



**THE DATASHEET OF  
XT9MNLANA14M31818**



## Low Profile SMD Type Crystal Units



### FEATURES

- Low cost
- Industry standard
- Wide frequency range
- Excellent aging
- Surface-mount
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

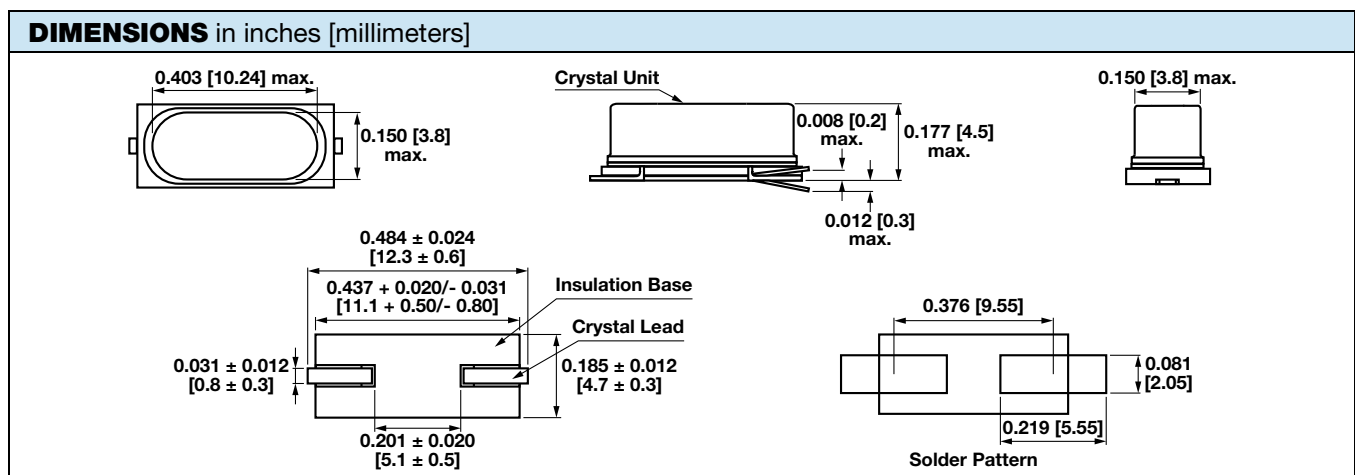

**RoHS**  
COMPLIANT

### Note

- Not compatible with vapor phase reflow mounting
- This part is a miniature AT cut strip crystal unit packaged for surface mounting.

STANDARD ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Frequency range	$F_0$		MHz	3.579545	-	66.000
Frequency tolerance	$\Delta F/F_0$	At 25 °C	ppm	-	$\pm 10, \pm 15, \pm 20, \pm 25, \pm 30$	-
Temperature stability	$T_C$	Ref. to 25 °C	ppm	-	$\pm 20, \pm 25, \pm 30, \pm 35, \pm 50, \pm 100$	-
Operating temperature range	$T_{OPR}$		°C	-10	-	+70
Storage temperature range	$T_{STG}$		°C	-55	-	+125
Shunt capacitance	$C_0$		pF	-	-	7
Load capacitance	$C_L$	Customer specified	pF	10	-	Series
Insulation resistance	$I_R$	100 V <sub>DC</sub>	MΩ	500	-	-
Drive level	$D_L$		μW	-	100	500
Aging	$F_a$	At 25 °C, per year	ppm	-5	-	+5

EQUIVALENT SERIES RESISTANCE (ESR) AND MODE OF VIBRATION (MODE)					
FREQUENCY RANGE (MHz)	MAX. ESR (Ω)	MODE	FREQUENCY RANGE (MHz)	MAX. ESR (Ω)	MODE
3.579 to 3.999	200	Fundamental / AT	10.000 to 13.999	80	Fundamental / AT
4.000 to 4.999	150	Fundamental / AT	14.000 to 39.999	50	Fundamental / AT
5.000 to 5.999	120	Fundamental / AT	40.000 to 66.999	80	3 <sup>rd</sup> overtone
6.000 to 9.999	100	Fundamental / AT			





**PART NUMBER CONFIGURATIONS** (to be used on all New Designs)

<b>X</b>	<b>T</b>	<b>9</b>	<b>M</b>	<b>2</b>	<b>0</b>	<b>H</b>	<b>J</b>	<b>R</b>	<b>G</b>	<b>X</b>	<b>8</b>	<b>M</b>	<b>1</b>	<b>9</b>	<b>2</b>	<b>E</b>
Crystal		Package / Size <b>9M</b>		Load Cap. <b>20</b> = std. <b>SE</b> = series		Pack Code <b>A</b> = bulk <b>H</b> = tape and reel	Freq. Tolerance <b>G</b> = ± 30 ppm <b>E</b> = ± 25 ppm <b>H</b> = ± 20 ppm <b>I</b> = ± 15 ppm <b>J</b> = ± 10 ppm	Operating Temp. <b>S</b> = -10 °C to +70 °C <b>R</b> = -40 °C to +85 °C	Temp. Stability <b>C</b> = ± 100 ppm <b>D</b> = ± 50 ppm <b>F</b> = ± 35 ppm <b>G</b> = ± 30 ppm <b>E</b> = ± 25 ppm <b>H</b> = ± 20 ppm	Options <b>X</b> = no options  Contact factory for available options	Frequency Use "M" as decimal place holder  Frequency must be five digits - complete with "0" at the end					Lead (Pb)-free <b>E</b> = lead (Pb)-free

Previous / legacy part number information: still valid for existing designs;  
**all New Designs should use the new part configuration above**

**PREVIOUS / LEGACY GLOBAL PART NUMBERING**

<b>X</b>	<b>T</b>	<b>9</b>	<b>M</b>	<b>2</b>	<b>0</b>	<b>A</b>	<b>N</b>	<b>A</b>	<b>4</b>	<b>0</b>	<b>M</b>
<b>MODEL NUMBER</b> XT9M = XT49M				<b>LOAD CAPACITANCE</b> 18 = 18 pF 20 = 20 pF NL = series to be specified by customer		<b>PACKAGE CODE</b> Tape and reel H = RF7 (XT9M)  Bulk A = B04 (all models)		<b>OPTIONS</b> NA = no additional options RR = extended temperature of -40 °C to +85 °C Contact factory for all other options		<b>FREQUENCY</b> 4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz "M" is used as decimal place holder in frequency	
<b>XT49M</b> MODEL				<b>R</b> OTR blank = standard R = -40 °C to +85 °C		<b>-20</b> LOAD blank = series -20 = 20 pF standard -30 = 30 pF -32 = 32 pF		<b>12M</b> FREQUENCY/MHz		<b>e2</b> JEDEC® LEAD (Pb)-FREE STANDARD	



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