

SMAJ5.0A thru SMAJ188CA

Vishay General Semiconductor

AUTOMOTIVE GRADE

COMPLIANT

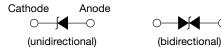
HALOGEN

FREE

Surface-Mount TRANSZORB® Transient Voltage Suppressors



SMA (DO-214AC)



LINKS TO ADDITIONAL RESOURCES



PRIMARY CHARACTERISTICS				
V _{BR} uni-directional	6.40 V to 231 V			
V _{BR} bi-directional	6.40 V to 231 V			
V _{WM}	5.0 V to 188 V			
P _{PPM}	400 W, 300 W			
P_{D}	3.3 W			
I _{FSM}	40 A			
T _J max.	150 °C			
Polarity	Unidirectional, bidirectional			
Package	SMA (DO-214AC)			

DEVICES FOR BIDIRECTION APPLICATIONS

For bidirectional use CA suffix (e.g. SMAJ10CA). Electrical characteristics apply in both directions.

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.

FEATURES

- · Low profile package
- · Ideal for automated placement
- · Glass passivated chip junction
- Available in unidirectional and bidirectional
- 400 W peak pulse power capability with a 10/1000 µs waveform, repetitive rate (duty cycle): 0.01 % (300 W above 78 V)
- · 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/NHE3 or P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

MECHANICAL DATA

Case: SMA (DO-214AC)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/N-M3 - halogen-free, RoHS-compliant, commercial grade

Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified 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

E3, M3, HE3, and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: for unidirectional types the band denotes cathode end, no marking on bidirectional types

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	VALUE	UNIT			
Peak pulse power dissipation with a 10/1000 μs waveform (1)(2) (fig. 1)	P _{PPM}	400	W			
Peak pulse current with a waveform (1)	I _{PPM}	See next table	Α			
Power dissipation on infinite heatsink at T _A = 50 °C	P_{D}	3.3	W			
Peak forward surge current 8.3 ms single half sine-wave unidirectional only (2)	I _{FSM}	40	Α			
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 $T_A = 25$ °C per fig. 2. Rating is 300 W above 78 V

 $^{(2)}$ Mounted on 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pads to each terminal



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DEVICE MARKING VOLTAGE TEST STAND-OFF REVERSE PEAK PULSE CLAMPING TE	ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
(+)SMAJ5.0A (5) AE WE 6.40 7.07 10 5.0 800 43.5 9.2 (+)SMAJ6.0A AG WG 6.67 7.37 10 6.0 800 38.8 10.3 (+)SMAJ6.SA AK WK 7.22 7.98 10 6.5 500 35.7 11.2 (+)SMAJ7.OA AM WM 7.78 8.60 10 7.0 200 33.3 12.0 (+)SMAJ7.SA AP WP 8.33 9.21 1.0 7.5 100 31.0 12.9 (+)SMAJ8.OA AR WR 8.89 9.83 1.0 8.0 50 29.4 13.6 (+)SMAJ8.OA AR WR 8.89 9.83 1.0 8.0 50 29.4 13.6 (+)SMAJ8.OA AR WR 1.22 13.5 1.0 10 27.8 14.4 (+)SMAJ9.OA AV WV 10.0 11.1 1.0 9.0 5.0 26.0 15.4 (+)SMAJ10A AX WX 11.1 12.3 1.0 10 1.0 23.5 17.0 (+)SMAJ10A AX WX 11.1 12.3 1.0 10 1.0 23.5 17.0 (+)SMAJ12A BE XE 13.3 14.7 1.0 12 1.0 22.0 18.2 (+)SMAJ13A BG XG 14.4 15.9 1.0 13 1.0 18.6 21.5 (+)SMAJ16A BK XK 15.6 17.2 1.0 14 1.0 17.2 23.2 (+)SMAJ16A BP XP 17.8 19.7 1.0 16 1.0 15.4 26.0 (+)SMAJ16A BP XR 18.9 20.9 1.0 17 1.0 16 1.0 15.4 26.0 (+)SMAJ16A BR XR 18.9 20.9 1.0 17 1.0 18.6 27.6 (+)SMAJ16A BR XR 18.9 20.9 1.0 17 1.0 18.5 1.0 11.3 35.5 (+)SMAJ20A BX XX 24.4 26.9 1.0 22 1.0 13.3 32.4 (+)SMAJ20A BX XX 24.4 26.9 1.0 22 1.0 13.3 32.4 (+)SMAJ20A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ30A CK YK 33 38.8 1.0 26 1.0 8.8 45.4 (+)SMAJ30A CR YK 33 38.8 1.0 33 1.0 7.5 53.3 (+)SMAJ30A CR YK 33 38.8 1.0 33 1.0 7.5 53.3 (+)SMAJ30A CR YK 33 38.8 1.0 33 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 43.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CR YK 33 38.8 1.0 33 1.0 7.5 53.3 (+)SMAJ30A CR YK 33 38.8 1.0 33 1.0 6.2 64.5 (+)SMAJ30A CR YK 33 38.8 1.0 43.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CR YK 33 38.8 1.0 43.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CR YK 33 38.8 1.0 43.4 1.0 28 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 43.4 1.0 28 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 43.9 1.0 44.8 1.0 5.2 77.7 (+)SMAJ30A CR YK 33 38.8 1.0 43.9 1.0 44.1 1.0 5.2 77.5 53.3 (+)SMAJ30A CR YK 33 38.8 1.0 43.9 1.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 43.9 1.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 43.9 1.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ30A CR YK 33 38.8 1.0 44.2 1.0 36 1.0 44.3 38.6 (+)SMAJ30A CR YK 33 38.8 1.0 44.2 1.0 58.8 1.0 44.3 39.6	MAXIMUM MPERATURE OEFFICIENT OF V _{BR}					
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(+)SMAJ13A BG XG 14.4 15.9 1.0 13 1.0 18.6 21.5 (+)SMAJ14A BK XK 15.6 17.2 1.0 14 1.0 17.2 23.2 (+)SMAJ15A BM XM 16.7 18.5 1.0 15 1.0 16.4 24.4 (+)SMAJ15A BP XP 17.8 19.7 1.0 16 1.0 15.4 26.0 (+)SMAJ16A BP XR 18.9 20.9 1.0 17 1.0 14.5 27.6 (+)SMAJ18A BT XT 20.0 22.1 1.0 18 1.0 13.7 29.2 (+)SMAJ20A BV XV 22.2 24.5 1.0 20 1.0 12.3 32.4 (+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ30A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ30A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ48A CY YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ48A CY YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ48A CY YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ50A CR YR 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ50A RE ZE 60.0 66.3 1.0 58 1.0 4.1 96.8	0.080					
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(+)SMAJ15A BM XM 16.7 18.5 1.0 15 1.0 16.4 24.4 (+)SMAJ16A BP XP 17.8 19.7 1.0 16 1.0 15.4 26.0 (+)SMAJ17A BR XR 18.9 20.9 1.0 17 1.0 14.5 27.6 (+)SMAJ18A BT XT 20.0 22.1 1.0 18 1.0 13.7 29.2 (+)SMAJ20A BV XV 22.2 24.5 1.0 20 1.0 12.3 32.4 (+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ20A CK YK 33.3 36.8 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ30A CR YR 44.4 49.1 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ48A CY YV 50.0 55.3 1.0 43 1.0 5.8 69.4 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54 1.0 4.9 82.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ54A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ54A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ54A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ54A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ54A RE ZE 60.0 66.3 1.0 58 1.0 4.3 93.6 (+)SMAJ54A RE ZE 60.0 66.7 73.7 1.0 60 1.0 4.1 96.8	0.084					
(+)SMAJ16A BP XP 17.8 19.7 1.0 16 1.0 15.4 26.0 (+)SMAJ17A BR XR 18.9 20.9 1.0 17 1.0 14.5 27.6 (+)SMAJ18A BT XT 20.0 22.1 1.0 18 1.0 13.7 29.2 (+)SMAJ20A BV XV 22.2 24.5 1.0 20 1.0 12.3 32.4 (+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ33A CM YM 36.7 40.6 1.0	0.087					
(+)SMAJ17A BR XR 18.9 20.9 1.0 17 1.0 14.5 27.6 (+)SMAJ18A BT XT 20.0 22.1 1.0 18 1.0 13.7 29.2 (+)SMAJ20A BV XV 22.2 24.5 1.0 20 1.0 12.3 32.4 (+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ26A CE YE 28.9 31.9 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ36A CP YP 40.0 44.2 1.0 <	0.088					
(+)SMAJ18A BT XT 20.0 22.1 1.0 18 1.0 13.7 29.2 (+)SMAJ20A BV XV 22.2 24.5 1.0 20 1.0 12.3 32.4 (+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ40A CR YR 44.4 49.1 1.0 <t< td=""><td>0.089</td></t<>	0.089					
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(+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ45A CV YV 50.0 55.3 1.0	0.092					
(+)SMAJ22A BX XX 24.4 26.9 1.0 22 1.0 11.3 35.5 (+)SMAJ24A BZ XZ 26.7 29.5 1.0 24 1.0 10.3 38.9 (+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ45A CV YV 50.0 55.3 1.0	0.094					
(+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ43A CT YT 47.8 52.8 1.0 43 1.0 5.8 69.4 (+)SMAJ45A CV YV 50.0 55.3 1.0 45 1.0 5.5 72.7 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54	0.096					
(+)SMAJ26A CE YE 28.9 31.9 1.0 26 1.0 9.5 42.1 (+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ43A CT YT 47.8 52.8 1.0 43 1.0 5.8 69.4 (+)SMAJ45A CV YV 50.0 55.3 1.0 45 1.0 5.5 72.7 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54	0.096					
(+)SMAJ28A CG YG 31.1 34.4 1.0 28 1.0 8.8 45.4 (+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ43A CT YT 47.8 52.8 1.0 43 1.0 5.8 69.4 (+)SMAJ45A CV YV 50.0 55.3 1.0 45 1.0 5.5 72.7 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54	0.097					
(+)SMAJ30A CK YK 33.3 36.8 1.0 30 1.0 8.3 48.4 (+)SMAJ33A CM YM 36.7 40.6 1.0 33 1.0 7.5 53.3 (+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ43A CT YT 47.8 52.8 1.0 43 1.0 5.8 69.4 (+)SMAJ45A CV YV 50.0 55.3 1.0 45 1.0 5.5 72.7 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ51A CZ YZ 56.7 62.7 1.0 51 1.0 4.6 87.1 (+)SMAJ58A RG ZG 64.4 71.2 1.0 58	0.098					
(+)SMAJ36A CP YP 40.0 44.2 1.0 36 1.0 6.9 58.1 (+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ43A CT YT 47.8 52.8 1.0 43 1.0 5.8 69.4 (+)SMAJ45A CV YV 50.0 55.3 1.0 45 1.0 5.5 72.7 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ51A CZ YZ 56.7 62.7 1.0 51 1.0 4.9 82.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54 1.0 4.6 87.1 (+)SMAJ58A RG ZG 64.4 71.2 1.0 58 1.0 4.3 93.6 (+)SMAJ60A RK ZK 66.7 73.7 1.0 60	0.099					
(+)SMAJ40A CR YR 44.4 49.1 1.0 40 1.0 6.2 64.5 (+)SMAJ43A CT YT 47.8 52.8 1.0 43 1.0 5.8 69.4 (+)SMAJ45A CV YV 50.0 55.3 1.0 45 1.0 5.5 72.7 (+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ51A CZ YZ 56.7 62.7 1.0 51 1.0 4.9 82.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54 1.0 4.6 87.1 (+)SMAJ58A RG ZG 64.4 71.2 1.0 58 1.0 4.3 93.6 (+)SMAJ60A RK ZK 66.7 73.7 1.0 60 1.0 4.1 96.8	0.100					
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(+)SMAJ48A CX YX 53.3 58.9 1.0 48 1.0 5.2 77.4 (+)SMAJ51A CZ YZ 56.7 62.7 1.0 51 1.0 4.9 82.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54 1.0 4.6 87.1 (+)SMAJ58A RG ZG 64.4 71.2 1.0 58 1.0 4.3 93.6 (+)SMAJ60A RK ZK 66.7 73.7 1.0 60 1.0 4.1 96.8	0.102					
(+)SMAJ51A CZ YZ 56.7 62.7 1.0 51 1.0 4.9 82.4 (+)SMAJ54A RE ZE 60.0 66.3 1.0 54 1.0 4.6 87.1 (+)SMAJ58A RG ZG 64.4 71.2 1.0 58 1.0 4.3 93.6 (+)SMAJ60A RK ZK 66.7 73.7 1.0 60 1.0 4.1 96.8	0.103					
(+)SMAJ54A RE ZE 60.0 66.3 1.0 54 1.0 4.6 87.1 (+)SMAJ58A RG ZG 64.4 71.2 1.0 58 1.0 4.3 93.6 (+)SMAJ60A RK ZK 66.7 73.7 1.0 60 1.0 4.1 96.8	0.104					
(+)SMAJ58A RG ZG 64.4 71.2 1.0 58 1.0 4.3 93.6 (+)SMAJ60A RK ZK 66.7 73.7 1.0 60 1.0 4.1 96.8	0.104					
(+)SMAJ60A RK ZK 66.7 73.7 1.0 60 1.0 4.1 96.8	0.104					
	0.105					
	0.105					
(+)SMAJ70A RP ZP 77.8 86.0 1.0 70 1.0 3.5 113	0.105					
(+)SMAJ75A RR ZR 83.3 92.1 1.0 75 1.0 3.3 121	0.106					
(+)SMAJ78A RT ZT 86.7 95.8 1.0 78 1.0 3.2 126	0.106					
(+)SMAJ85A RV ZV 94.4 104 1.0 85 1.0 2.2 137	0.106					
(+)SMAJ90A RX ZX 100 111 1.0 90 1.0 2.1 146	0.106					
(+)SMAJ100A RZ ZZ 111 123 1.0 100 1.0 1.9 162	0.107					
(+)SMAJ110A SE VE 122 135 1.0 110 1.0 1.7 177	0.107					
(+)SMAJ120A VG VG 133 147 1.0 120 1.0 1.6 193	0.108					
(+)SMAJ130A VK VK 144 159 1.0 130 1.0 1.4 209	0.108					
(+)SMAJ150A VM VM 167 185 1.0 150 1.0 1.2 243	0.108					
(+)SMAJ160A SP VP 178 197 1.0 160 1.0 1.2 259	0.108					
(+)SMAJ170A SR VR 189 209 1.0 170 1.0 1.09 275	0.108					
(+)SMAJ188A SS VS 209 231 1.0 188 1.0 0.91 328	0.108					

Notes

- (1) Pulse test: $t_p \le 50 \text{ ms}$
- (2) Surge current waveform per fig. 3 and derate per fig. 2
- $^{(3)}$ For bidirectional types having V_{WM} of 10 V and less, the I_D limit is doubled
- (4) All terms and symbols are consistent with ANSI/IEEE C62.35
- $^{(5)}$ For the bi-directional SMAJ5.0CA, the maximum V_{BR} is 7.25 V
- $^{(6)}~V_{\text{F}}=3.5~\text{V}$ at $I_{\text{F}}=25~\text{A}$ (unidirectional only)
- (+) Underwriters Laboratory Recognition for the classification of protectors (QVGQ2) under the UL standard for safety 497B and file number E136766 for both unidirectional and bidirectional device



SMAJ5.0A thru SMAJ188CA

Vishay General Semiconductor

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

Note

⁽¹⁾ Mounted on minimum recommended pad layout

ORDERING INFORMATION (Example)						
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
SMAJ5.0A-E3/61	0.064	61	1800	7" diameter plactic tops and real		
SMAJ5.0A-M3/61	0.064	01	1800	7" diameter plastic tape and reel		
SMAJ5.0A-E3/5A	0.064	5A	7500	12" diameter plactic topo and real		
SMAJ5.0A-M3/5A	0.064	5A	7500	13" diameter plastic tape and reel		
SMAJ5.0AHE3_A/H (1)	0.064	Н	1800	7" diameter plactic tops and real		
SMAJ5.0AHM3_A/H (1)	0.064	П	1600	7" diameter plastic tape and reel		
SMAJ5.0AHE3_A/I (1)	0.064	1	7500	13" diameter plastic tape and reel		
SMAJ5.0AHM3_A/I (1)	A/I ⁽¹⁾	7500	13 diameter plastic tape and reel			

Note

⁽¹⁾ AEC-Q101 qualified



Vishay General Semiconductor

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

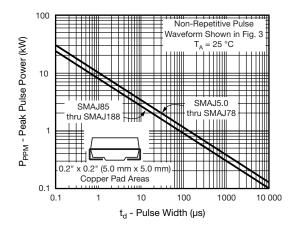
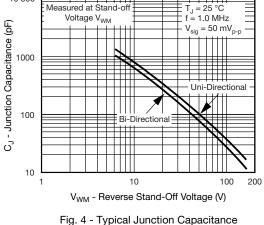


Fig. 1 - Peak Pulse Power Rating Curve



10 000

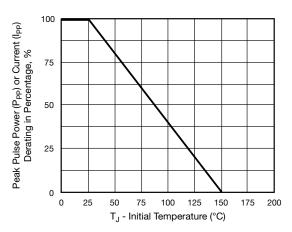


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

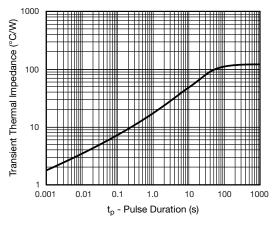


Fig. 5 - Typical Transient Thermal Impedance

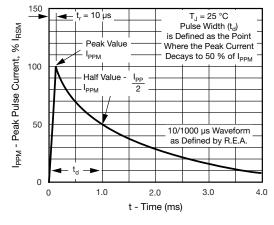


Fig. 3 - Pulse Waveform

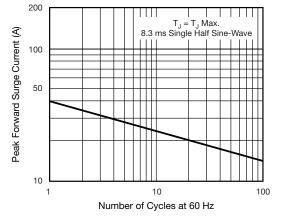


Fig. 6 - Maximum Non-Repetitive Forward Surge Current **Unidirectional Only**



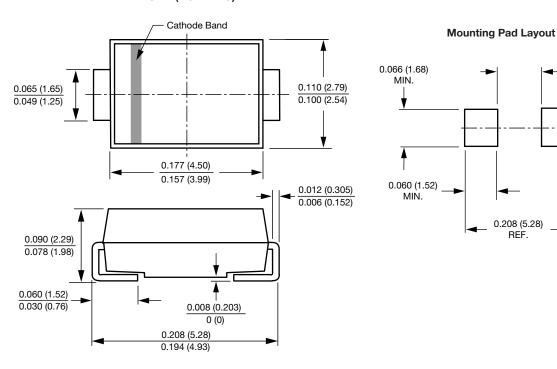
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0.074 (1.88)

MAX.

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMA (DO-214AC)





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ESD119B1W01005E6327XTSA1 ESD5V0J4-TP ESD5V0L1B02VH6327XTSA1 ESD7451N2T5G 19180-510 CPDT-5V0USP-HF
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82350120560 82356240030 VESD12A1A-HD1-GS08 CPDUR5V0R-HF CPDUR24V-HF CPDQC5V0U-HF CPDQC5V0USP-HF
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