



ISSUE 13; February 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 Tolerance  $\pm 20\text{ppm}$  to  $\pm 100\text{ppm}$

**General Specification**

- Load Capacitance (CL) 10.0pF to 75.0pF
- Drive Level 100 $\mu$ W max
- Ageing  $\pm 5\text{ppm}$  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**

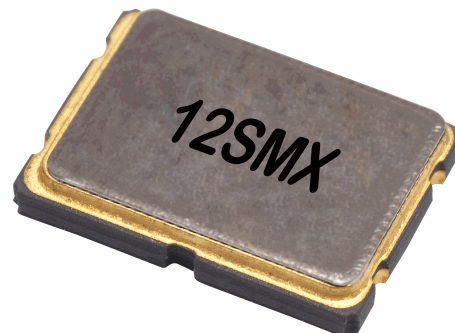
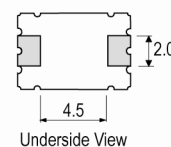
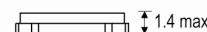
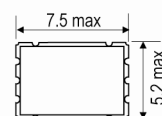
- Storage Temperature Range: -40 to 85°C

**Ordering Information**

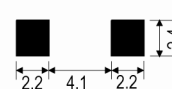
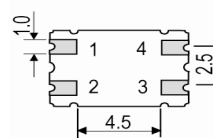
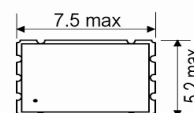
- Example  
10.0MHz 12SMX-B  
50/50/-20 to 70C/10 FUND
- Frequency\*
- Model\*
- Variant\*
- Frequency Tolerance (@25°C)\*
- Frequency Stability (over operating temperature range)\*
- Operating Temperature Range\*
- Load Capacitance\*
- Overtone

**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)**

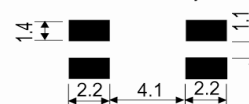
Solder Pad Layout

**-B = 4 pad (metal lid)**

Pad Connection

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

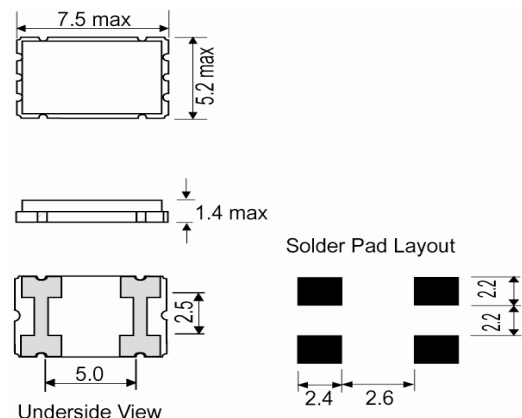
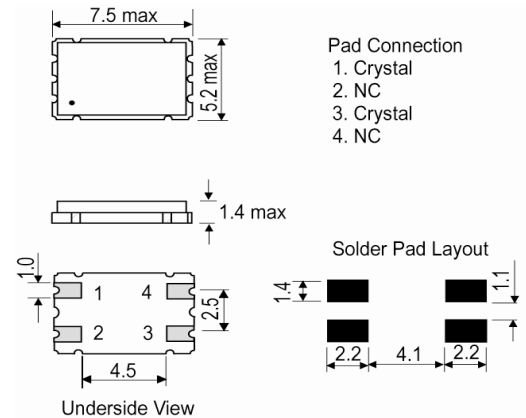
Solder Pad Layout

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**-C = 2 into 4 pad (ceramic lid)****-D = 4 pad (ceramic lid)****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<br>±20ppm<br>±20ppm<br>±30ppm | ±100ppm | 0 to 50°C<br>-10 to 60°C<br>-20 to 70°C<br>-40 to 85°C | 150Ω    | Fundamental    |
| 8.0 to <10.0MHz  | ±20 to ±100ppm      | ±20ppm<br>±20ppm<br>±20ppm<br>±30ppm | ±100ppm | 0 to 50°C<br>-10 to 60°C<br>-20 to 70°C<br>-40 to 85°C | 80Ω     | Fundamental    |
| 10.0 to <16.0MHz | ±20 to ±100ppm      | ±20ppm<br>±20ppm<br>±20ppm<br>±30ppm | ±100ppm | 0 to 50°C<br>-10 to 60°C<br>-20 to 70°C<br>-40 to 85°C | 60Ω     | Fundamental    |
| 16.0 to <50.0MHz | ±20 to ±100ppm      | ±20ppm<br>±20ppm<br>±20ppm<br>±30ppm | ±100ppm | 0 to 50°C<br>-10 to 60°C<br>-20 to 70°C<br>-40 to 85°C | 40Ω     | Fundamental    |
| 50.0 to <84.0MHz | ±20 to ±100ppm      | ±20ppm<br>±20ppm<br>±20ppm<br>±30ppm | ±100ppm | 0 to 50°C<br>-10 to 60°C<br>-20 to 70°C<br>-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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