

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



CSM-3X Quartz Crystal

The CSM-3X is the miniature low profile resistance weld type SMD quartz crystal. Reduces footprint of CSM-7X (HC-49USX SMD) by 50%.



OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

| PARAMETERS | CONDITIONS | CSM-3X | | | UNITS |
|--|-----------------------|--------|-----|--------|-------|
| | | MIN | TYP | MAX | |
| Frequency Range | f_0 | 12.000 | | 40.000 | MHz |
| Frequency Tolerance | at +25°C | | | ± 30 | ppm |
| Frequency Stability $_{ref @ +25^\circ C}$ | 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 | | | | 100 | µW |
| Operating Temperature | Standard | -10 | | +70 | °C |
| Storage Temperature | | -40 | | +85 | °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 |
|-----------------------|-------------|-----------|-----------------------|-------------|-----------|
| 12.000 ~ 15.999 | Fundamental | 60 | 30.000 ~ 40.000 | Fundamental | 40 |
| 16.000 ~ 29.999 | Fundamental | 50 | | | |

PACKAGE DIMENSIONS (mm)

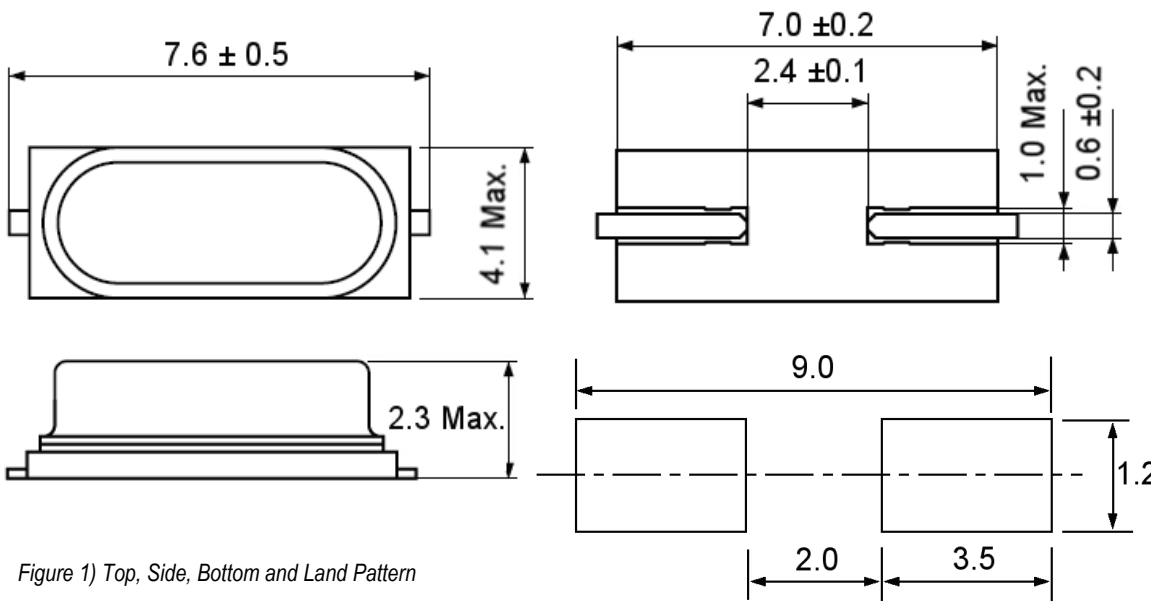


Figure 1) Top, Side, Bottom and Land Pattern

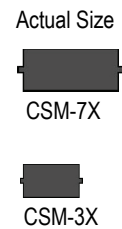


Figure 2) Size Comparison

PART NUMBERING GUIDE: Example ECS-200-20-3X-TR

ECS - Frequency Abbreviation - Load Capacitance - Package

200 = 20.000 MHz
See P/N Guide

20 = 20 pF
S=Series

3X = CSM-3X

Custom Options

Tolerance

Stability

Temp Range

Packaging

A= ±25 ppm
C= ±10 ppm

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

-TR
Tape & Reel
3K/Reel

* Consult ECS for available temp range options

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

ECS:

[ECS-120-20-3X-EN-TR](#) [ECS-120-20-3X-TR](#) [ECS-122.8-20-3X-EN-TR](#) [ECS-122.8-20-3X-TR](#) [ECS-130-20-3X-EN-TR](#)
[ECS-130-20-3X-TR](#) [ECS-135.6-20-3X-EN-TR](#) [ECS-135.6-20-3X-TR](#) [ECS-143-20-3X-EN-TR](#) [ECS-143-20-3X-TR](#)
[ECS-147.4-20-3X-EN-TR](#) [ECS-147.4-20-3X-TR](#) [ECS-160-20-3X-EN-TR](#) [ECS-160-20-3X-TR](#) [ECS-184-20-3X-EN-TR](#)
[ECS-184-20-3X-TR](#) [ECS-196.6-20-3X-EN-TR](#) [ECS-196.6-20-3X-TR](#) [ECS-200-20-3X-EN-TR](#) [ECS-200-20-3X-TR](#)
[ECS-245.7-20-3X-EN-TR](#) [ECS-245.7-20-3X-TR](#) [ECS-250-20-3X-EN-TR](#) [ECS-250-20-3X-TR](#) [ECS-270-20-3X-EN-TR](#)
[ECS-270-20-3X-TR](#) [ECS-286.3-20-3X-EN-TR](#) [ECS-286.3-20-3X-TR](#) [ECS-300-20-3X-EN-TR](#) [ECS-300-20-3X-TR](#)
[ECS-330-20-3X-EN-TR](#) [ECS-330-20-3X-TR](#) [ECS-400-20-3X-EN-TR](#) [ECS-400-20-3X-TR](#)