

- ▶ Cost effective
- ▶ Low profile
- ▶ Pb Free/RoHS Compliant
- ▶ Tape & Reel (1,000 pcs)

# CSM-7X

## SMD Quartz Crystal

The CSM-7X is an excellent choice for the SMD versions of the HC-49USX leaded crystal. The CSM-7X has a case height of 4.3 mm Max in a resistance weld metal package. A package profile of 3.2 mm Max is also available.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-7X			UNITS
		MIN	TYP	MAX	
Frequency Range	f <sub>o</sub>	3.57		70.000	MHz
Frequency Tolerance	at +25°C			± 30	ppm
Frequency Stability ref @ 25°C	Standard -10 to +70°C			± 50	ppm
Shunt Capacitance	C <sub>o</sub>			7	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	40
5.000 ~ 5.999	Fundamental	80	20.000 ~ 30.000	Fundamental	30
6.000 ~ 6.999	Fundamental	70	26.000 ~ 39.999	3rd Overtone	100
7.000 ~ 8.999	Fundamental	60	40.000 ~ 70.000	3rd Overtone	80
9.000 ~ 12.999	Fundamental	50			

### DIMENSIONS (mm)



Height "H" MAX	
-5PX	4.3 mm
-5PLX	3.2 mm

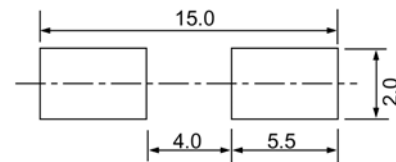


Figure 1) Top, Side and Bottom views

Figure 2) Suggested Land Pattern

### PART NUMBERING GUIDE: Example ECS-200-20-5PX-TR

ECS - Frequency Abbreviation - Load Capacitance - Package

200 = 20.000 MHz  
See P/N Guide

20 = 20 pF  
S=Series

5PX = 4.3 mm  
5PLX = 3.2 mm

A= ±25 ppm  
C= ±10 ppm

#### Custom Options

Tolerance

\*Stability

Temp Range

- Packaging

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

TR= Tape & Reel  
1K/Reel

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