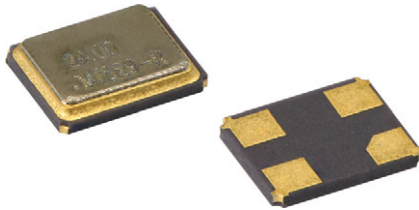


## Quartz Crystals



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

DIMENSIONS in inches [millimeters]	
<p>Note Pin #2 and pin #4 are connected through cover, in case connected to GND. Frequency might be drifted.</p>	



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

<b>X</b>	<b>T</b>	<b>2</b>	<b>3</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		Load Cap.		Pack Code	Freq. Tolerance	Operating Temp.	Temp. Stability	Options	Frequency					Lead (Pb)-free
		23		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**

<b>X</b>	<b>T</b>	<b>2</b>	<b>3</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>				<b>LOAD CAPACITANCE</b>		<b>PACKAGE CODE</b>	<b>OPTIONS</b>		<b>FREQUENCY</b>		
XT23 = XT23				18 = 18 pF 20 = 20 pF NL = series to be specified by customer		Tape and reel G = RF5 (XT9S) H = RF7 (XT9M)  Bulk A = B04	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		
<b>XT23</b> MODEL				<b>-20</b> LOAD blank = series -16 = 16 pF -20 = 20 pF standard -30 = 30 pF -32 = 32 pF		<b>25M</b> FREQUENCY/MHz		<b>e4</b> JEDEC® LEAD (Pb)-FREE STANDARD			



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