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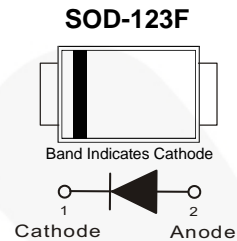


November 2015

# MBR1020VL Surface Mount Schottky Power Rectifier

## 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



## 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/ $\mu\text{s}$
$T_J$	Operating Junction Temperature Range	-55 to +125	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to +125	$^\circ\text{C}$

MBR1020VL — Surface Mount Schottky Power Rectifier

### 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 <sup>(1)</sup>	200	$^\circ\text{C}/\text{W}$
$\Psi_{JL}$	Typical Thermal Characteristics, Junction-to-Lead <sup>(2)</sup>	70	$^\circ\text{C}/\text{W}$

**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 <sup>(3)</sup>	$I_F = 0.1 \text{ A}$			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 <sup>(3)</sup>	$T_A = 25^\circ\text{C}$			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 $\mu\text{s}$ , duty cycle < 2%

## Typical Performance Characteristics

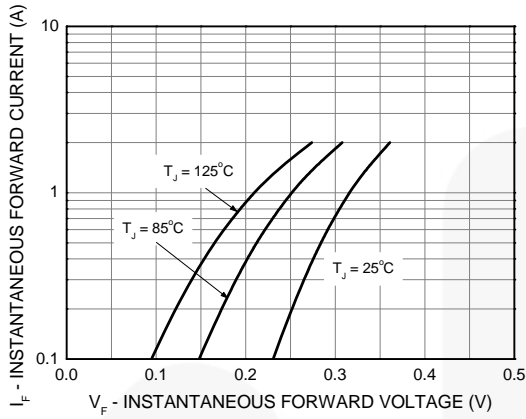


Figure 1. Typical Forward Characteristics

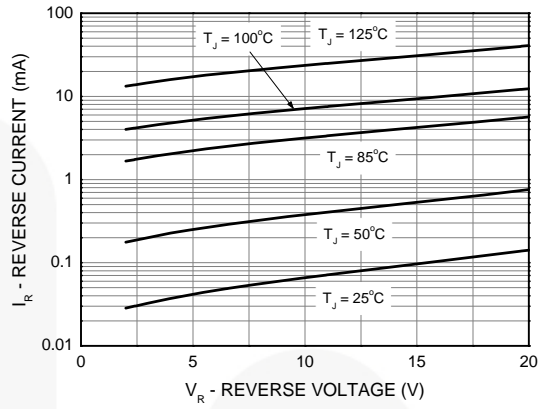


Figure 2. Typical Reverse Characteristics

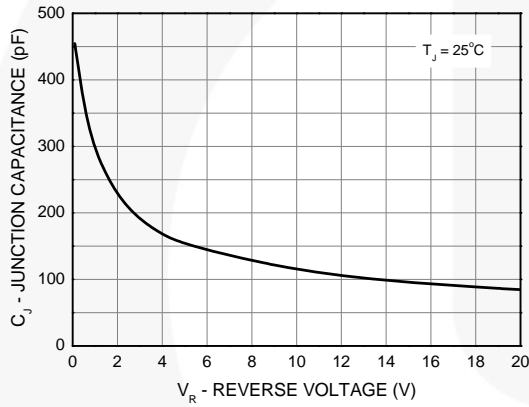


Figure 3. Capacitance

# PACKAGE OUTLINE DRAWING

98A SUPPORTING DOCUMENTATION

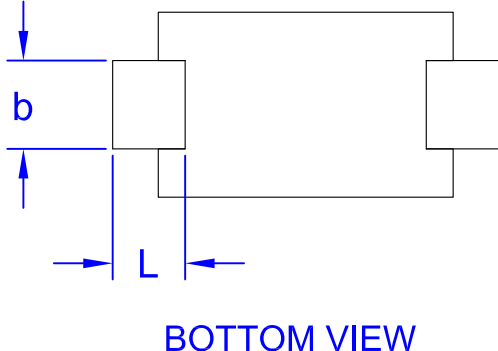
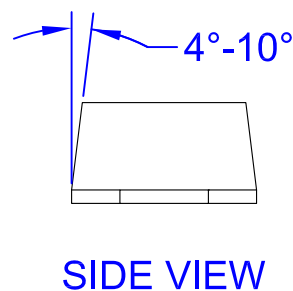
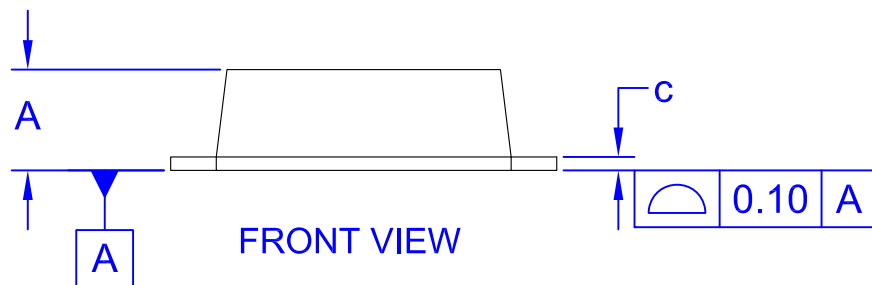
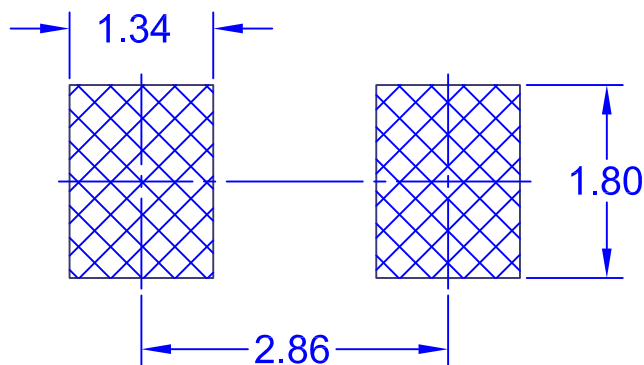
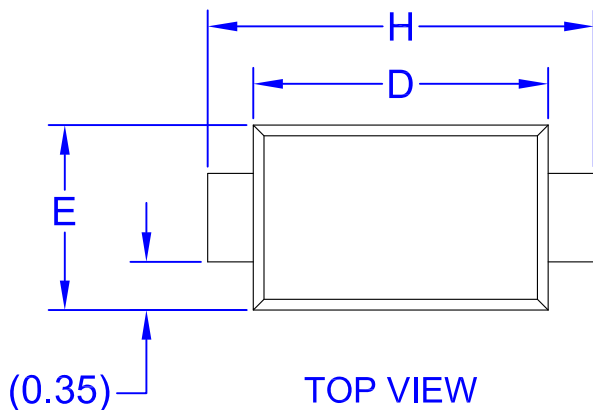
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SOD-123FL  
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ISSUE A

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DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.031	0.043	0.80	1.08
b	0.020	0.045	0.50	1.15
c	0.002	0.008	0.05	0.20
D	0.098	0.118	2.50	3.00
E	0.059	0.077	1.50	1.95
H	0.130	0.154	3.30	3.90
L	0.018	0.035	0.45	0.90

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