

- ▶ Cost effective
- ▶ Low profile
- ▶ Pb Free/RoHS Compliant
- ▶ MSL 1



# HC-49USSX

## Low Profile Crystal

The HC-49USSX is the low profile (2.1 mm Max.) resistance weld type Thru Hole quartz crystal.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	HC-49USSX			UNITS
		MIN	TYP	MAX	
Frequency Range	$f_0$	3.57		50.000	MHz
Frequency Tolerance	at +25°C			± 30	ppm
Frequency Stability ref @ 25°C	Standard -10 to +70°C			± 50	ppm
Shunt Capacitance	$C_0$			5	pF
Load Capacitance (CL)	Specify in P/N	10	20	Series	pF
Drive Level				500	µW
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
3.57 ~ 4.999	Fundamental	150	13.000 ~ 19.999	Fundamental	50
5.000 ~ 5.999	Fundamental	120	20.000 ~ 30.000	Fundamental	40
6.000 ~ 6.999	Fundamental	100	26.000 ~ 39.999	3rd Overtone	100
7.000 ~ 8.999	Fundamental	80	40.000 ~ 50.000	3rd Overtone	80
9.000 ~ 12.999	Fundamental	60			

### PACKAGE DIMENSIONS (mm)

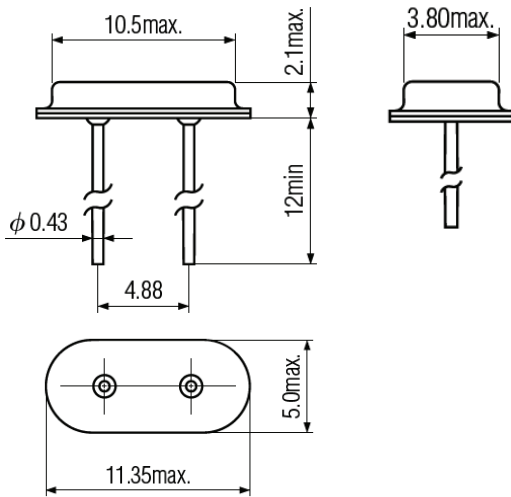


Figure 1) Side, Bottom and End views

### PART NUMBERING GUIDE: Example ECS-200-20-4VX

ECS - Frequency Abbreviation - Load Capacitance - Package

200 = 20.000 MHz  
See P/N Guide

20 = 20 pF  
S=Series

4VX = 2.1 mm

### Custom Options

Tolerance      Stability\*      Temp Range

A= ±25 ppm  
J= ±20 ppm  
R= ±15 ppm  
C= ±10 ppm

D= ±100 ppm  
E= ±50 ppm  
G= ±30 ppm  
H= ±25 ppm  
T= ±20 ppm  
W= ±15 ppm  
K= ±10 ppm

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

\*Consult Factory for available stability options over extended temp range