New Product



Vishay General Semiconductor

Low V_F 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 μ s

IPPM with 1.4 x 6.5 µs

 V_F at $I_F = 1.0 A$

I_{FSM}

T_{.1} 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 _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL VALUE		UNIT		
Device marking code		L14			
Peak power pulse current with a 10/1000 μs waveform (Fig. 1) $^{(1)(2)}$	I _{PPM}	31	А		
Peak pulse current with a 1.4/6.5 µs waveform (Fig. 2)	I _{PPM}	17.5	А		
Peak forward surge current 8.3 ms single half sine-wave ⁽²⁾	I _{FSM}	100	А		
Power dissipation on infinite heatsink, $T_L = 50 \ ^\circ C$	PD	5	W		
Operating junction and storage temperature range	T _J , T _{STG}	- 65 to + 150	С°		

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



Vishay General Semiconductor

ELECTRICAL CHARACTERISTICS ($T_C = 25$ °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	TYP.	MAX.	UNIT
Breakdown voltage	at I _Z = 1 mA	V _{BR}	13.2	-	14.8	V
Max. clamping voltage with 10 x 1000 μs	at I _{PPM} = 31 A	V _C	-	-	19.5	V
Max. clamping voltage with 1.4 x 6.5 μs	at I _{PPM} = 17.5 A	V _C	-	-	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 _F	-	0.45 0.35	0.5 -	V
Reverse leakage current (1)	at V _{WM} = 12.0 V	I _R	-	-	100	μΑ

Note:

(1) Measured on a 300 μ s square pulse width

THERMAL CHARACTERISTICS ($T_A = 25 \degree C$ 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 ⁽¹⁾	$R_{ hetaJA}$	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_A = 25 °C unless otherwise noted)

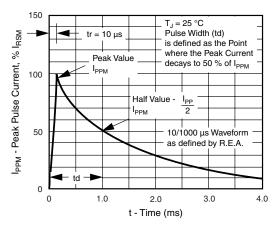


Figure 1. Pulse Waveform

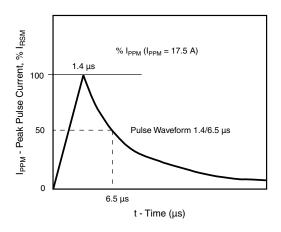


Figure 2. Pulse Waveform



Vishay General Semiconductor

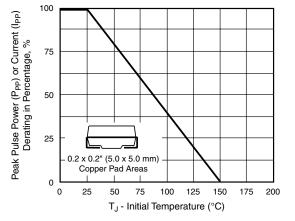


Figure 3. Pulse Poweror Current vs. Initial Junction Temperature

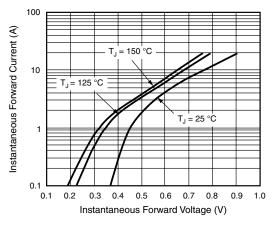
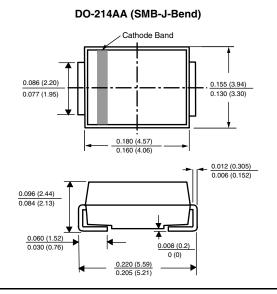
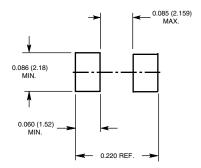


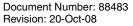
Figure 4. Typical Instantaneous Forward Characteristics





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

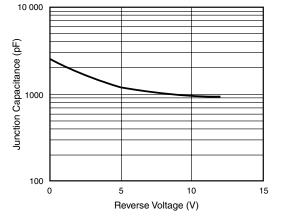


Figure 5. Typical Junction Capacitance



Vishay

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.