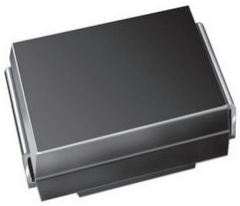
Low V_F Surface Mount TRANSZORB® Transient Voltage Suppressors



DO-214AA (SMB J-Bend)

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
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

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 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 µs)	31 A
I_{PPM} (with 1.4 x 6.5 µs)	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	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 µs waveform (1)(2) (fig. 1)	I_{PPM}	31	A
Peak pulse current with a 1.4/6.5 µs 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 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 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Max. clamping voltage with 10 x 1000 µs	I_{PPM} = 31 A	V_C	-	-	19.5	V
Max. clamping voltage with 1.4 x 6.5 µs	I_{PPM} = 17.5 A	V_C	-	-	15.8	V
Instantaneous forward voltage (1)	I_F = 1.0 A, T_J = 25 °C	V_F	-	0.45	0.5	V
	I_F = 1.0 A, T_J = 125 °C		-	0.35	-	V
Reverse leakage current (1)	V_{WM} = 12.0 V	I_R	-	-	100	µA

Note

(1) Measured on a 300 µs square pulse width

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

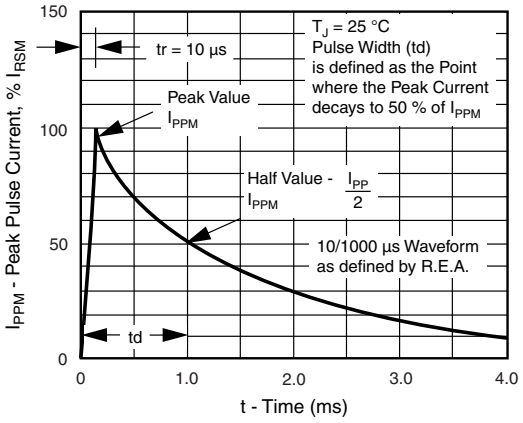


Fig. 1 - Pulse Waveform

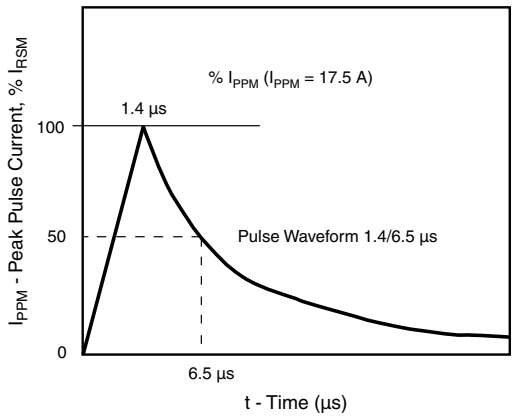


Fig. 2 - Pulse Waveform

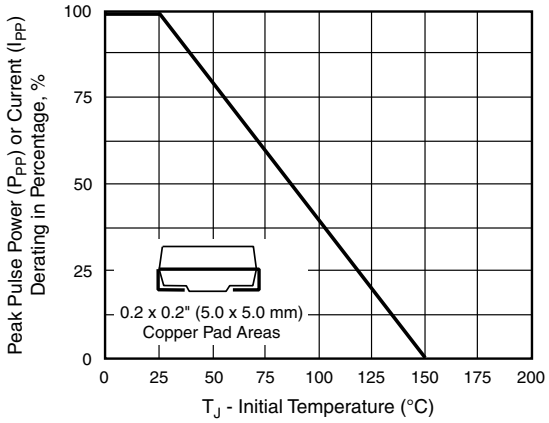


Fig. 3 - Pulse Power or Current vs. Initial Junction Temperature

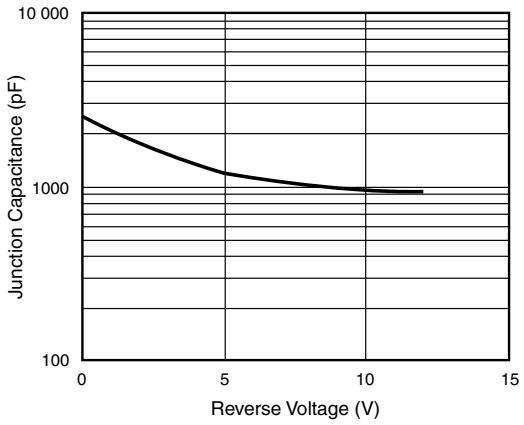


Fig. 5 - Typical Junction Capacitance

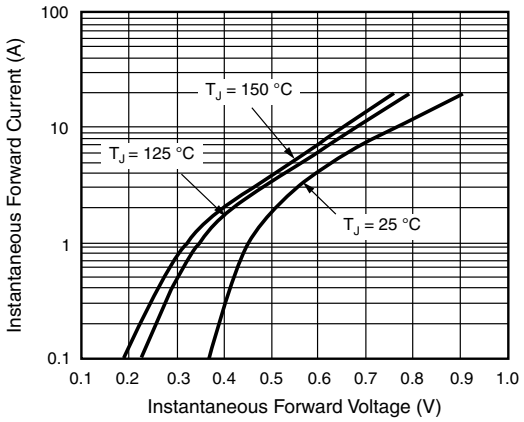
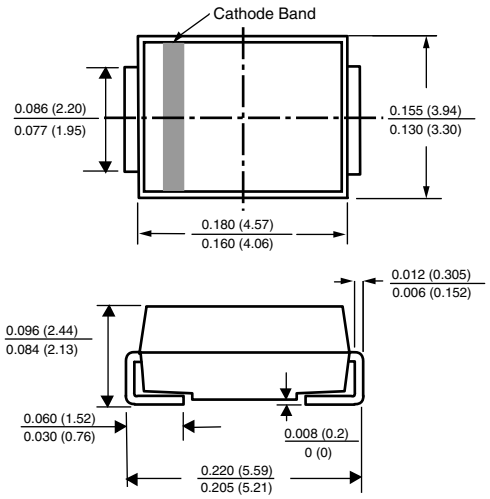


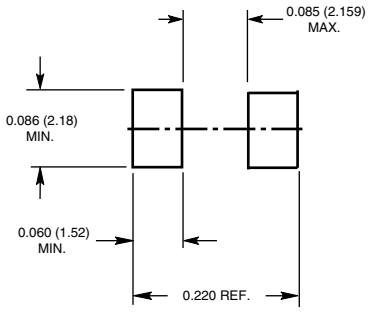
Fig. 4 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB-J-Bend)



Mounting Pad Layout



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