

## Quartz Crystals



### FEATURES

- Ultra-miniature size: 3.2 x 2.5 x 0.8 (mm)
- Wide frequency range
- Seam sealing
- Emboss tapping
- Compliant to RoHS Directive 2002/95/EC


**RoHS**  
COMPLIANT

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 25 MHz frequency makes it widely applied in PDA, GPS, MP3, PCMCIA, bluetooth, and portable instruments.

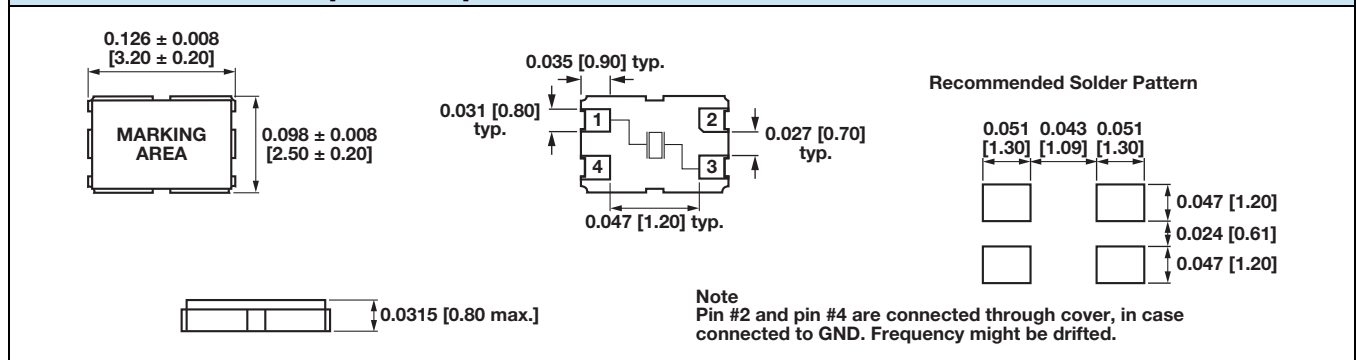
### STANDARD ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	UNIT	MIN.	TYP.	MAX.
Frequency range	$F_O$		MHz	12.000	-	25.000
Frequency tolerance	$\Delta F/F_O$	at 25 °C	ppm	-	± 30	-
Temperature stability	$T_C$	ref. to 25 °C	ppm	-	± 50	-
Operating temperature range	$T_{OPR}$		°C	0	-	+ 70
Storage temperature range	$T_{STG}$		°C	- 55	-	+ 125
Shunt capacitance	$C_0$		pF	-	-	3
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	10	100	300
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
12.000 to 12.999	100	fundamental
13.000 to 19.999	80	fundamental
20.000 to 25.000	70	fundamental

### DIMENSIONS in inches [millimeters]





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													
<table border="1"> <tr><td>X</td><td>T</td><td>2</td><td>3</td></tr> </table> MODEL	X	T	2	3	<table border="1"> <tr><td>2</td><td>0</td></tr> </table> LOAD	2	0	<table border="1"> <tr><td>A</td></tr> </table> PACKAGE CODE	A	<table border="1"> <tr><td>2</td><td>5</td><td>M</td></tr> </table> FREQUENCY	2	5	M
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<table border="1"> <tr><td>X</td><td>T</td><td>9</td><td>S</td></tr> </table> MODEL NUMBER XT9S = XT49S XT9M = XT49M XTU1 = XTUM1	X	T	9	S	<table border="1"> <tr><td>2</td><td>0</td></tr> </table> LOAD CAPACITANCE 18 = 18 pF 20 = 20 pF NL = series to be specified by customer	2	0	<table border="1"> <tr><td>A</td></tr> </table> PACKAGE CODE <b>Tape and reel</b> G = RF5 (XT9S) H = RF7 (XT9M)  <b>Bulk</b> A = B04 (all models)	A	<table border="1"> <tr><td>N</td><td>A</td></tr> </table> OPTIONS NA = no additional options RR = extended temperature of - 40 °C to + 85 °C Contact factory for all other options	N	A	<table border="1"> <tr><td>4</td><td>0</td><td>M</td></tr> </table> FREQUENCY 4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency	4	0	M
X	T	9	S													
2	0															
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N	A															
4	0	M														
Example: XT49S-20 40M																
<table border="1"> <tr><td>X</td><td>T</td><td>3</td><td>6</td></tr> </table> MODEL NUMBER XT46 = XT46C XT36 = XT36C XT35 = XT35 XT23 = XT23	X	T	3	6	<table border="1"> <tr><td>2</td><td>0</td></tr> </table> LOAD CAPACITANCE 18 = 18 pF 20 = 20 pF NL = series to be specified by customer	2	0	<table border="1"> <tr><td>A</td></tr> </table> PACKAGE CODE <b>Tape and reel</b> H = RF7  <b>Bulk</b> A = B04 (all models)	A	<table border="1"> <tr><td>1</td><td>2</td><td>M</td></tr> </table> FREQUENCY 4M = 4 MHz 40M = 40 MHz 100M = 100 MHz 12M288 = 12.288 MHz M is used as decimal place holder in frequency	1	2	M			
X	T	3	6													
2	0															
A																
1	2	M														
Example: XT36C-20 12M																



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