**New Product** 



Vishay General Semiconductor

# Low V<sub>F</sub> Surface Mount Transient Voltage Suppressors



DO-214AA (SMB J-Bend)

13.2 - 14.8 V

31 A

17.5 A

0.35 V

100 A

150 °C

**PRIMARY CHARACTERISTICS** 

 $V_{BR}$ 

 $I_{PPM}$  with 10 x 1000  $\mu$ s

IPPM with 1.4 x 6.5 µs

 $V_F$  at  $I_F = 1.0 A$ 

I<sub>FSM</sub>

T<sub>.1</sub> max.

## FEATURES

- Uni-directional polarity only
- Peak pulse power: 600 W (10/1000 μs)
- Ideal for automated placement
- Low forward voltage



- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

### **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: DO-214AA (SMBJ)

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS compliant, commercial grade **Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test **Polarity:** Color band denotes cathode end

MAXIMUM RATINGS (T <sub>A</sub> = 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) $^{(1)(2)}$	I <sub>PPM</sub>	31	А		
Peak pulse current with a 1.4/6.5 µs waveform (Fig. 2)	I <sub>PPM</sub>	17.5	А		
Peak forward surge current 8.3 ms single half sine-wave <sup>(2)</sup>	I <sub>FSM</sub>	100	А		
Power dissipation on infinite heatsink, $T_L = 50 \ ^\circ C$	PD	5	W		
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 65 to + 150	С°		

#### Notes:

(1) Non-repetitive current pulse, per Fig. 1 and derated above  $T_{\text{A}}$  = 25 °C per Fig. 1

(2) Mounted on P.C.B. with 5.0 x 5.0 mm copper pads attached to each terminal



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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	TYP.	MAX.	UNIT
Breakdown voltage	at I <sub>Z</sub> = 1 mA	V <sub>BR</sub>	13.2	-	14.8	V
Max. clamping voltage with 10 x 1000 $\mu s$	at I <sub>PPM</sub> = 31 A	V <sub>C</sub>	-	-	19.5	V
Max. clamping voltage with 1.4 x 6.5 $\mu s$	at I <sub>PPM</sub> = 17.5 A	V <sub>C</sub>	-	-	15.8	V
Instantaneous forward voltage (1)	at $I_F = 1.0 \text{ A}$ $T_J = 25 \text{ °C}$ $T_J = 125 \text{ °C}$	V <sub>F</sub>	-	0.45 0.35	0.5 -	V
Reverse leakage current (1)	at V <sub>WM</sub> = 12.0 V	I <sub>R</sub>	-	-	100	μΑ

#### Note:

(1) Measured on a 300  $\mu$ s square pulse width

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \degree C$ unless otherwise noted)					
PARAMETER	SYMBOL	VALUE	UNIT		
Typical thermal resistance, junction to lead	$R_{ ext{ heta}JL}$	20	°C/W		
Typical thermal resistance, junction to ambient <sup>(1)</sup>	$R_{ hetaJA}$	100	°C/VV		

Note:

(1) Thermal resistance from junction to ambient - Mounted on the recommended P.C.B. 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<sub>A</sub> = 25 °C unless otherwise noted)

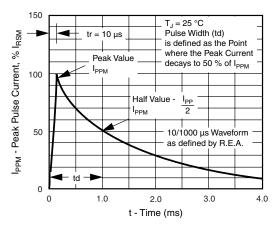


Figure 1. Pulse Waveform

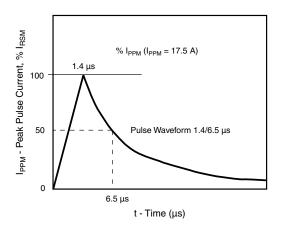


Figure 2. Pulse Waveform



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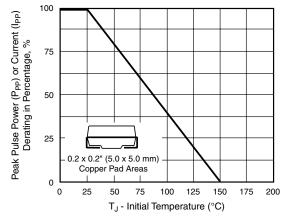


Figure 3. Pulse Poweror Current vs. Initial Junction Temperature

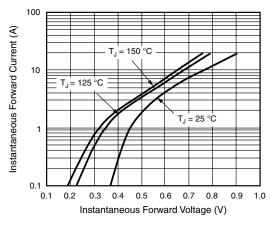
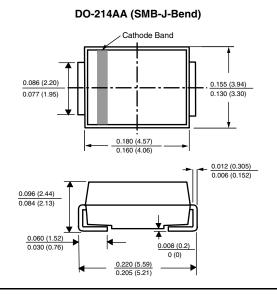
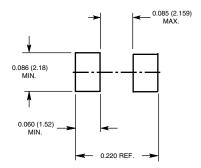


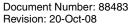
Figure 4. Typical Instantaneous Forward Characteristics





## Mounting Pad Layout





For technical questions within your region, please contact one of the following: PDD-Americas@vishay.com, PDD-Asia@vishay.com, PDD-Europe@vishay.com

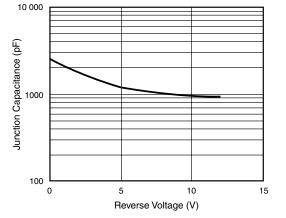


Figure 5. Typical Junction Capacitance



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