



ISSUE 13; October 2012 - RoHS 2011/65/EU

### Description

- Standard 7 x 5mm SMD crystal. 7 x 5mm SMD crystal available in three different pad designs and two different package materials. 12SMX-A, -C, -D are ceramic package with a resin sealed ceramic lid, hermetically sealed. 12SMX-B is a ceramic package with a seam sealed metal lid, hermetically sealed. Please Note: 12SMX-B is the standard package style. For low profile version of a 7 x 5mm crystal please see our 14SMX. For tighter tolerances and stabilities please see our 14SMX. Stock parts available.

### Frequency Range

- Frequency: 6.0 to 84.0Mhz
- Frequency Stability:  $\pm 20.00$ ppm
- Frequency Tolerance:  $\pm 20$ ppm to  $\pm 100$ ppm

### General Specification

- Load Capacitance (CL): 10.0pF to 75.0pF
- Drive Level: 100 $\mu$ W max
- Ageing:  $\pm 5$ ppm per year max
- Shunt Capacitance (C0): 7pF max

### Operating Temperature Ranges

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

### Environmental Parameters

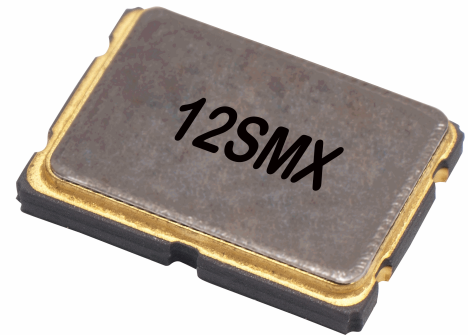
- Storage Temperature Range: -40 to 85°C

### Ordering Information

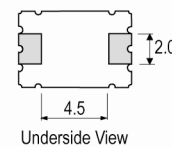
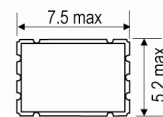
- Frequency\*
- Model\*
- Variant\*
- Frequency Tolerance (@25°C)\*
- Frequency Stability (over operating temperature range)\*
- Operating Temperature Range\*
- Load Capacitance\*
- Overtone
- Example  
10.0MHz 12SMX-B  
50/50/-20 to 70C/10 FUND

### Packing Details

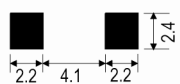
- Pack Style: **Bulk** Loose in bulk pack  
Pack Size: 100
- Pack Style: **Reel** Tape and reel in accordance with EIA-481-D  
Pack Size: 1,000
- Alternative packing options available



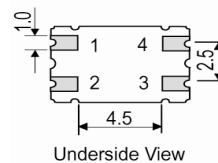
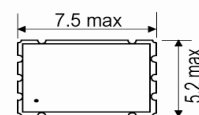
Outline (mm) -A = 2 pad (ceramic lid)



Solder Pad Layout



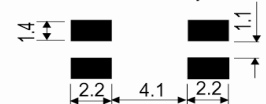
-B = 4 pad (metal lid)



Pad Connection

1. Crystal
2. GND & Lid
3. Crystal
4. GND & Lid

Solder Pad Layout



### Sales Office Contact Details:

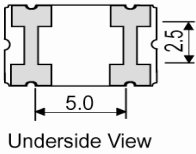
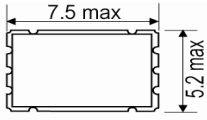
UK: +44 (0)1460 270200  
Germany: +49 (0)7264 9145-0

France: +33 (0)5 34 50 91 18  
USA: +1 (0)408.273.4530

Email: [info@iqdfrequencyproducts.com](mailto:info@iqdfrequencyproducts.com)  
Web: [www.iqdfrequencyproducts.com](http://www.iqdfrequencyproducts.com)

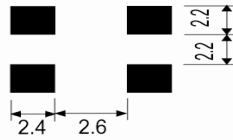


**-C = 2 into 4 pad (ceramic lid)**

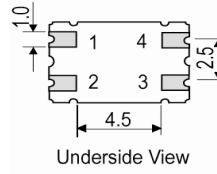
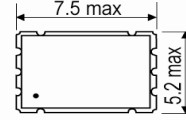


Underside View

**Solder Pad Layout**



**-D = 4 pad (ceramic lid)**

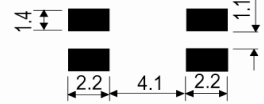


Underside View

**Pad Connection**

- 1. Crystal
- 2. NC
- 3. Crystal
- 4. NC

**Solder Pad Layout**



**Electrical Specification - maximum limiting values**

Frequency Range	Frequency Tolerance	Stability		Temperature Range	ESR Max	Vibration Mode
		Min	Max			
6.0 to <8.0MHz	±20 to ±100ppm	±20ppm ±20ppm ±20ppm ±30ppm	±100ppm	0 to 50°C -10 to 60°C -20 to 70°C -40 to 85°C	150Ω	Fundamental
8.0 to <10.0MHz	±20 to ±100ppm	±20ppm ±20ppm ±20ppm ±30ppm	±100ppm	0 to 50°C -10 to 60°C -20 to 70°C -40 to 85°C	80Ω	Fundamental
10.0 to <16.0MHz	±20 to ±100ppm	±20ppm ±20ppm ±20ppm ±30ppm	±100ppm	0 to 50°C -10 to 60°C -20 to 70°C -40 to 85°C	60Ω	Fundamental
16.0 to <50.0MHz	±20 to ±100ppm	±20ppm ±20ppm ±20ppm ±30ppm	±100ppm	0 to 50°C -10 to 60°C -20 to 70°C -40 to 85°C	40Ω	Fundamental
50.0 to <84.0MHz	±20 to ±100ppm	±20ppm ±20ppm ±20ppm ±30ppm	±100ppm	0 to 50°C -10 to 60°C -20 to 70°C -40 to 85°C	60Ω	3RD Overtone

*This document was correct at the time of printing; please contact your local sales office for the latest version*

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UK: +44 (0)1460 270200

Germany: +49 (0)7264 9145-0

France: +33 (0)5 34 50 91 18

USA: +1 (0)408.273.4530

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