

## Low $V_F$ Surface-Mount TRANSZORB® Transient Voltage Suppressors


**SMB (DO-214AA)**
**LINKS TO ADDITIONAL RESOURCES**

**FEATURES**

- Uni-directional 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)

**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

**Terminals:** matte tin plated leads, solderable per  
J-STD-002 and JESD 22-B102  
E3 suffix meets JESD 201 class 2 whisker test

**Polarity:** color band denotes cathode end

PRIMARY CHARACTERISTICS	
$V_{BR}$	13.2 V to 14.8 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
$V_{WM}$	12 V
$P_{PPM}$	600 W
$I_{FSM}$	100 A
$T_J$ max.	150 °C
Polarity	Unidirectional
Package	SMB (DO-214AA)

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 <sup>(1)(2)</sup> (fig. 1)	$I_{PPM}$	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, $TL = 50$ °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 25 °C per fig. 1

(2) Mounted on PCB with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads 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** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Max. clamping voltage with $10 \times 1000 \mu\text{s}$	$I_{PPM} = 31 \text{ A}$	$V_C$	-	-	19.5	V
Max. clamping voltage with $1.4 \times 6.5 \mu\text{s}$	$I_{PPM} = 17.5 \text{ A}$	$V_C$	-	-	15.8	V
Instantaneous forward voltage <sup>(1)</sup>	$I_F = 1.0 \text{ A}$	$V_F$	-	0.45	0.5	V
			-	0.35	-	V
Reverse leakage current <sup>(1)</sup>	$V_{WM} = 12.0 \text{ V}$	$I_R$	-	-	100	$\mu\text{A}$

**Note**

<sup>(1)</sup> Measured on a  $300 \mu\text{s}$  square pulse width

**THERMAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to lead	$R_{\theta JL}$	20	$^\circ\text{C} / \text{W}$
Typical thermal resistance, junction to ambient <sup>(1)</sup>	$R_{\theta JA}$	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

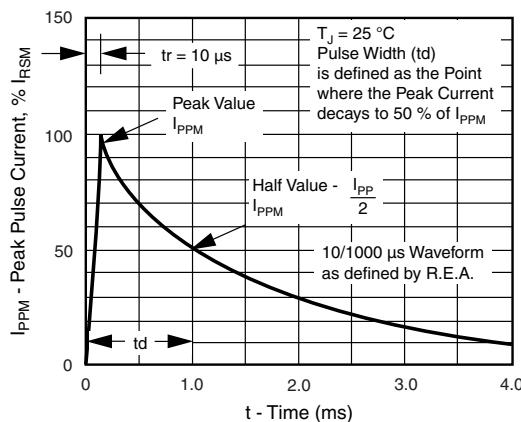
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Pulse Waveform

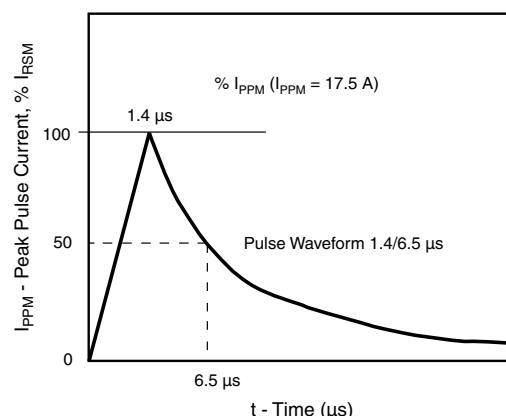


Fig. 2 - Pulse Waveform

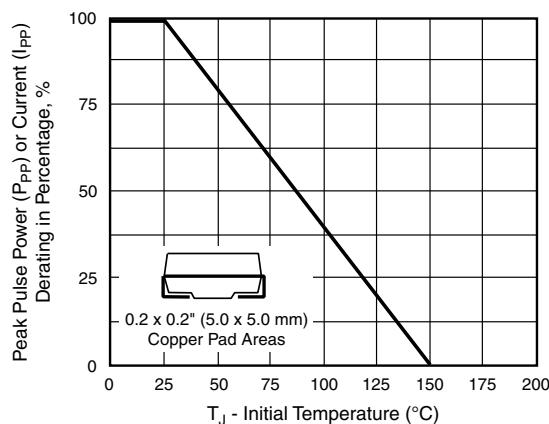


Fig. 3 - Pulse Power or Current vs. Initial Junction Temperature

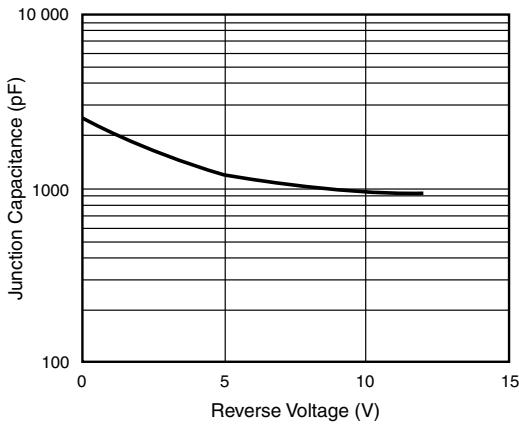


Fig. 5 - Typical Junction Capacitance

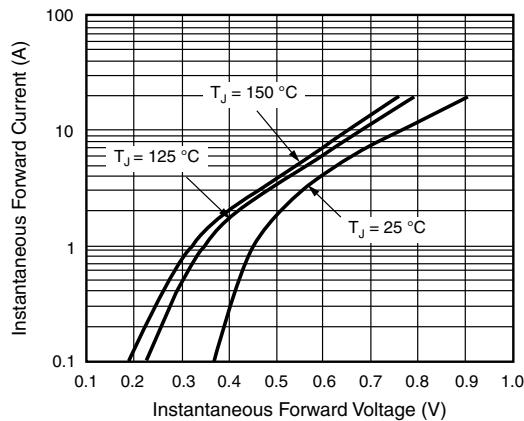
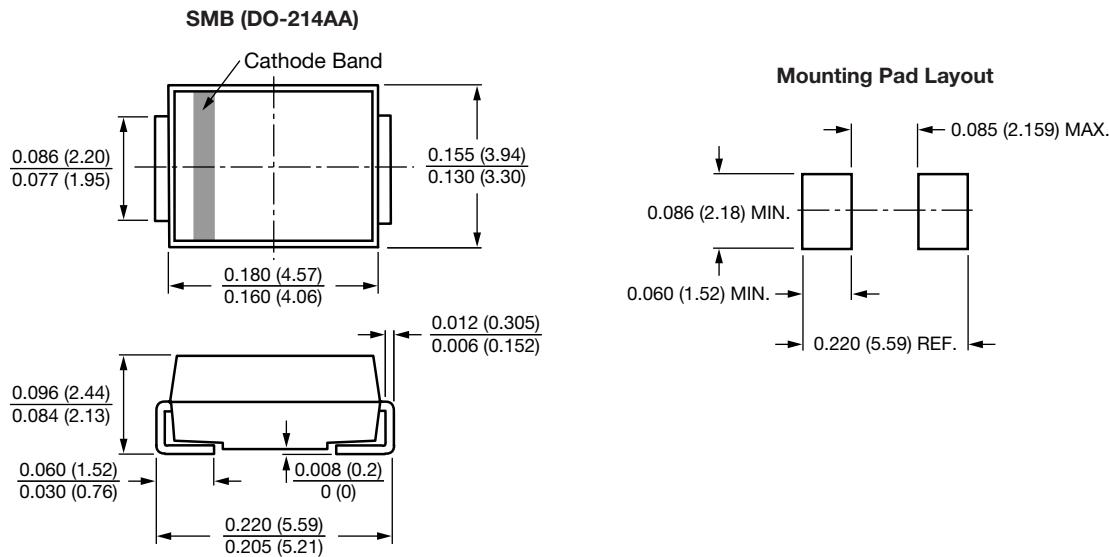


Fig. 4 - Typical Instantaneous Forward Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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