



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

X49S, 49SM

RESONATOR

Table1 Specifications

Parameter	X49S,49SM
Frequency Range	3.579~80MHz(AT-Cut), 20~48MHz(BT-Cut)
Vibration Mode	AT- Cut/Fund,3rdOver Tune,BT-Cut
Frequency Tolerance(@25°C ±2°C)	±10~±100ppm
Frequency Stability vs Operation	See Table 2
Temperature Range	
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, 49 SM1, 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
-30~75°C	—	—	—	D50	D100
-40~85°C	—	—	—	E50	E100

Table3 Resonance Resistance

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

Thru-Hole Crystals

Part Numbering Key

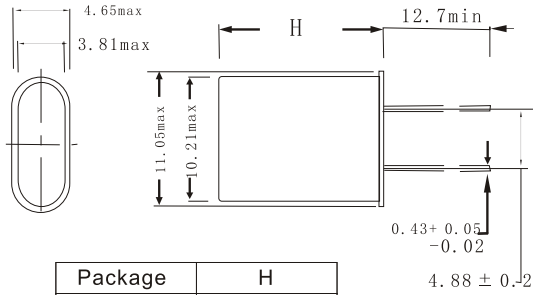
Sample Part Numbers

X49S-20P25-FB25-49S1-T
@32.768MHz

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

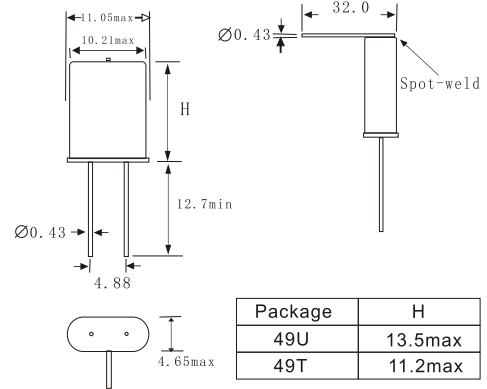
Package 49U, 49T

Unit: mm



Package	H
49U	13.5max
49T	11.2max

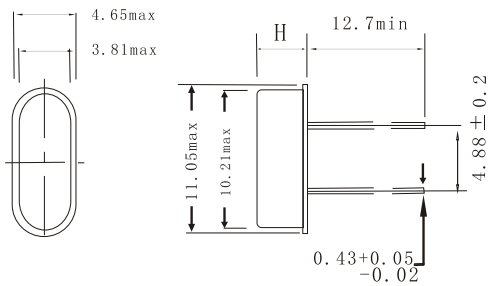
Package 49U,49T with Top Wire (-TW) Unit:mm



Package	H
49U	13.5max
49T	11.2max

Package 49S1,49S2

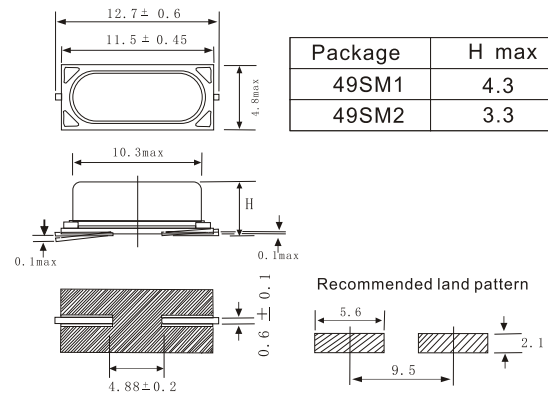
Unit:mm



Package	H
49S1	3.5max
49S2	2.5max

Package 49SM1,49SM2

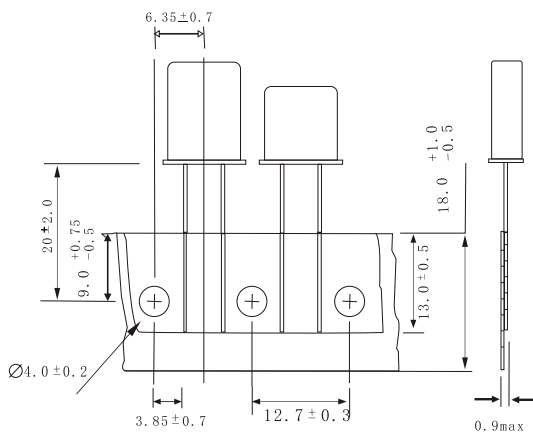
Unit:mm



Package	H max
49SM1	4.3
49SM2	3.3

Tape 49U,49T,49S1,49S2

Unit:mm



Tape,49SM1,49SM2

Unit:mm

