



- ▶ Cost effective
- ▶ Excellent Aging
- ▶ "AT" cut crystal
- ▶ Wide frequency range
- ▶ Pb Free/RoHS Compliant

# HC-49UX Quartz Crystal

The HC-49UX is an "AT" cut resistance weld type Thru Hole quartz crystal.

## OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	HC-49UX			UNITS
		MIN	TYP	MAX	
Frequency Range	$f_0$	1.800		100.00	MHz
Frequency Tolerance	at +25°C			± 30	ppm
Frequency Stability ref @ 25°C	Standard -10 to +70°C			± 50	ppm
Shunt Capacitance	$C_0$			7	pF
Load Capacitance (CL)	Specify in P/N	10	20	Series	pF
Drive Level				1.0	mW
Operating Temperature	Standard	-10		+70	°C
Storage Temperature		-55		+125	°C
Aging (First Year)	@ +25°C ±3°C			±5	ppm

## EQUIVALENT SERIES RESISTANCE/MODE OF OSCILLATION

FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω	FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR Ω
1.800 ~ 1.999	Fundamental	750	5.000 ~ 5.999	Fundamental	50
2.000 ~ 2.399	Fundamental	500	6.000 ~ 7.999	Fundamental	40
2.400 ~ 2.999	Fundamental	300	8.000 ~ 9.999	Fundamental	35
3.000 ~ 3.199	Fundamental	200	10.000 ~ 12.499	Fundamental	30
3.200 ~ 3.699	Fundamental	120	12.500 ~ 15.999	Fundamental	25
3.700 ~ 4.199	Fundamental	100	16.000 ~ 30.000	Fundamental	20
4.200 ~ 4.899	Fundamental	70	30.000 ~ 100.000	3rd Overtone	40
4.900 ~ 4.999	Fundamental	55			

## PACKAGE DIMENSIONS (mm)

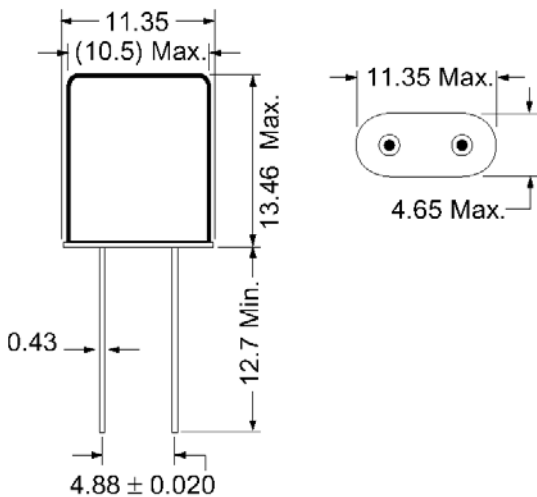


Figure 1) Side and Bottom views

## PART NUMBERING GUIDE: Example ECS-200-20-1X

ECS - Frequency Abbreviation - Load Capacitance - Package

200 = 20.000 MHz  
See P/N Guide

20 = 20 pF  
S = Series

1X = HC-49UX

## Custom Options

Tolerance

A = ±25 ppm  
C = ±10 ppm

Stability

D = ±100 ppm  
E = ±50 ppm  
G = ±30 ppm  
H = ±25 ppm  
K = ±10 ppm

Temp Range

L = -10 ~ +70°C  
M = -20 ~ +70°C  
N = -40 ~ +85°C  
P = -40 ~ +105°C  
S = -40 ~ +125°C  
U = -55 ~ +125°C