

- ▶ Cost effective
- ▶ Low profile
- ▶ Industrial Temp Range
- ▶ RoHS Compliant



# CSM-12

## SMD QUARTZ CRYSTAL

The CSM-12 is a low profile SMD Crystal with a 11.8 x 5.5 mm footprint. This cost effective package offers a height of 2.5 mm.

### OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

PARAMETERS	CONDITIONS	CSM-12			UNITS
		MIN	TYP	MAX	
Frequency Range		3.579		30.000	MHz
Frequency Tolerance	at +25°C			± 30	ppm
Frequency Stability	-10 to +70°C			± 50	ppm
	-40 to +85°C			± 100	ppm
Load Capacitance	Specify in P/N	10	20	Series	pF
Drive Level				100	µW
Operating Temperature		-40		+85	°C
Storage Temperature		-55		+125	°C
Shunt Capacitance				7	pF
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
3.579 ~ 3.999	Fundamental	200	10.000 ~ 13.999	Fundamental	80
4.000 ~ 5.999	Fundamental	150	14.000 ~ 24.999	Fundamental	50
6.000 ~ 9.999	Fundamental	100	25.000 ~ 30.000	Fundamental	40

### DIMENSIONS (mm)

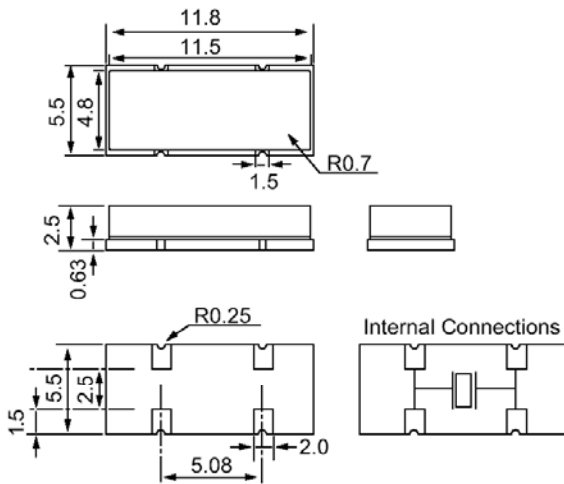


Figure 1) Top, Side, Bottom and End views

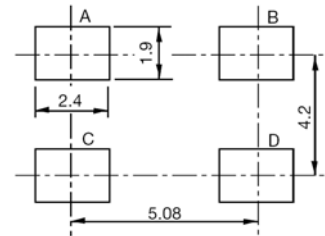


Figure 2) Suggested Land Pattern

### PART NUMBERING GUIDE: Example ECS-200-20-18-TR

ECS - Frequency Abbreviation - Load Capacitance - Package - Packaging

200 = 20.000 MHz  
See P/N Guide

20 = 20 pF  
S=Series

18 =  
CSM-12

TR= Tape  
& Reel  
1K/Reel