



- **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.

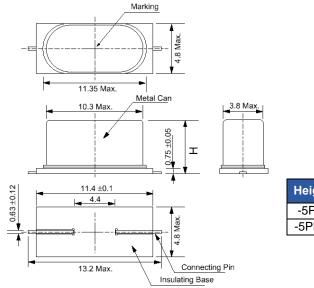
OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS		CSM-7X		UNITS	
PARAMETERS	CONDITIONS	MIN	TYP	MAX		
Frequency Range	fo	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	Со			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

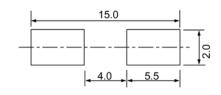


Figure 2) Suggested Land Pattern

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

 $A = \pm 25 \text{ ppm}$ C= ±10 ppm

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

Custom Options Tolerance *Stability **Temp Range** L= -10 ~ +70°C D= ±100 ppm

 $K = \pm 10 ppm$

M= -20 ~ +70°C $E= \pm 50 ppm$ $N = -40 \sim +85$ °C G= ±30 ppm P= -40 ~ +105°C H= ±25 ppm S= -40 ~ +125°C

U= -55 ~+125°C

TR= Tape & Reel 1K/Reel

Packaging