typical Forward Characteristics

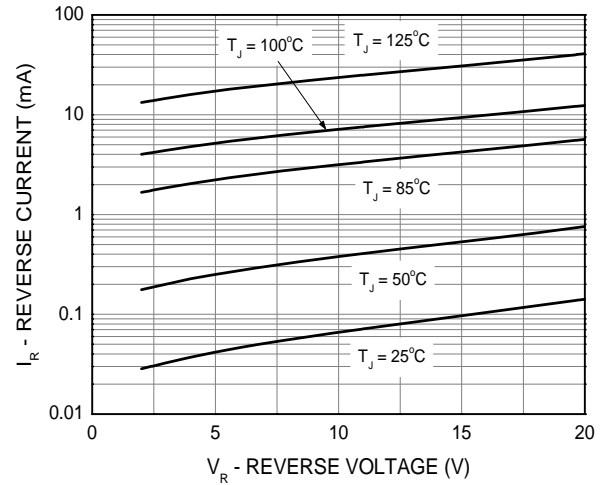


Figure 2. Typical Reverse Characteristics

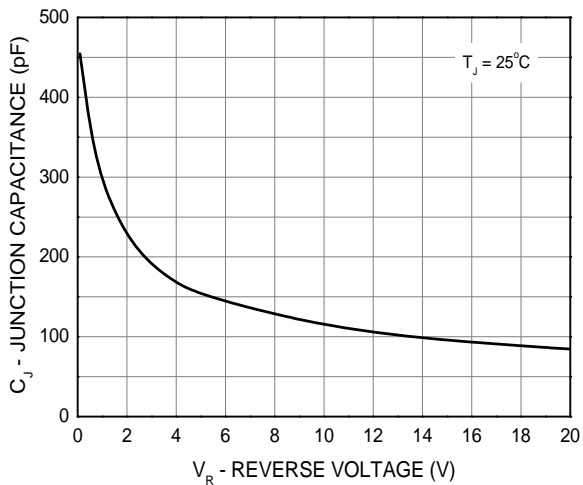
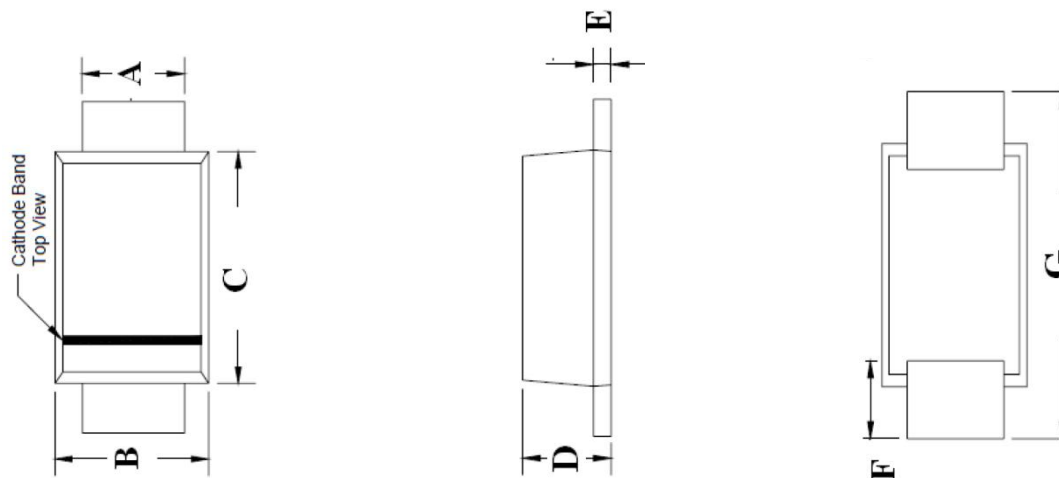


Figure 3. Capacitance

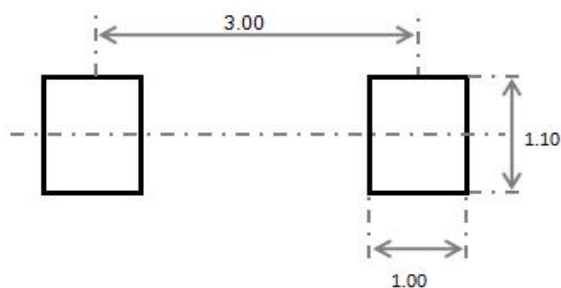
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SOD-123FL Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.75	0.95	0.029	0.037
B	1.60	2.00	0.063	0.079
C	2.60	3.00	0.103	0.119
D	0.90	1.20	0.036	0.047
E	0.12	0.22	0.005	0.009
F	0.8Typ		0.032Typ	
G	3.50	3.90	0.138	0.159

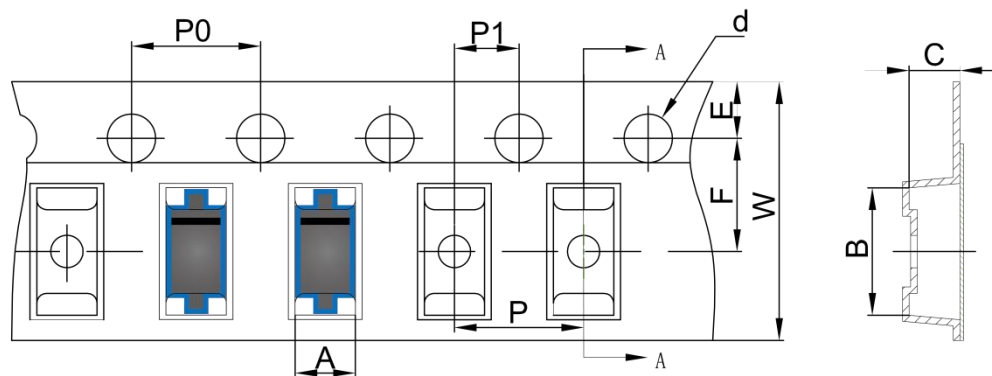
SOD-123FL Suggested Pad Layout



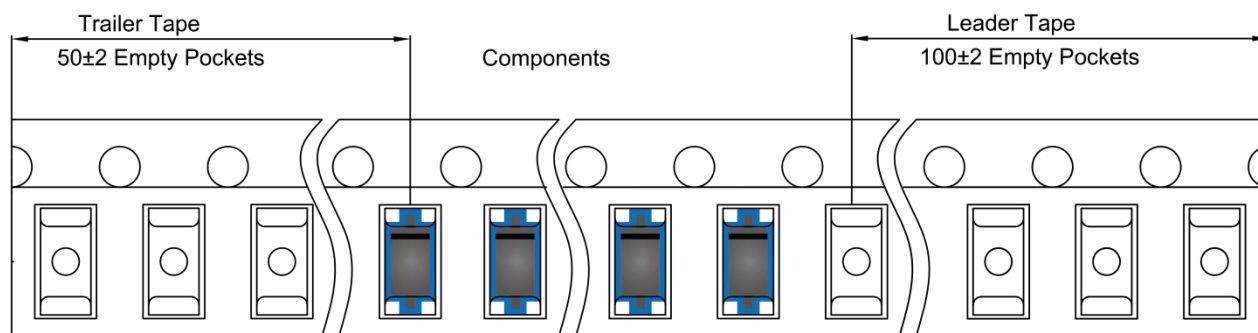
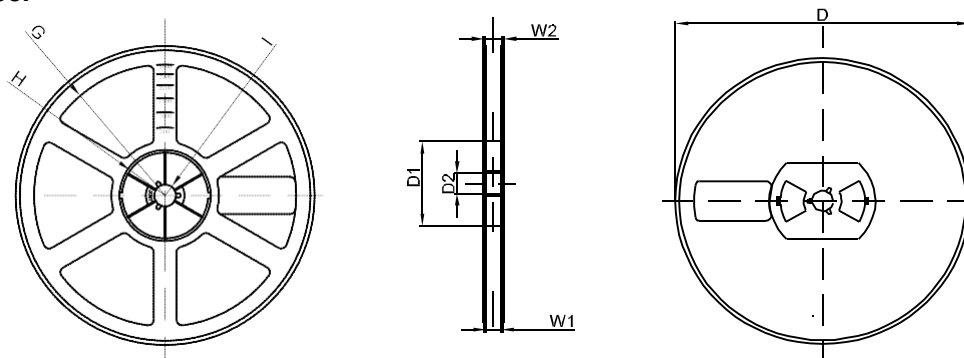
Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

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SOD-123FL Tape and Reel
SOD-123FL Embossed Carrier Tape


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOD-123FL	2.10	4.00	1.25	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOD-123FL Tape Leader and Trailer

SOD-123FL Reel


DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	9.50	12.30
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1