

## 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)

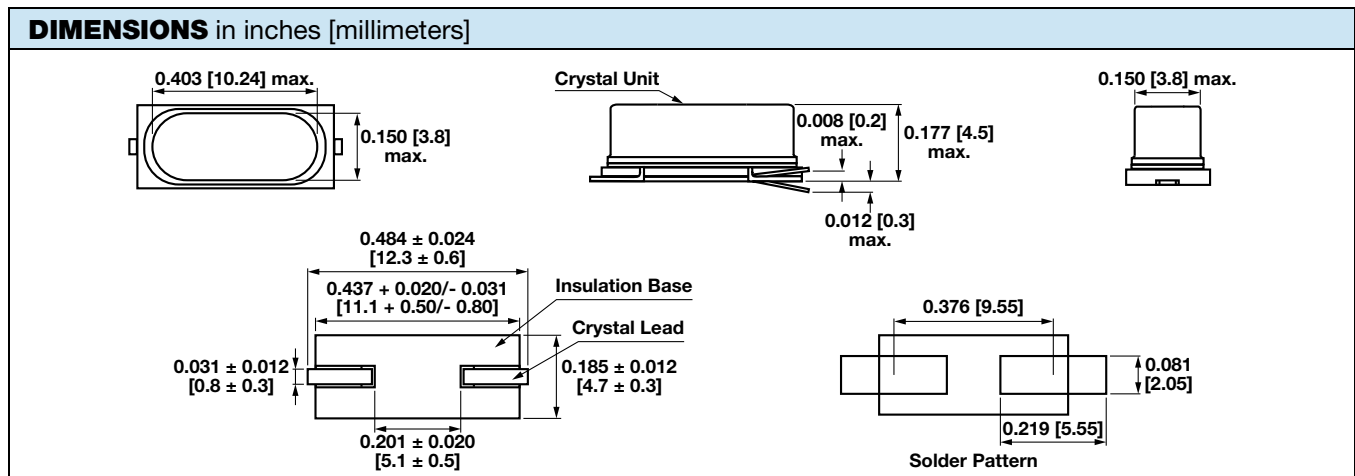

**RoHS**  
COMPLIANT

### 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	$F_O$		MHz	3.579545	-	66.000
Frequency tolerance	$\Delta F/F_O$	At 25 °C	ppm	-30	-	+30
Temperature stability	$T_C$	Ref. to 25 °C	ppm	-50	-	+50
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			





ORDERING INFORMATION				
<b>XT49M</b>	<b>R</b>	<b>-20</b>	<b>20M</b>	<b>e2</b>
MODEL	OTR	LOAD	FREQUENCY/MHz	JEDEC® LEAD (Pb)-FREE STANDARD
	blank = standard R = -40 °C to +85 °C	blank = series -20 = 20 pF -30 = 30 pF -32 = 32 pF		

GLOBAL PART NUMBER				
X	T	9	M	
MODEL				
	2	0		
	LOAD			
		A		
		PACKAGE CODE		
			N	A
			OPTION	
			2	0
			FREQUENCY	
				M

GLOBAL PART NUMBERING				
X	T	9	S	
MODEL NUMBER				
XT9S = XT49S XT9M = XT49M XTU1 = XTUM1				
	2	0		
	LOAD CAPACITANCE			
	18 = 18 pF 20 = 20 pF NL = series to be specified by customer			
		A		
		PACKAGE CODE		
		<b>Tape and reel</b> G = RF5 (XT9S) H = RF7 (XT9M)		
		<b>Bulk</b> A = B04 (all models)		
			N	A
			OPTIONS	
			NA = no additional options RR = extended temperature of -40 °C to +85 °C Contact factory for all other options	
			4	0
			FREQUENCY	
			4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency	
Example: XT49S-20 40M				
X	T	3	6	
MODEL NUMBER				
XT46 = XT46C XT36 = XT36C				
	2	0		
	LOAD CAPACITANCE			
	18 = 18 pF 20 = 20 pF NL = series to be specified by customer			
		A		
		PACKAGE CODE		
		<b>Tape and reel</b> H = RF7		
		<b>Bulk</b> A = B04 (all models)		
			1	2
			FREQUENCY	
			4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency	
Example: XT36C-20 12M				



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