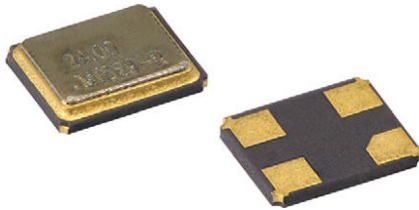


## Quartz Crystals



The XT23 is a miniature SMD crystal with 3.2 x 2.5 (mm) ceramic package and a height of 0.8 mm. 12 MHz to 54 MHz frequency makes it widely applied in PDA, GPS, MP3, PCMCIA, bluetooth, and portable instruments.

### FEATURES

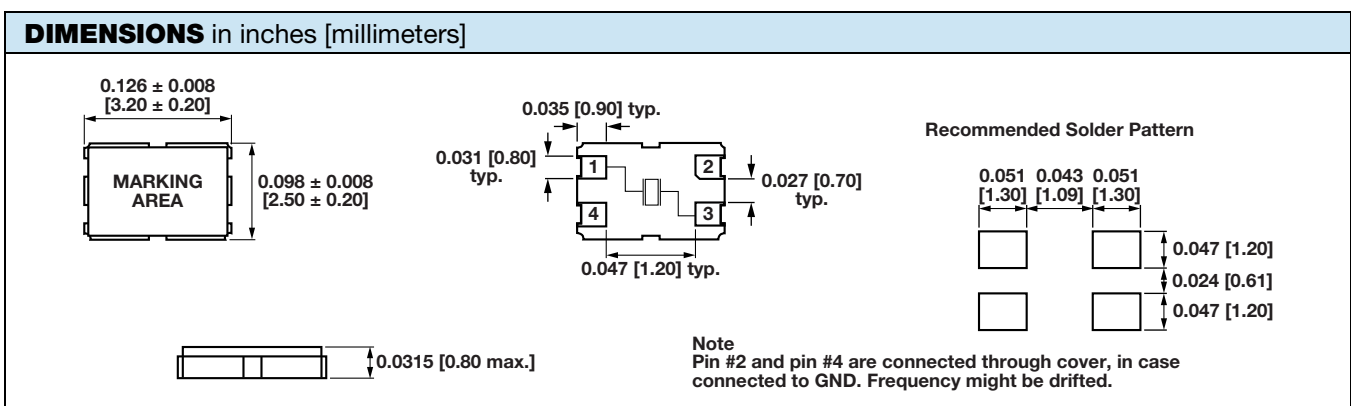
- Ultra-miniature size: 3.2 x 2.5 x 0.8 (mm)
- Wide frequency range
- Seam sealing
- Emboss tapping
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

STANDARD ELECTRICAL SPECIFICATIONS						
PARAMETER	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Frequency range	F <sub>O</sub>		MHz	12 000	-	54 000
Frequency tolerance	ΔF/F <sub>O</sub>	at 25 °C	ppm	-	± 30	-
Temperature stability	T <sub>C</sub>	ref. to 25 °C	ppm	-	± 50	-
Operating temperature range	T <sub>OPR</sub>		°C	-10	-	+70
Storage temperature range	T <sub>STG</sub>		°C	-55	-	+125
Shunt capacitance	C <sub>0</sub>		pF	-	-	3
Load capacitance	C <sub>L</sub>	customer specified	pF	10	-	series
Insulation resistance	I <sub>R</sub>	100 V <sub>DC</sub>	MΩ	500	-	-
Drive level	D <sub>L</sub>		μW	10	100	300
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
12.000 to 12.999	100	fundamental
13.000 to 19.999	80	fundamental
20.000 to 29.999	70	fundamental
30.000 to 54.000	50	fundamental





ORDERING INFORMATION			
<b>XT23</b> MODEL	<b>-20</b> LOAD blank = series -20 = 20 pF -32 = 32 pF -16 = 16 pF	<b>25M</b> FREQUENCY / MHz	<b>e4</b> JEDEC® LEAD (Pb)-FREE STANDARD

GLOBAL PART NUMBER			
X T 2 3	2 0	A	2 5 M
MODEL	LOAD	PACKAGE CODE	FREQUENCY

GLOBAL PART NUMBERING				
X T 9 S	2 0	A	N A	4 0 M
<b>MODEL NUMBER</b>	<b>LOAD CAPACITANCE</b>	<b>PACKAGE CODE</b>	<b>OPTIONS</b>	<b>FREQUENCY</b>
XT9S = XT49S XT9M = XT49M XTU1 = XTUM1	18 = 18 pF 20 = 20 pF NL = series to be specified by customer	<b>Tape and reel</b> G = RF5 (XT9S) H = RF7 (XT9M)  <b>Bulk</b> 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
Example: XT49S-20 40M				
X T 3 6	2 0	A	1 2 M	
<b>MODEL NUMBER</b>	<b>LOAD CAPACITANCE</b>	<b>PACKAGE CODE</b>	<b>FREQUENCY</b>	
XT46 = XT46C XT36 = XT36C XT35 = XT35 XT23 = XT23	18 = 18 pF 20 = 20 pF NL = series to be specified by customer	<b>Tape and reel</b> H = RF7  <b>Bulk</b> A = B04 (all models)	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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