

# 12SMX CRYSTALS

ISSUE 12; 1 NOVEMBER 2008 – RoHS 2002/95/EC

## Holder Style

- 12SMX-A, -C, -D are surface mount crystals encapsulated in a ceramic base with a resin sealed ceramic lid.
- 12SMX-B is a ceramic base with seam sealed metal lid.

## General Specifications

- Load Capacitance (CL): 10pF to 75pF or Series
- Drive Level: 0.1mW max
- Static Capacitance (C0): 7pF max

## Packaging

- Loose in bulk pack or tape and reel
- 12SMX-B is the preferred package style

## Standard Frequency Tolerances and Stability

- ±30ppm, ±50ppm, ±100ppm

## Operating Temperature Ranges

- 0 to 50°C
- 10 to 60°C
- 20 to 70°C
- 40 to 85°C

## Storage Temperature Range

- 40 to 85°C

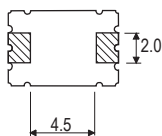
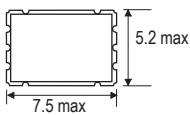
## Marking Includes

- Frequency

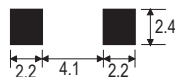
## Minimum Order Information Required

- Frequency + Holder and Pad Configuration + Frequency Tolerance @ 25°C + Frequency Stability + Operating Temperature Range + Circuit Condition + Overtone Order

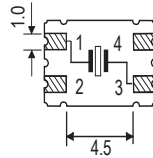
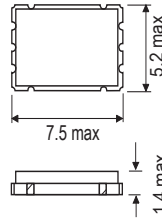
## Outline (mm) 12SMX-A



Solder pad layout



## Outline (mm) 12SMX-B

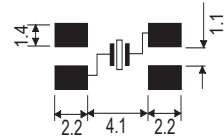


## Pad Connection

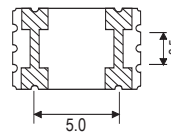
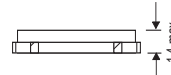
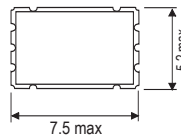
- Crystal
- GND
- Crystal
- GND

Note:- lid is connected to GND

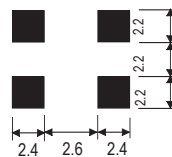
Solder pad layout



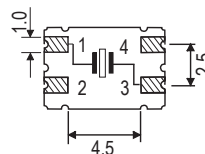
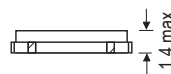
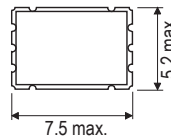
## Outline (mm) 12SMX-C



Solder pad layout



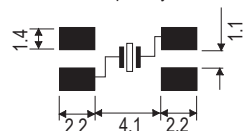
## Outline (mm) 12SMX-D



## Pad Connection

- Crystal
- NC
- Crystal
- NC

Solder pad layout

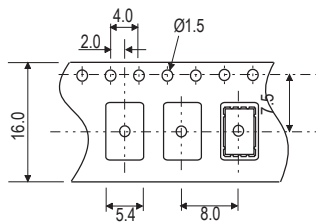


**Electrical Specifications – maximum limiting values**

Frequency Range	Frequency Tolerance @25°C ±2°C	Operating Temperature Range	Frequency Stability Available Over Operating Temperature Range		ESR Max	Vibration Mode
			Minimum	Maximum		
6.0 to <8.0MHz	±20ppm to ±100ppm	0 to 50°C	±20ppm	±100ppm	150Ω	Fundamental
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-40 to 85°C	±30ppm			
8.0 to <10.0MHz	±20ppm to ±100ppm	0 to 50°C	±20ppm	±100ppm	80Ω	Fundamental
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-40 to 85°C	±30ppm			
10.0 to <16.0MHz	±20ppm to ±100ppm	0 to 50°C	±20ppm	±100ppm	60Ω	Fundamental
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-40 to 85°C	±30ppm			
16.0 to <50.0MHz	±20ppm to ±100ppm	0 to 50°C	±20ppm	±100ppm	40Ω	Fundamental
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-40 to 85°C	±30ppm			
50.0 to <84.0MHz	±20ppm to ±100ppm	0 to 50°C	±20ppm	±100ppm	60Ω	3rd Overtone
		-10 to 60°C	±20ppm			
		-20 to 70°C	±20ppm			
		-40 to 85°C	±30ppm			

Note :  
 12SMX-A, -C, -D packages may not be available for all combinations  
 For other frequency/specification combinations, please contact our sales office

**Tape (mm)**



**Reel (mm)**

