

Low V_F Surface Mount Transient Voltage Suppressors



DO-214AA (SMB J-Bend)

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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


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, 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

PRIMARY CHARACTERISTICS

V_{BR}	13.2 - 14.8 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
T_J max.	150 °C

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 P.C.B. with 5.0 x 5.0 mm copper pads attached to each terminal

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	TYP.	MAX.	UNIT
Breakdown voltage	at $I_Z = 1\text{ mA}$	V_{BR}	13.2	-	14.8	V
Max. clamping voltage with $10 \times 1000\text{ }\mu\text{s}$	at $I_{PPM} = 31\text{ A}$	V_C	-	-	19.5	V
Max. clamping voltage with $1.4 \times 6.5\text{ }\mu\text{s}$	at $I_{PPM} = 17.5\text{ A}$	V_C	-	-	15.8	V
Instantaneous forward voltage ⁽¹⁾	at $I_F = 1.0\text{ A}$ $T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	V_F	-	0.45 0.35	0.5 -	V
Reverse leakage current ⁽¹⁾	at $V_{WM} = 12.0\text{ V}$	I_R	-	-	100	μA

Note:(1) Measured on a $300\text{ }\mu\text{s}$ 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 ⁽¹⁾	$R_{\theta JA}$	100	

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

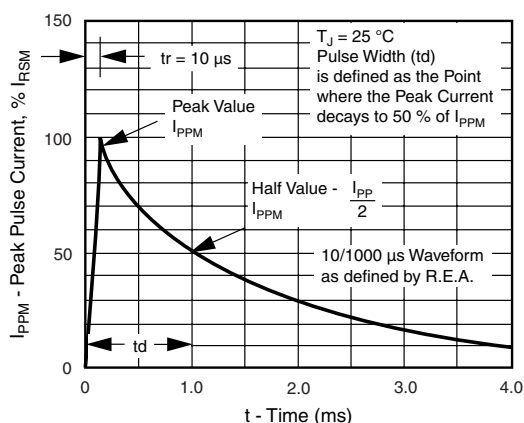
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Pulse Waveform

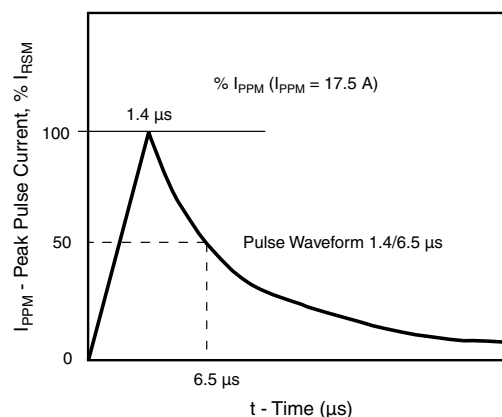


Figure 2. Pulse Waveform

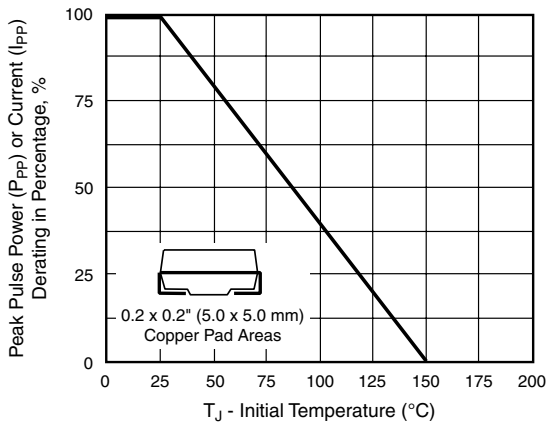


Figure 3. Pulse Power or Current vs. Initial Junction Temperature

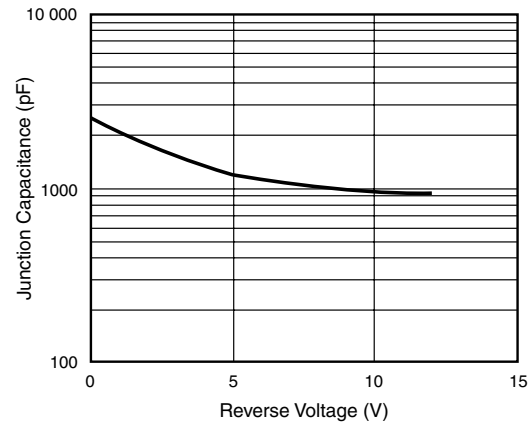


Figure 5. Typical Junction Capacitance

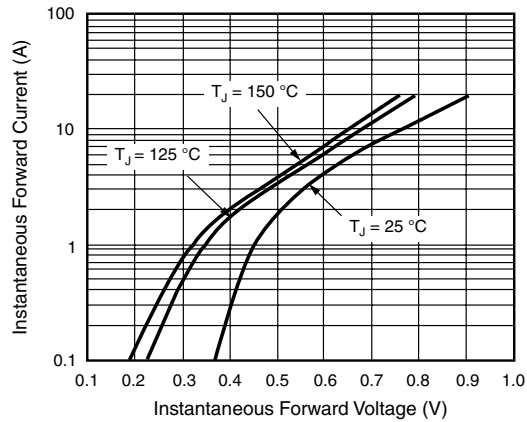
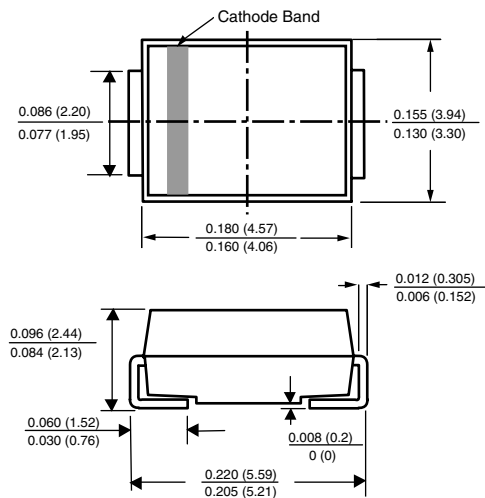


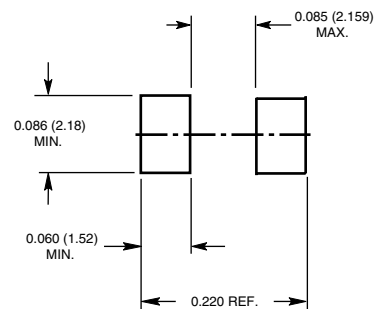
Figure 4. Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB-J-Bend)



Mounting Pad Layout





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