

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


RoHS
COMPLIANT

Note

- Not compatible with vapor phase reflow mounting

This part is a miniature AT cut strip crystal unit packaged for surface mounting.

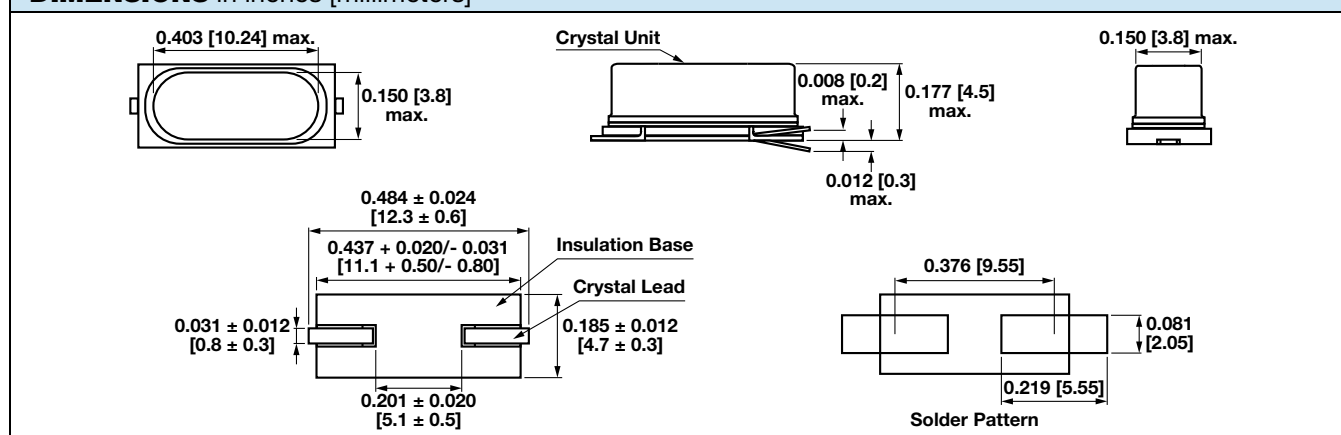
STANDARD ELECTRICAL SPECIFICATIONS

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 _{DC}	MΩ	500	-	-
Drive level	D_L		μW	-	100	500
Aging	Fa	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 rd overtone
6.000 to 9.999	100	Fundamental / AT			

DIMENSIONS in inches [millimeters]



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

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

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



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