

Low V_F Surface Mount TRANSZORB[®] Transient Voltage Suppressors


DO-214AA (SMB J-Bend)

RoHS
 COMPLIANT
 HALOGEN
FREE
FEATURES

- Uni-directional polarity only
- Peak pulse power: 600 W (10/1000 μ 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

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-M3 - halogen-free, RoHS-compliant, and commercial grade

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

M3 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
V_{WM}	12 V
I_{PPM} with 10 x 1000 μ s	31 A
I_{PPM} with 1.4 x 6.5 μ 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	Uni-directional
Package	DO-214AA (SMBJ)

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 μ s waveform (fig. 1) ⁽¹⁾⁽²⁾	I_{PPM}	31	A
Peak pulse current with a 1.4/6.5 μ s waveform (fig. 2)	I_{PPM}	17.5	A
Peak forward surge current 8.3 ms single half sine-wave ⁽²⁾	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 ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Maximum clamping voltage with 10 x 1000 μs	$I_{PPM} = 31\text{ A}$	V_C	-	-	19.5	V	
Maximum clamping voltage with 1.4 x 6.5 μs	$I_{PPM} = 17.5\text{ A}$	V_C	-	-	15.8	V	
Instantaneous forward voltage ⁽¹⁾	$I_F = 1.0\text{ A}$	V_F	$T_J = 25\text{ }^\circ\text{C}$	-	0.45	0.5	V
			$T_J = 125\text{ }^\circ\text{C}$	-	0.35	-	
Reverse leakage current ⁽¹⁾	$V_{WM} = 12.0\text{ V}$	I_R	-	-	100	μA	

Note

⁽¹⁾ Measured on a 300 μs square pulse width

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to lead	$R_{\theta JL}$	20	$^\circ\text{C/W}$
Typical thermal resistance, junction to ambient	$R_{\theta JA}$ ⁽¹⁾	100	

Note

⁽¹⁾ 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-M3/52	0.96	52	750	7" diameter plastic tape and reel
LVB14A-M3/5B	0.064	5B	3200	13" diameter plastic tape and reel

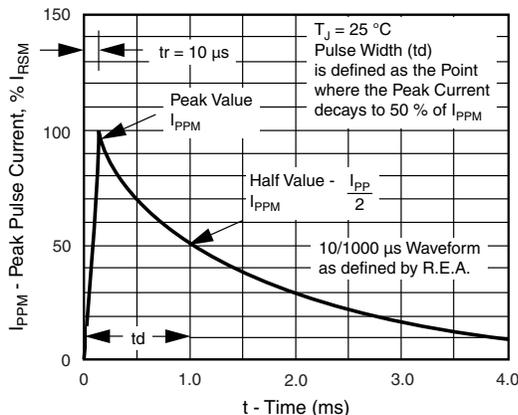
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Pulse Waveform

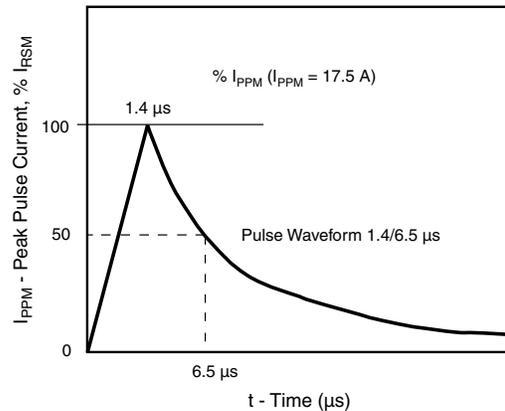


Fig. 2 - Pulse Waveform

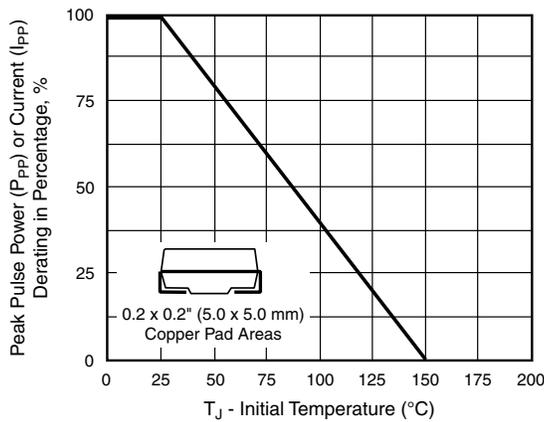


Fig. 3 - Pulse Power or Current vs. Initial Junction Temperature

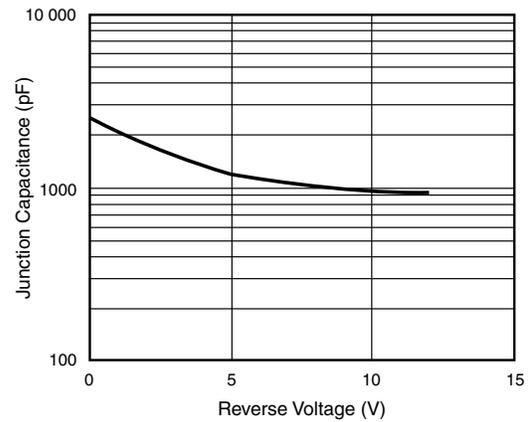


Fig. 5 - Typical Junction Capacitance

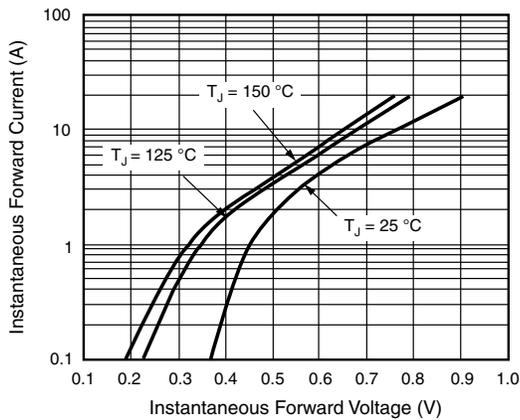
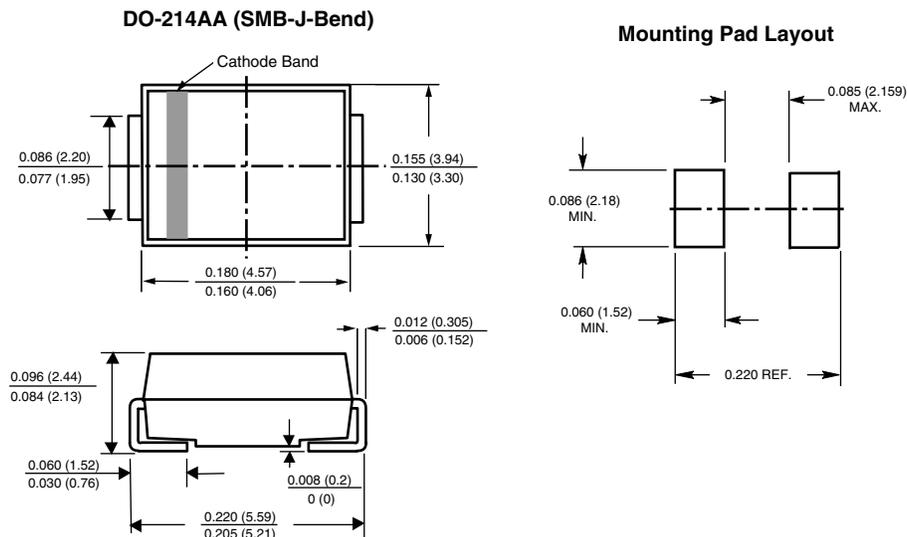


Fig. 4 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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