

Vishay General Semiconductor

Surface Mount XClampRTM Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions



SMC (DO-214AB)

PRIMARY CHARACTERISTICS						
V _{WM}	24 V					
V_{BR}	26.7 V to 29.5 V					
V _{CL} max.	24 V					
P _{PPM} (10/1000 μs)	7000 W ⁽¹⁾					
T _J max.	175 °C					
Polarity	Bidirectional					
Package	SMC (DO-214AB)					

Note

(1) Equivalent I_{PPM} with conventional 7 KW TVS

TYPICAL APPLICATIONS

Use in sensitive electronics protection against voltage transients induced by inductive load switch and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive, and telecommunication

FEATURES

- XClampRTM extremely low clamping voltage
- I_{PPM} = 180 A with a 10/1000 µs waveform
- T_J = 175 °C capability suitable for high reliability and automotive requirement
- **HALOGEN** FREE
- 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 260 °C
- UL recognition for safety 497B with file number E136766
- · Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

MECHANICAL DATA

Case: SMC (DO-214AB)

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

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Terminals: matte tin plated leads, solderable J-STD-002 and JESD 22-B102

M3 and HM3 suffix meet JESD 201 class 2 whisker test

Polarity: no marking on bidirectional types

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	VALUE	UNIT				
Peak pulse current with a 10/1000 µs waveform, fig.1	I _{PPM} ⁽¹⁾	180	Α				
Maximum working stand-off voltage	V _{WM}	24	V				
Operating junction and storage temperature range	T _J , T _{STG}	-55 to +175	°C				

Note

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

ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
DEVICE TYPE DEVICE MARKING CODE	BREAKDOWN VOLTAGE V _{BR} (V) AT I _T		TEST CURRENT	STAND-OFF VOLTAGE V _{WM}		
		MIN.	MAX.	IT (IIIA)	(V)	
XMC7K24CA	C7BZ	26.7	29.5	1.0	24	

ADDITIONAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	MIN.	TYP.	MAX.	UNIT
Clamping voltage for 10/1000 µs exponentially decaying waveform	at I _{PP} = 180 A		V _C	18	-	24	V
Reverse leakage current	Rated V _{WM}	T _J = 25 °C	I _R	-	-	1.0	μΑ



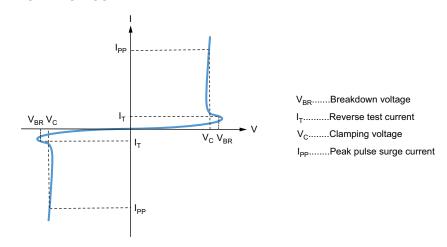
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ORDERING INFORMATION (Example)					
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE	
XMC7K24CA-M3/H	0.261	Н	850	7" diameter plastic tape and reel	
XMC7K24CA-M3/I	0.261	I	3500	13" diameter plastic tape and reel	
XMC7K24CAHM3/H (1)	0.261	Н	850	7" diameter plastic tape and reel	
XMC7K24CAHM3/I ⁽¹⁾	0.261	1	3500	13" diameter plastic tape and reel	

Note

I - V CURVE CHARACTERISTICS



⁽¹⁾ AEC-Q101 qualified

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

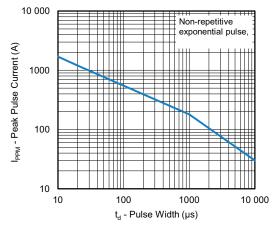
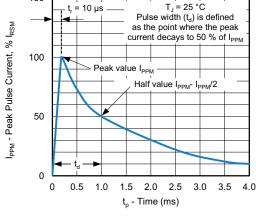


Fig. 1 - Peak Pulse Current Rating Curve



150

Fig. 3 - Pulse Waveform

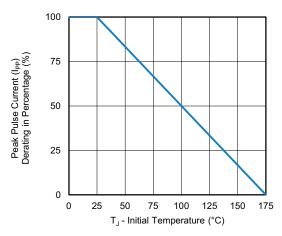


Fig. 2 - Peak Pulse Current vs. Initial Junction Temperature

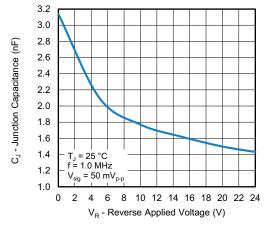


Fig. 4 - Typical Junction Capacitance

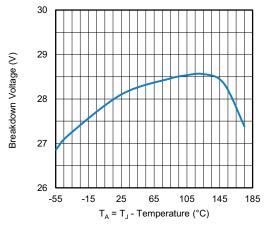


Fig. 5 - Typical Breakdown Voltage vs. Temperature Curve



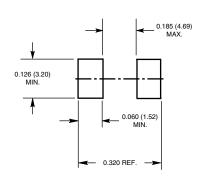
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

0.126 (3.20) 0.114 (2.90) 0.103 (2.62) 0.079 (2.06) 0.080 (1.52) 0.080 (0.152) 0.008 (0.2) 0.008 (0.2) 0.008 (0.2) 0.008 (0.2)

0.305 (7.75)

Mounting Pad Layout





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