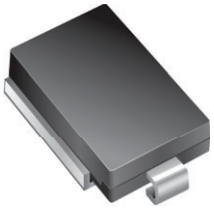
Surface Mount XClampR™ Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions



DO-218AB

PRIMARY CHARACTERISTICS	
V_{WM}	24 V
V_{BR}	26.7 ~ 29.5
V_{CL} max.	26 V
P_{PPM} (10/1000 µs)	7700 W [(1)]
P_{PPM} (10/10 000 µs)	4600 W [(2)]
T_J max.	175 °C
Polarity	Bidirectional
Package	DO-218AB

Notes

(1) Equivalent I_{PPM} with conventional 7700 W TVS

(2) Equivalent I_{PPM} with conventional 4600 W TVS

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lightning, especially for automotive load dump protection application withstanding 24 V jumper-start voltage test for 12 V powertrain. May need to connect in series with one conventional TVS to address in applications for various stand-off voltages and clamping voltages.

FEATURES

- XClampR™ extremely low clamping voltage
- I_{PPM} = 120 A with a 10/10 000 µs waveform
- T_J = 175 °C capability suitable for high reliability and automotive requirement
- Bidirectional
- Low leakage current
- AEC-Q101 qualified
  - Automotive ordering code: base P/NHM3
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

MECHANICAL DATA

Case: DO-218AB
Molding compound meets UL 94 V-0 flammability rating
Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

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

Polarity: no cathode marking on bidirectional types

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER		SYMBOL	VALUE	UNIT
Device marking code			X5A24C	
Peak pulse power dissipation	with 10/1000 µs waveform	P_{PPM}	7700 [(1)]	W
	with 10/10 000 µs waveform		4600 [(1)]	W
Peak pulse current with a 10/10 000 µs waveform, fig.4		I_{PPM} [(2)]	120	A
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +175	°C

Notes

(1) The peak pulse power at equivalent I_{PPM} with conventional TVS

(2) Non-repetitive current pulse and derated above T_A = 25 °C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

DEVICE TYPE	BREAKDOWN VOLTAGE V_{BR} (V) AT I_T		TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAX. REVERSE LEAKAGE AT V_{WM} I_D (µA)	MAX. PEAK PULSE CURRENT AT 10/10 000 µs WAVEFORM (A)	CLAMPING VOLTAGE AT I_{PPM} V_C (V)	
	MIN.	MAX.					MIN.	MAX.
XLD5A24CA	26.7	29.5	5	24	1.0	120	18	26

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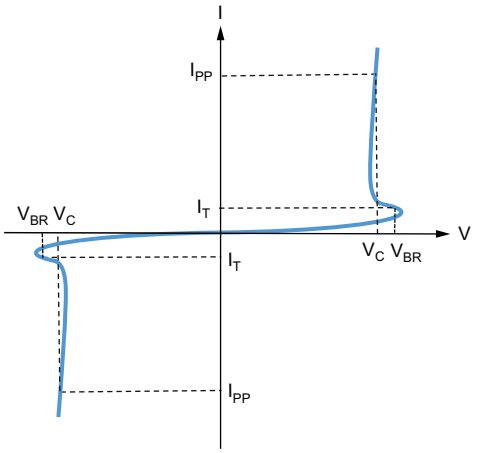
ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
XLD5A24CAHM3/I[1]	2.505	I	750	13" diameter plastic tape and reel

Note

[1] AEC-Q101 qualified

I - V CURVE CHARACTERISTICS



V_{BR}.....Breakdown voltage
I_T.....Reverse test current
V_C.....Clamping voltage
I_{PP}.....Peak pulse surge current

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

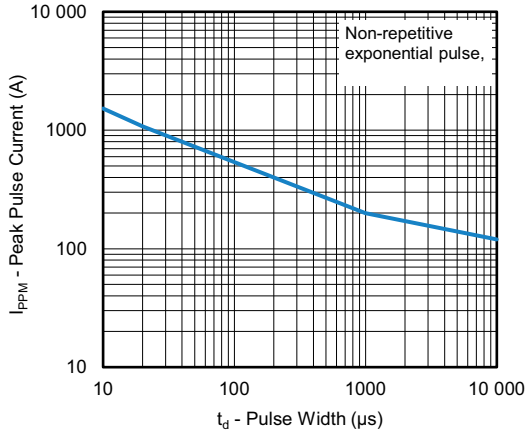

Fig. 1 - Peak Pulse Current Rating Curve

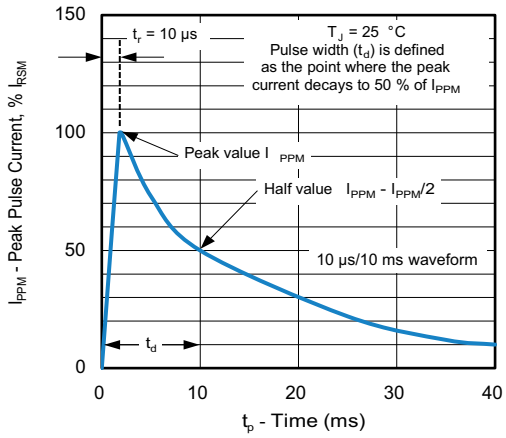

Fig. 4 - Pulse Waveform

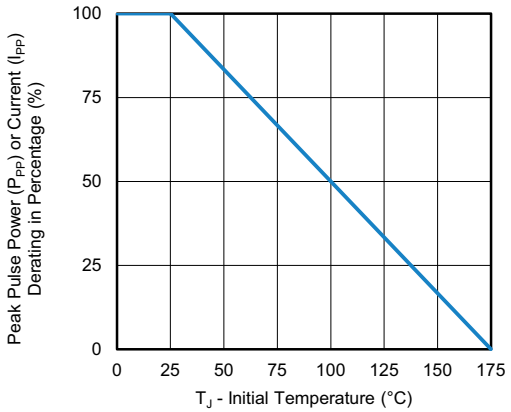

Fig. 2 - Peak Pulse Current vs. Initial Junction Temperature

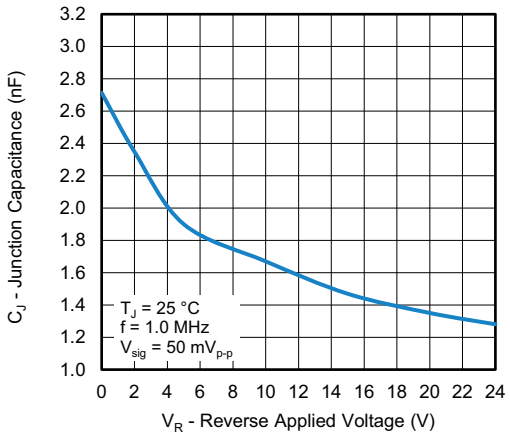

Fig. 5 - Typical Junction Capacitance

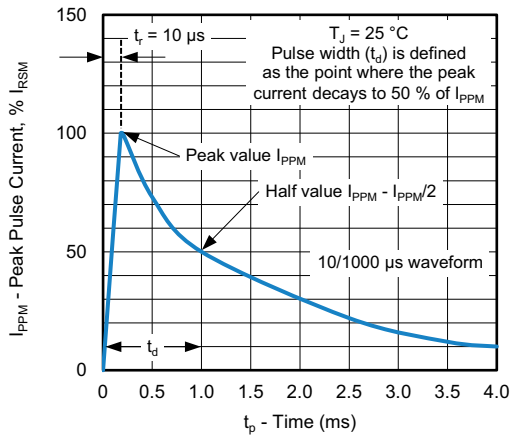

Fig. 3 - Pulse Waveform

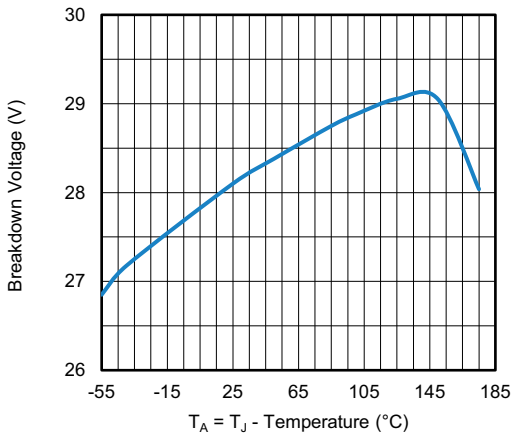

Fig. 6 - Typical Breakdown Voltage vs. Temperature Curve

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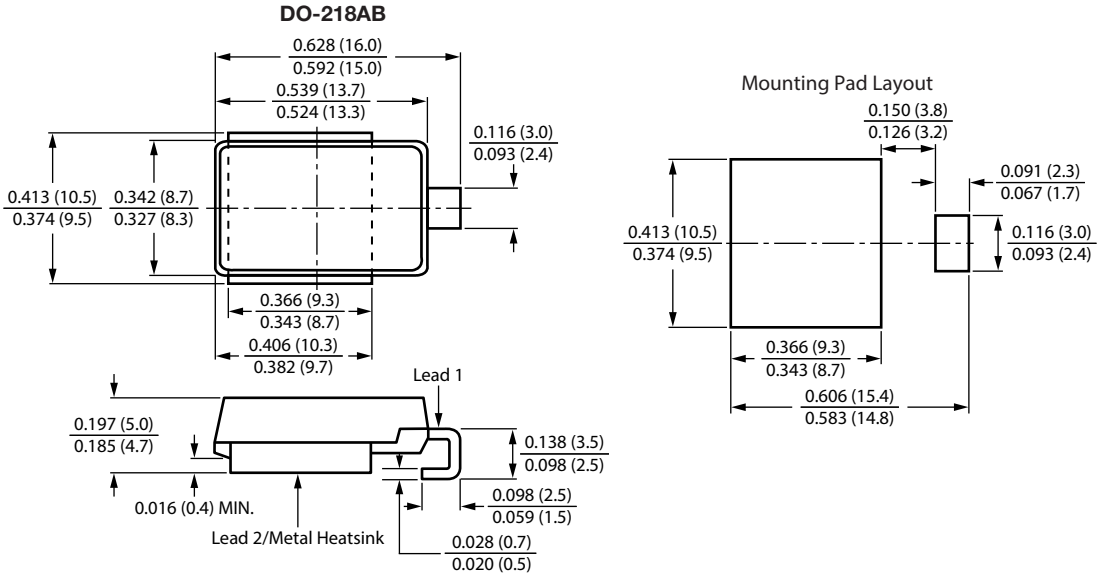
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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