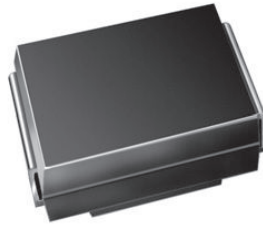




## Low $V_F$ Surface-Mount TRANSZORB<sup>®</sup> Transient Voltage Suppressors



SMB (DO-214AA)

### LINKS TO ADDITIONAL RESOURCES



3D Models

PRIMARY CHARACTERISTICS	
$V_{BR}$	13.2 V to 14.8 V
$V_{WM}$	12 V
$I_{PPM}$ with 10 x 1000 $\mu$ s	31 A
$I_{PPM}$ with 1.4 x 6.5 $\mu$ s	17.5 A
$V_F$ at $I_F = 1.0$ A	0.35 V
$I_{FSM}$	100 A
$P_{PPM}$	600 W
$T_J$ max.	150 °C
Polarity	Unidirectional
Package	SMB (DO-214AA)

### FEATURES

- Unidirectional polarity only
- Peak pulse power: 600 W (10/1000  $\mu$ s)
- Ideal for automated placement
- Low forward voltage
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT  
HALOGEN  
FREE

### TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs sensor units specifically for protecting 12 V supplied sensitive equipment against transient overvoltages.

### MECHANICAL DATA

**Case:** SMB (DO-214AA)

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, and commercial grade  
Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 and M3 suffix meet JESD 201 class 2 whisker test

**Polarity:** color band denotes cathode end

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Device marking code		L14	
Peak power pulse current with a 10/1000 $\mu$ s waveform (fig. 1) <sup>(1)(2)</sup>	$I_{PPM}$	31	A
Peak pulse current with a 1.4/6.5 $\mu$ s waveform (fig. 2)	$I_{PPM}$	17.5	A
Peak forward surge current 8.3 ms single half sine-wave <sup>(2)</sup>	$I_{FSM}$	100	A
Power dissipation on infinite heatsink, $T_L = 50$ °C	$P_D$	5	W
Operating junction and storage temperature range	$T_J, T_{STG}$	-65 to +150	°C

#### Notes

- (1) Non-repetitive current pulse, per fig. 1 and derated above  $T_A = 25$  °C per fig. 1  
(2) Mounted on PCB with 5.0 mm x 5.0 mm copper pads attached to each terminal

ELECTRICAL CHARACTERISTICS ( $T_A = 25$ °C unless otherwise noted)				
DEVICE TYPE	BREAKDOWN VOLTAGE $V_{BR}$ AT $I_Z$ (V)		TEST CURRENT $I_Z$ (mA)	STAND-OFF VOLTAGE $V_{WM}$ (V)
	MIN.	MAX.		
LVB14A	13.2	14.8	1	12



ADDITIONAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Maximum clamping voltage with 10 x 1000 μs	I <sub>PPM</sub> = 31 A	V <sub>C</sub>	-	-	19.5	V
Maximum clamping voltage with 1.4 x 6.5 μs	I <sub>PPM</sub> = 17.5 A	V <sub>C</sub>	-	-	15.8	V
Instantaneous forward voltage <sup>(1)</sup>	I <sub>F</sub> = 1.0 A	V <sub>F</sub>	T <sub>J</sub> = 25 °C	0.45	0.5	V
			T <sub>J</sub> = 125 °C	-	0.35	
Reverse leakage current <sup>(1)</sup>	V <sub>WM</sub> = 12.0 V	I <sub>R</sub>	-	-	100	μA

**Note**

<sup>(1)</sup> Measured on a 300 μs square pulse width

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to lead	R <sub>θJL</sub>	20	°C/W
Typical thermal resistance, junction to ambient	R <sub>θJA</sub> <sup>(1)</sup>	100	

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient - mounted on the recommended PCB pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
LVB14A-E3/52	0.096	52	750	7" diameter plastic tape and reel
LVB14A-E3/5B	0.096	5B	3200	13" diameter plastic tape and reel
LVB14A-M3/52	0.096	52	750	7" diameter plastic tape and reel
LVB14A-M3/5B	0.096	5B	3200	13" diameter plastic tape and reel

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)**

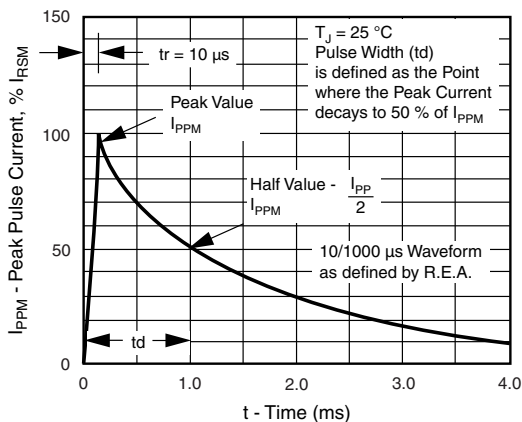


Fig. 1 - Pulse Waveform

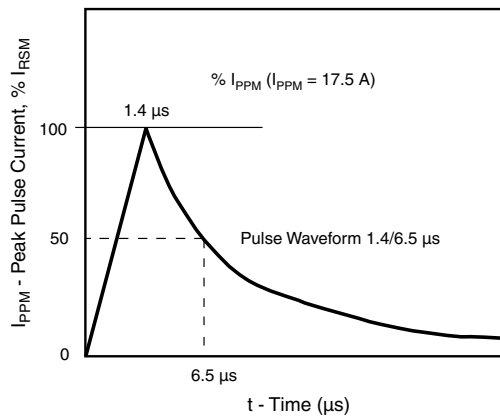


Fig. 2 - Pulse Waveform

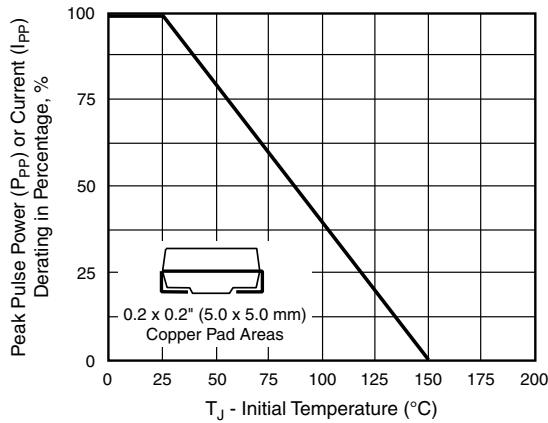


Fig. 3 - Pulse Power or Current vs. Initial Junction Temperature

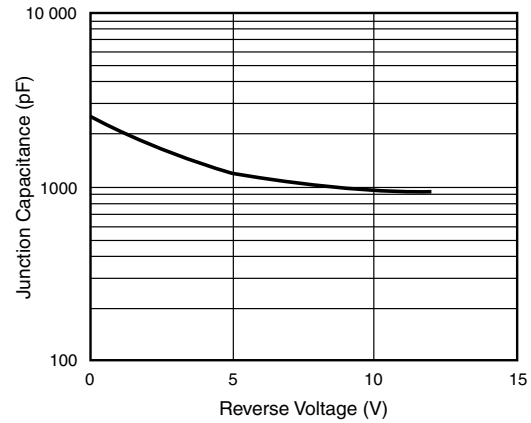


Fig. 5 - Typical Junction Capacitance

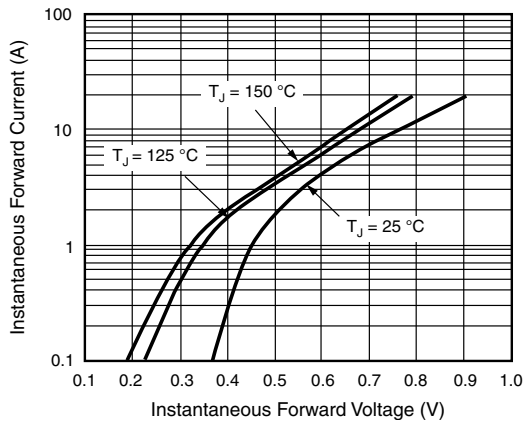
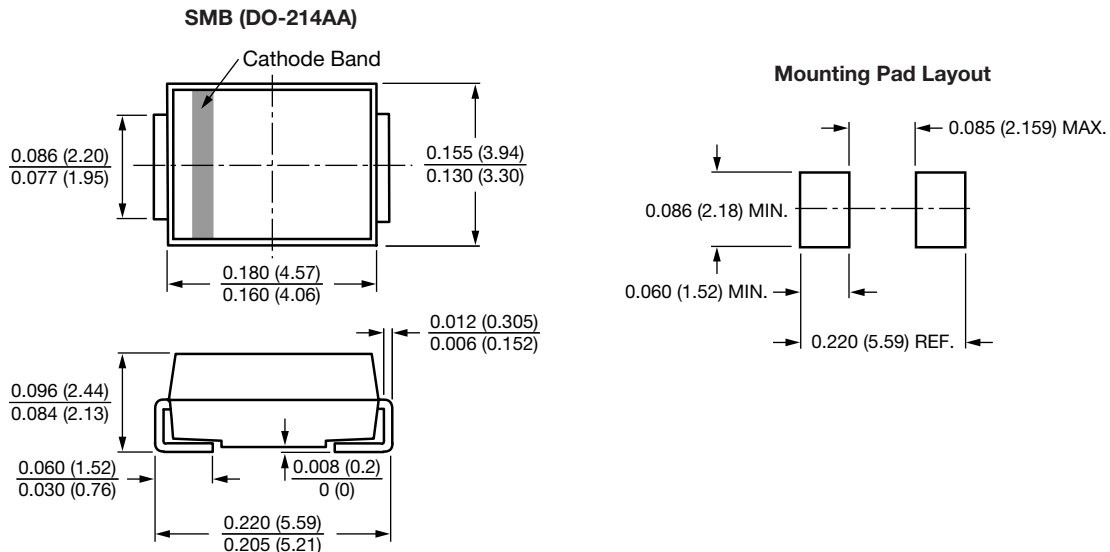


Fig. 4 - Typical Instantaneous Forward Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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