

Surface Mount XClampR® Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions



DO-218AB



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- XClampR® extremely low clamping voltage
- $I_{PPM} = 120$ A with a 10/10 000 μ s 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

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

PRIMARY CHARACTERISTICS	
V_{WM}	24 V
V_{BR}	26.7 V to 29.5 V
V_{CL} max.	26 V
P_{PPM} (10/1000 μ s)	7700 W ⁽¹⁾
P_{PPM} (10/10 000 μ s)	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.

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)				
PARAMETER		SYMBOL	VALUE	UNIT
Device marking code			X5A24C	
Peak pulse power dissipation	with 10/1000 μ s waveform	P_{PPM}	7700 ⁽¹⁾	W
	with 10/10 000 μ s waveform		4600 ⁽¹⁾	W
Peak pulse current with a 10/10 000 μ s 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 ($T_A = 25^\circ\text{C}$ 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

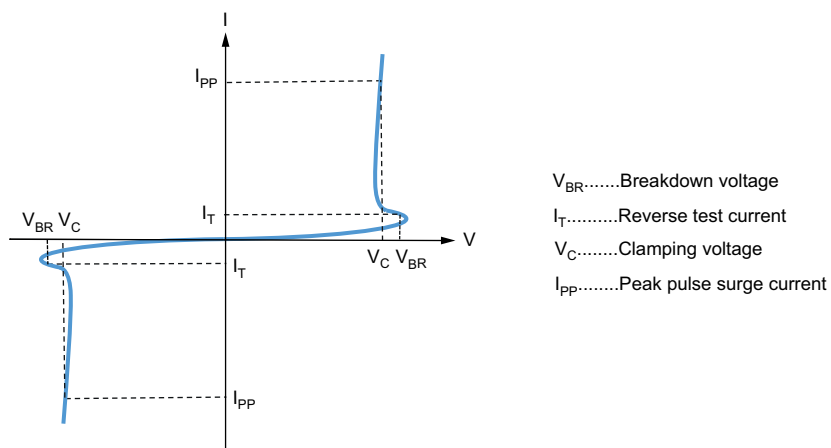
ORDERING INFORMATION (Example)

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



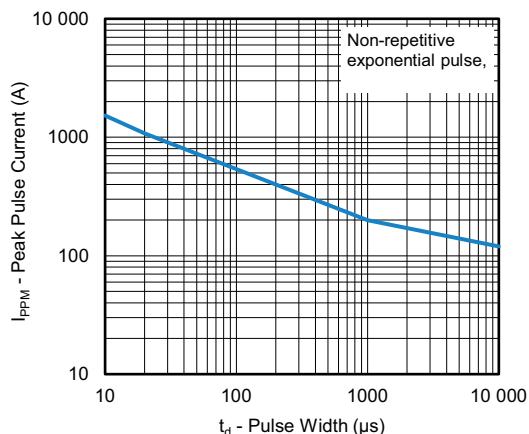
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)


Fig. 1 - Peak Pulse Current Rating Curve

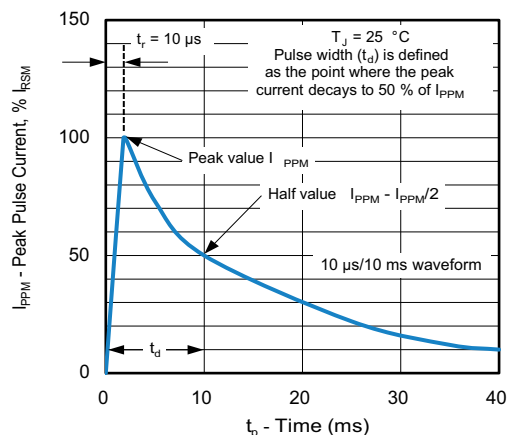


Fig. 4 - Pulse Waveform

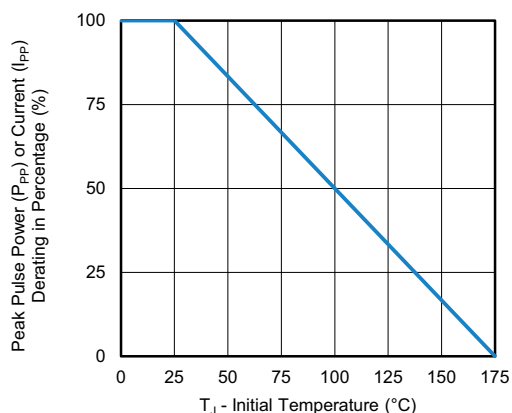


Fig. 2 - Peak Pulse Current vs. Initial Junction Temperature

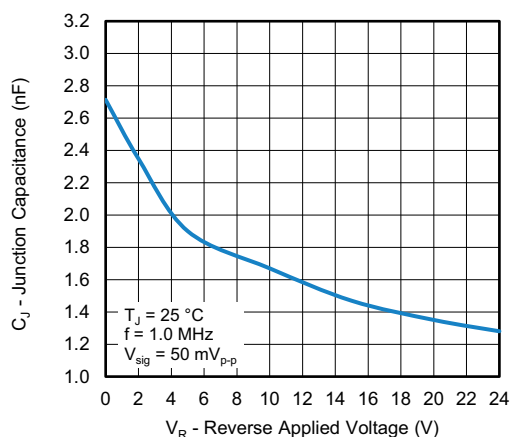


Fig. 5 - Typical Junction Capacitance

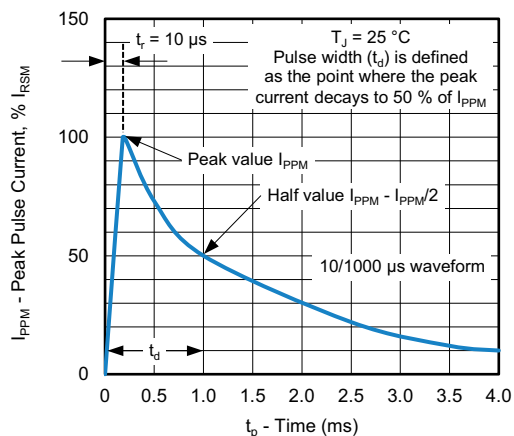


Fig. 3 - Pulse Waveform

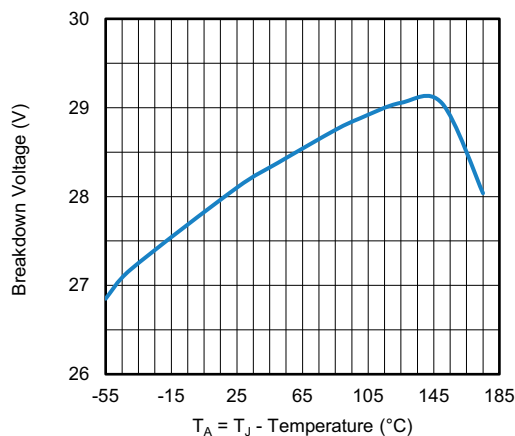
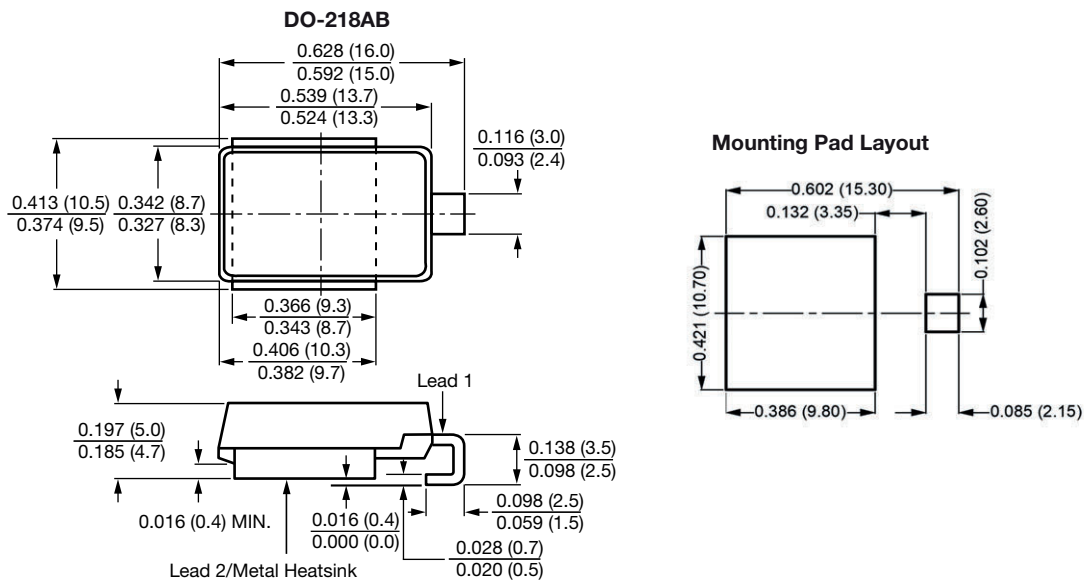


Fig. 6 - Typical Breakdown Voltage vs. Temperature Curve



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



Note

- Footprint in accordance with IPC 7351 standard



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