

- ▶ Cost effective
- ▶ Case Ground
- ▶ Extended Temp Range Option
- ▶ Pb Free/RoHS Compliant
- ▶ MSL 1

CSM-7X-3L SMD Crystal

The CSM-7X-3L is low profile SMD Crystal with case ground is ideal for applications that required a case ground.

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-7X-3L			UNITS
		MIN	TYP	MAX	
Frequency Range	f _o	3.57		70.00	MHz
Frequency Tolerance	at +25°C			± 30	ppm
Frequency Stability	Standard -10 to +70°C			± 50	ppm
Shunt Capacitance	C _o			7	pF
Load Capacitance (CL)	Specify in P/N	10	20	Series	pF
Drive Level				500	µW
Operating Temperature		-10		+70	°C
Storage Temperature		-55		+125	°C
Aging (Per 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	30.100 ~ 39.999	3rd Overtone	100
7.000 ~ 8.999	Fundamental	60	40.000 ~ 70.000	3rd Overtone	80
9.000 ~ 12.999	Fundamental	50			

PACKAGE DIMENSIONS (mm)

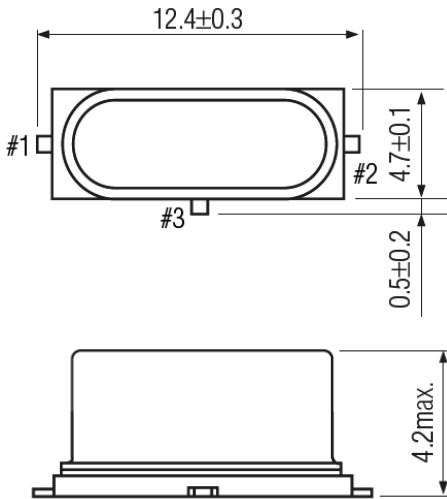


Figure 1) Top, Side, Bottom and End views

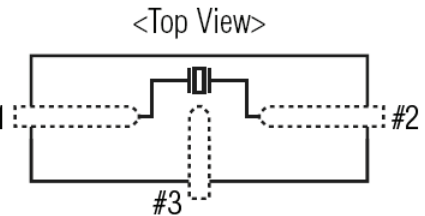
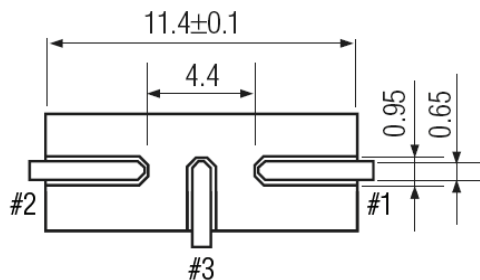


Figure 2) Crystal Connection

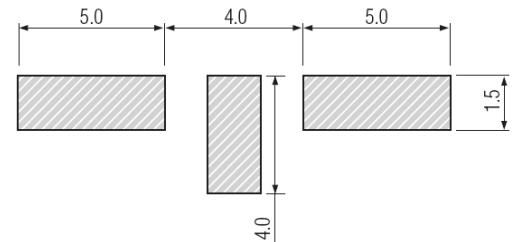


Figure 2) Suggested Land Pattern

PART NUMBERING GUIDE: Example ECS-200-20-5G3XDS-TR

ECS - Frequency Abbreviation - Load Capacitance - Package

200 = 20.000 MHz
See P/N Guide

20 = 20 pF
S=Series

5G3X =
CSM-7X-3L

Tolerance *Stability Temperature - Packaging

Blank = ±30 ppm
A = ± 25 ppm
J = ± 20 ppm
R = ± 15 ppm
C = ± 10 ppm

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

Blank = -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