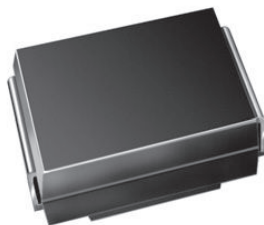




Low V_F Surface-Mount TRANSZORB[®] Transient Voltage Suppressors



SMB (DO-214AA)

LINKS TO ADDITIONAL RESOURCES



FEATURES

- Unidirectional 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



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

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	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 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	-	0.45	0.5	V
			-	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)

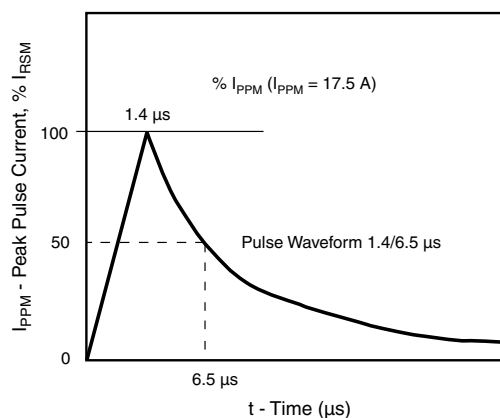
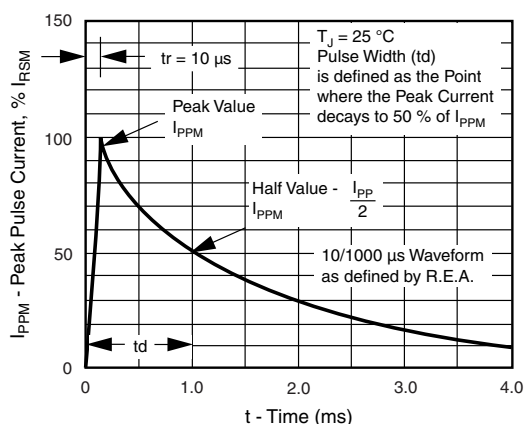
PARAMETER	SYMBOL	VALUE	UNIT
Typical thermal resistance, junction to lead	$R_{\theta JL}$	20	$^{\circ}\text{C/W}$
Typical thermal resistance, junction to ambient	$R_{\theta JA}$ ⁽¹⁾	100	

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

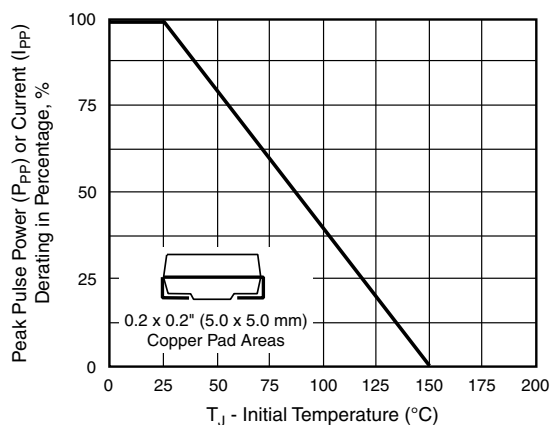


Fig. 3 - Pulse Power or Current vs. Initial Junction Temperature

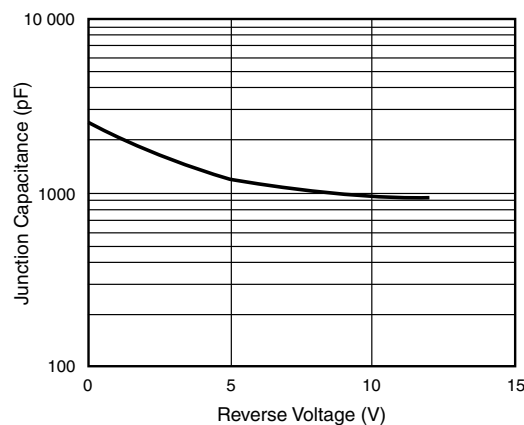


Fig. 5 - Typical Junction Capacitance

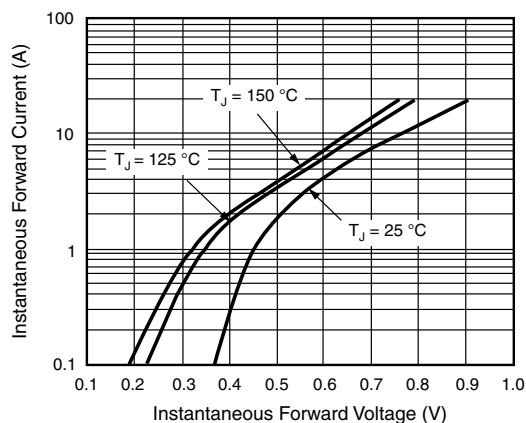
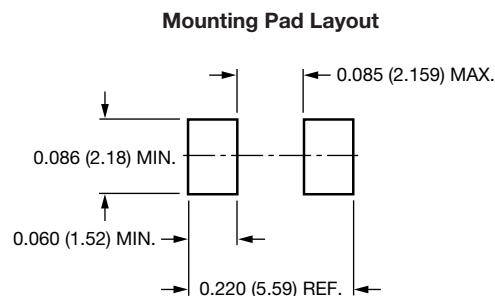
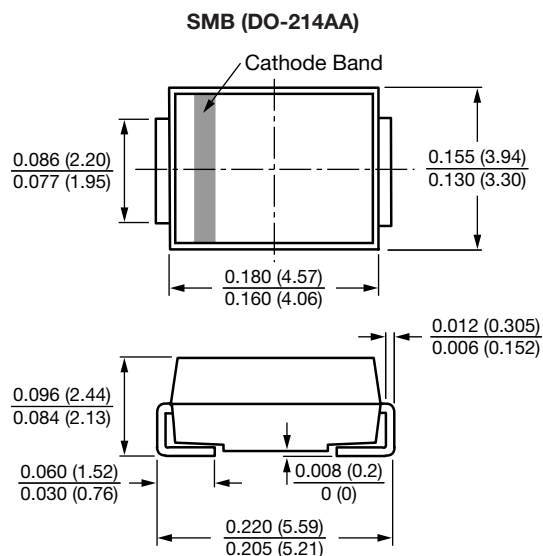


Fig. 4 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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