Surface-Mount TRANSZORB® Transient Voltage Suppressors



SMA (DO-214AC)

Cathode ○—▶|—○ Anode

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
V_{BR} (unidirectional)	530 V to 550 V
V_{WM}	477 V, 495 V
P_{PPM}	300 W
P_D	2.5 W
I_{FSM} (unidirectional only)	40 A
T_J max.	150 °C
Polarity	Unidirectional
Package	SMA (DO-214AC)

APPLICATION NOTES

- Respect thermal resistance (PCB layout) - as the temperature coefficient also contributes to the clamping voltage
- Select minimum breakdown voltage, so you get acceptable power dissipation and PCB tie point temperature
- Devices with higher breakdown voltage will have a shorter conduction time and will dissipate less power
- Clamping voltage is influenced by internal resistance - design approximation is 7 V per 100 mA slope
- Keep temperature of TVS lower than TOPSwitch® as a recommendation
- Maximum current is determined by the maximum T_J and can be higher than 300 mA
- Contact supplier for different clamping voltage/ current arrangements
- Minimum breakdown voltage can be customized for other applications. Contact supplier
- TOPSwitch is a registered trademark of Power Integrations, Inc.

FEATURES

AUTOMOTIVE GRADE Available

RoHS COMPLIANT HALOGEN FREE Available

- Glass passivated chip junction
- Available in unidirectional polarity only
- Excellent clamping capability
- Very fast response time
- Low incremental surge resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHM3
- 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, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive, and telecommunication.

MECHANICAL DATA

Case: SMA (DO-214AC)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-M3 - halogen-free, RoHS-compliant, and industrial grade
Base P/NHM3_X - halogen-free, RoHS-compliant, and AEC-Q101 qualified
("_X" denotes revision code e.g. A, B, ...)

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 and HM3 suffix meet JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SMAJ530**	**SMAJ550**	**UNIT**
Device marking code		HD	SB	
Peak pulse power dissipation (1)(2)(4) (fig. 1)	P_{PPM}	300		W
Power dissipation on infinite heatsink (3)	P_D	2.5		W
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150		°C

Notes

(1) Non-repetitive current pulse, per fig. 3 and derated above 25 °C per fig. 2
(2) Mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal
(3) Lead temperature at T_L = 75 °C
(4) Peak pulse power waveform is 10/1000 µs

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
DEVICE TYPE	**BREAKDOWN VOLTAGE V_{BR} AT I_T (V)**	**TEST CURRENT I_T (µA)**	**STAND-OFF VOLTAGE V_{WM} (V)**
	MIN.		
SMAJ530	530	100	477
SMAJ550	550	100	495

ADDITIONAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**	**SYMBOL**	**SMAJ530**	**SMAJ550**	**UNIT**
Max. clamping voltage	400 mA, 10/1000 µs waveform	V_C	760		V
Maximum DC reverse leakage current	V_{WM}	I_D	1.0		µA
Typical temperature coefficient	of V_{BR}		650		mV/°C
Typical capacitance (1)	0 V	C_J	90		pF
	200 V		7.5		

Note

(1) Measured at 1 MHz

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**SMAJ530**	**SMAJ550**	**UNIT**
Typical thermal resistance, junction to lead	$R_{\theta JL}$	30		°C/ W
Typical thermal resistance, junction to ambient (1)	$R_{\theta JA}$	120		

Note

(1) Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
SMAJ530-M3/61	0.064	61	1800	7" diameter plastic tape and reel
SMAJ530-M3/5A	0.064	5A	7500	13" diameter plastic tape and reel
SMAJ530HM3_B/H (1)	0.064	H	1800	7" diameter plastic tape and reel
SMAJ530HM3_B/I (1)	0.064	I	7500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

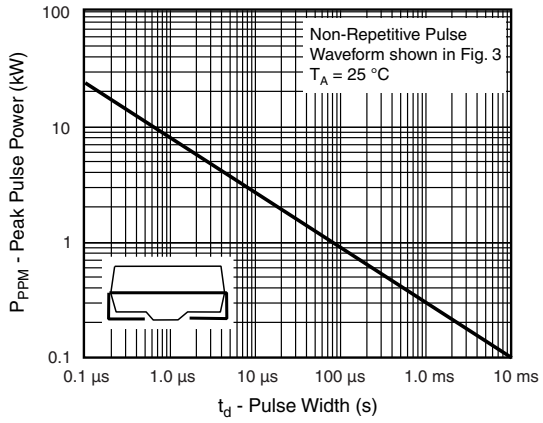


Fig. 1 - Peak Pulse Power Rating Curve

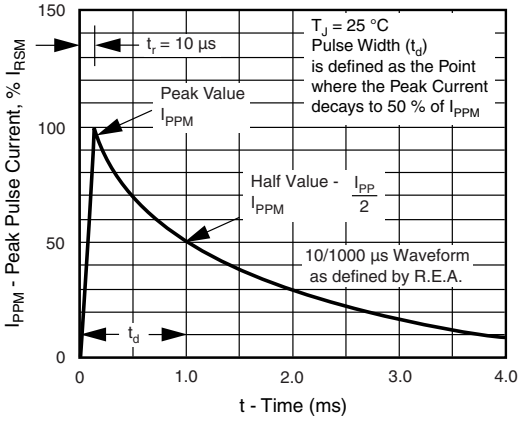


Fig. 3 - Pulse Waveform

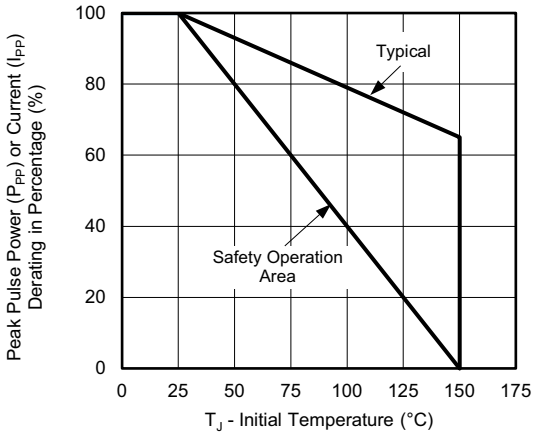


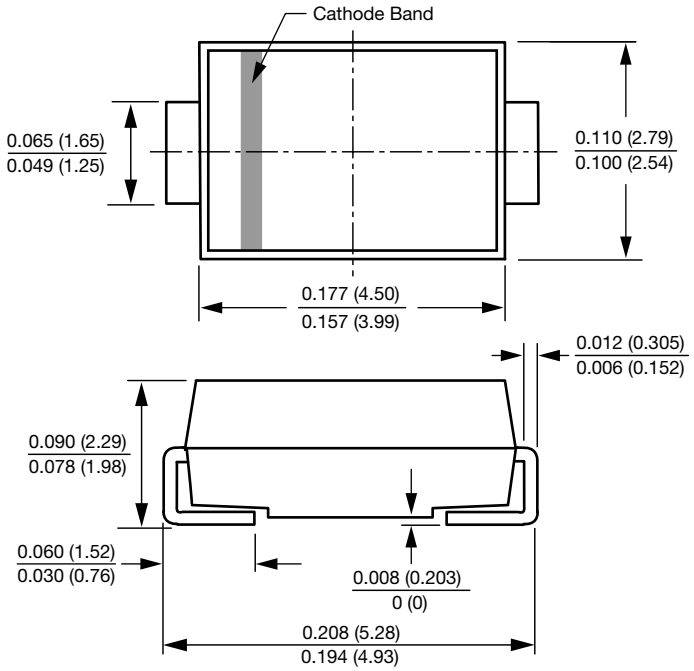
Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

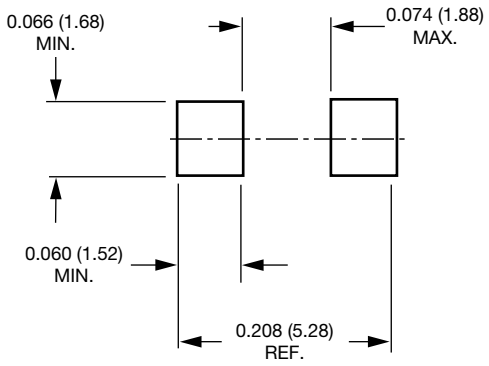
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)



Mounting Pad Layout



For technical questions within your region: DiodesAmericas@vishay.com, DiodesAsia@vishay.com, DiodesEurope@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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 in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

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

© 2026 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000