



# X49S, X49SM

- ◆ Small Package
- ◆ Low cost
- ◆ High quality quartz crystal units for PC, Micro-processor, communication.

**Table1 Specifications**

Parameter	X49S,49SM
Frequency Range	3.579~80MHz (AT-Cut), 20~48MHz(BT-Cut)
Vibration Mode	AT-Cut / Fund,3 <sup>rd</sup> Over Tune, BT-Cut
Frequency Tolerance (@25°C±2°C)	±10~±100ppm
Frequency Stability vs Operation Temperature Range	See Table 2
Resonance Resistance	See Table 3
Shunt Capacitance	7pF max
Load Capacitance	8pF~∞,Series
Drive Level	100uW~1000uW, 500uW typical
Insulation Resistance	500MΩ @DC100V
Aging	±3ppm/year
Package	49S1,49S2, 49SM1,49SM2
Package Option	-T:Tape and Reel

**Table2 Frequency Stability vs Operation Temperature Range(Ref to 25°C) & Option Code**

	±10ppm	±20ppm	±30ppm	±50ppm	±100ppm
0~50°C	A10	A20	A30	A50	A100
-10~60°C	B10	B20	B30	B50	B100
-20~70°C	-	C20	C30	C50	C100
-30~80°C	-	-	-	D50	D100
-40~85°C	-	-	-	E50	E100

**Table3 Resonance Resistance**

Frequency	Vib.Mode	X49S,SM
3.5~4.0MHz	AT-Fund.	150 Ω
4.1~5.0MHz	AT-Fund.	120 Ω
5.1~10.0MHz	AT-Fund.	80 Ω
10~30MHz	AT-Fund.	50 Ω
24~48MHz	BT-Fund.	50 Ω
27~50MHz	AT-3 <sup>rd</sup> O.T.	100 Ω
50~80MHz	AT-3 <sup>rd</sup> O.T.	80 Ω

**Thru-Hole Crystals Part Numbering Key**

SERIES	CIRCUIT CONDITION	FREQ. TOLERANCE @25°C	MODE	FREQ. STABILIT vs.TEMP	PACKAGE	PACKAGE OPTIONS	FREQUENCY
X49S X49SM	S=Series 8P,10P, 12P,15, 20P,extra	±10~±100ppm	F=Fundamental 3=3 <sup>rd</sup> O.T.	See Table2	49S1 49S2 49SM1 39SM2	See Table1	
<b>X49S</b>	<b>20P</b>	<b>25</b>	<b>F</b>	<b>B25</b>	<b>49S1</b>	<b>-T</b>	<b>32.768MHz</b>

Sample Part Numbers

**X49S-20P25-FB25-49S1-T @11.0592MHz**

