



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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- ▶ 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 $\Omega$	FREQUENCY RANGE (MHz)	MODE OF OSC	MAX ESR $\Omega$
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)

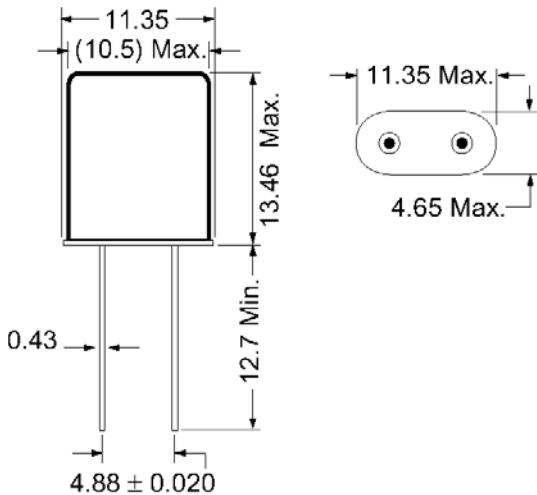


Figure 1) Side and Bottom views

## 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