

- ▶ 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_0 | 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_0 | | | 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)



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.