



# THE DATASHEET OF SMF4L9.0A





## Features

- Surface Mount SOD-123FL package
- Standoff Voltage: 16, 20 or 30 volts
- Power Dissipation: 400 watts
- RoHS compliant\*

## Applications

- Protection of power buses
- Protection of I/O interfaces
- Overvoltage transient protection
- Telecom, computer, industrial and consumer electronics applications

# SMF4L Transient Voltage Suppressor Diode Series

### General Information

Bourns offers Transient Voltage Suppressor Diodes for surge and ESD protection applications, in compact chip package SOD-123FL size format. The Transient Voltage Suppressor series offers a choice of Working Peak Reverse Voltage of 16, 20 or 30 V. Typical fast response times are less than 1.0 picosecond from 0 V to Breakdown Voltage.

Bourns® Chip Diodes conform to JEDEC standards, are easy to handle with standard pick and place equipment and the flat configuration minimizes roll away.

### Additional Information

Click these links for more information:



### Absolute Maximum Ratings (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Power Dissipation (10/1000 μs) <sup>1</sup>	P <sub>PPM</sub>	400	W
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I <sub>FSM</sub>	50	A
Operating Temperature Range	T <sub>J</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	°C

<sup>1</sup> Non-repetitive current pulse, per Pulse Waveform graph and derated above T<sub>A</sub> = 25 °C.

### Electrical Characteristics (@ T<sub>A</sub> = 25 °C Unless Otherwise Noted)

Unidirectional Device		Breakdown Voltage V <sub>BR</sub> (Volts)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V <sub>RWM</sub>	Maximum Reverse Voltage @ I <sub>RSM</sub>	Maximum Reverse Surge Current
Part No.	Marking	Min.	Max.	@ I <sub>T</sub> (mA)	V <sub>RWM</sub> (V)	I <sub>R</sub> (μA)	V <sub>RSM</sub> (V)	I <sub>RSM</sub> (A)
SMF4L16A	LP	17.8	19.7	1.0	16	1.0	26.0	15.4
SMF4L20A	LV	22.2	24.5	1.0	20	1.0	32.4	12.3
SMF4L30A	MK	33.3	36.8	1.0	30	1.0	48.4	8.3

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**WARNING Cancer and Reproductive Harm - [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

\*RoHS Directive 2015/863, Mar 31, 2015 and Annex.

Specifications are subject to change without notice.

Users should verify actual device performance in their specific applications.

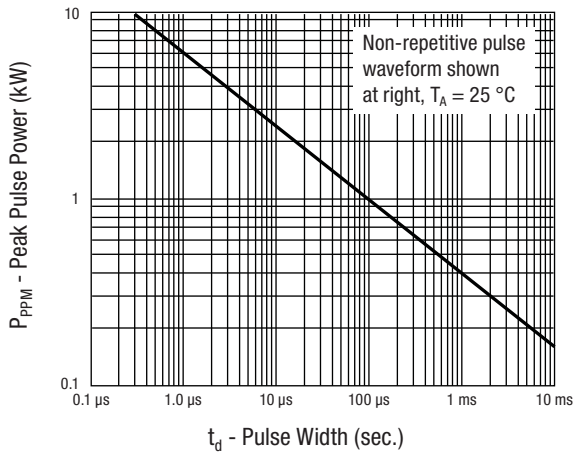
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# SMF4L Transient Voltage Suppressor Diode Series

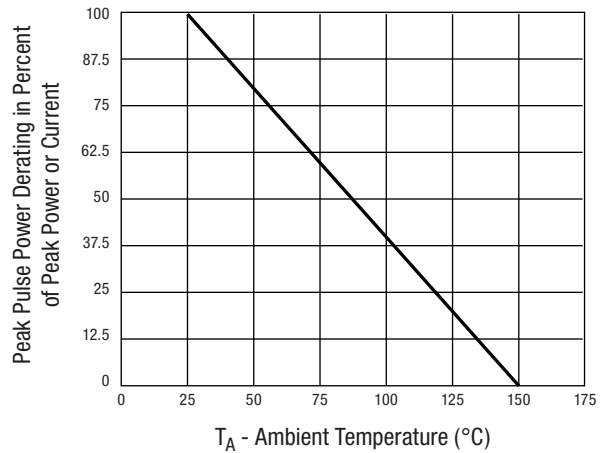


## Performance Graphs

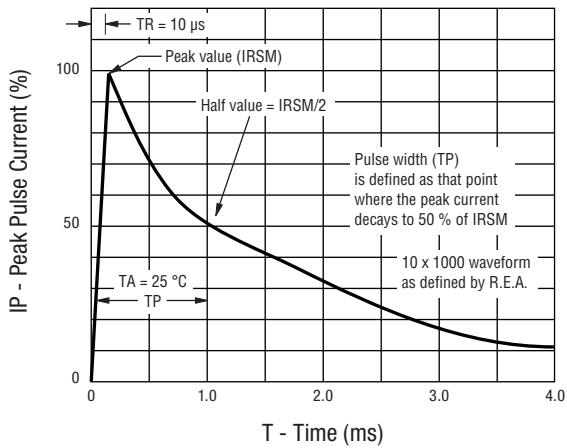
### Peak Pulse Power Derating Curve



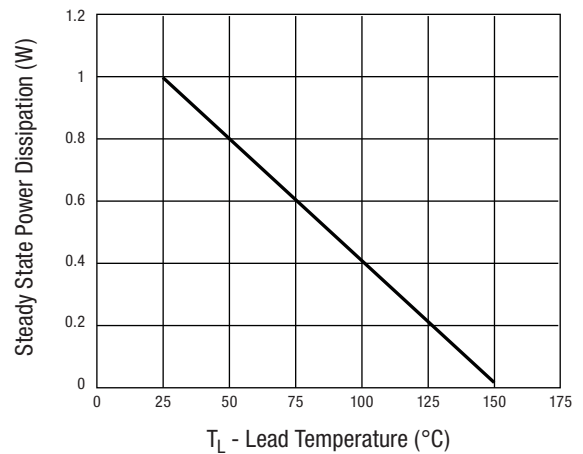
### Maximum Non-Repetitive Surge Current



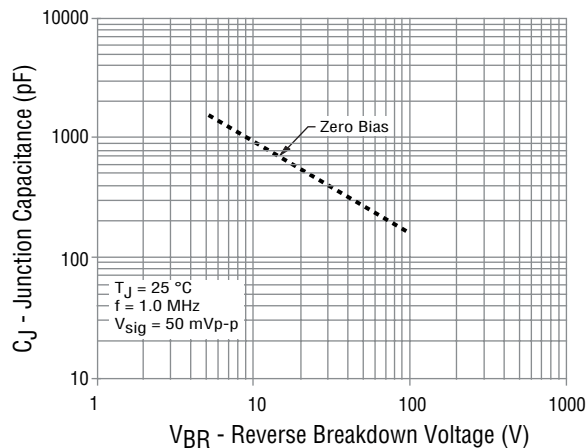
### Pulse Waveform



### Steady State Power Derating Curve



### Typ. Junction Capacitance vs. Reverse Breakdown Voltage

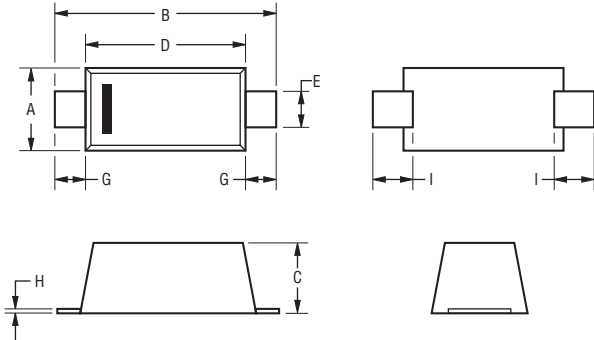


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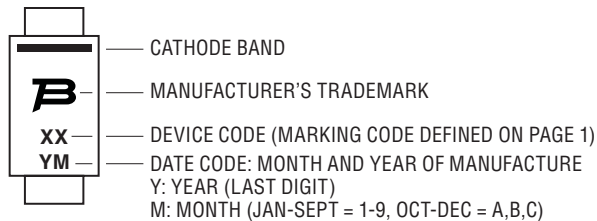
## Product Dimensions



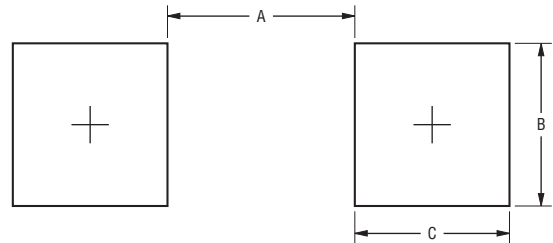
Dimension	SMF (SOD-123FL)
A	$1.65 \pm 0.25$ ( $0.065 \pm 0.01$ )
B	$3.70 \pm 0.15$ ( $0.146 \pm 0.006$ )
C	$1.125 \pm 0.225$ ( $0.044 \pm 0.009$ )
D	$2.825 \pm 0.275$ ( $0.111 \pm 0.011$ )
E	$0.775 \pm 0.275$ ( $0.031 \pm 0.011$ )
G	$0.400 \pm 0.15$ ( $0.016 \pm 0.006$ )
H	$0.175 \pm 0.075$ ( $0.007 \pm 0.003$ )
I	$0.550 \pm 0.15$ ( $0.022 \pm 0.006$ )

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

## Typical Part Marking



## Recommended Footprint



Dimension	SMF (SOD-123FL)
A (Max.)	$\frac{2.36}{(0.093)}$
B (Min.)	$\frac{1.22}{(0.048)}$
C (Min.)	$\frac{0.91}{(0.036)}$

DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

## Physical Specifications

Case ..... Molded plastic per UL Class 94V-0  
Polarity.....Cathode band indicates unidirectional device

## How to Order

Package ..... **SMF4L 16 A**  
SMF4L = 400 W SMF/SOD-123FL Package  
Working Peak Reverse Voltage .....  
16 = 16 V<sub>RWM</sub> (Volts)  
Suffix .....  
A = 5 % Tolerance Unidirectional Device

## Environmental Specifications

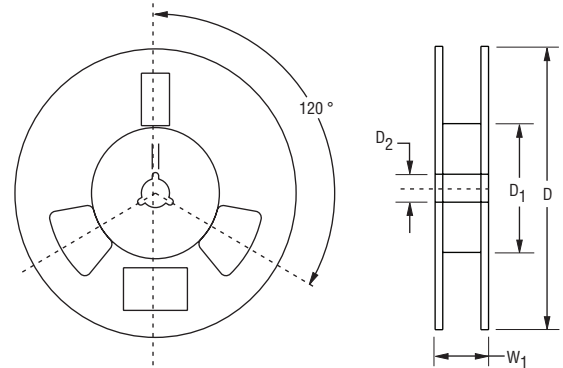
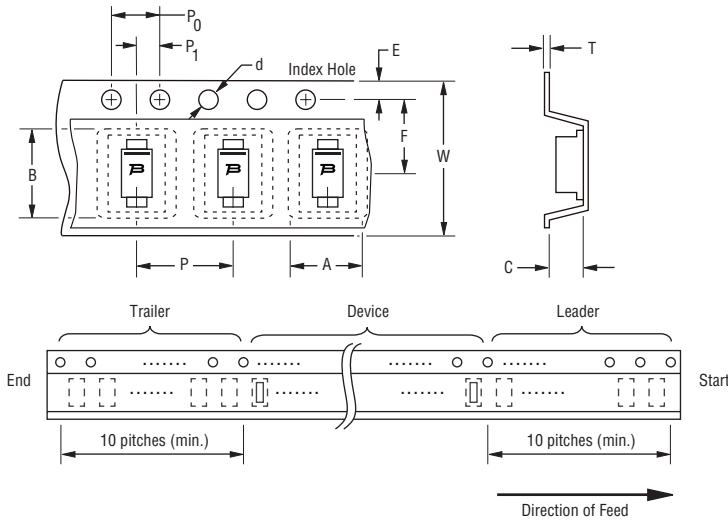
Moisture Sensitivity Level..... 1  
ESD Classification (HBM).....3B

# SMF4L Transient Voltage Suppressor Diode Series

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## Packaging Information

The product will be dispensed in tape and reel format (see diagram below).



DIMENSIONS:  $\frac{\text{MM}}{\text{(INCHES)}}$

Devices are packed in accordance with EIA 481 standard specifications shown here.

Item	Symbol	SMF4L Series
Carrier Width	A	$\frac{1.9 \pm 0.20}{(0.075 \pm 0.008)}$
Carrier Length	B	$\frac{4.01 \pm 0.20}{(0.158 \pm 0.008)}$
Carrier Depth	C	$\frac{1.32 \pm 0.20}{(0.052 \pm 0.008)}$
Sprocket Hole	d	$\frac{1.50 + 0.10 / - 0.00}{(0.059 + 0.004 / - 0.00)}$
Reel Outside Diameter	D	$\frac{178}{(7.008)}$
Reel Inner Diameter	D <sub>1</sub>	$\frac{50.0}{(1.969)}$ MIN.
Feed Hole Diameter	D <sub>2</sub>	$\frac{13.0 + 0.50 / - 0.20}{(0.512 + 0.020 / - 0.008)}$
Sprocket Hole Position	E	$\frac{1.75 \pm 0.10}{(0.069 \pm 0.004)}$
Punch Hole Position	F	$\frac{3.50 \pm 0.05}{(0.138 \pm 0.002)}$
Punch Hole Pitch	P	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Sprocket Hole Pitch	P <sub>0</sub>	$\frac{4.00 \pm 0.10}{(0.157 \pm 0.004)}$
Embossment Center	P <sub>1</sub>	$\frac{2.00 \pm 0.05}{(0.079 \pm 0.002)}$
Overall Tape Thickness	T	$\frac{0.40}{(0.016)}$ MAX.
Tape Width	W	$\frac{8.00 \pm 0.30}{(0.315 \pm 0.012)}$
Reel Width	W <sub>1</sub>	$\frac{14.4}{(5.669)}$ MAX.
Quantity per Reel	--	2,500

REV. 10/22

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