

ISSUE 16; February 2025

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 packages 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.

A: 2 pad (ceramic lid) - A ceramic package with a resin sealed ceramic lid, hermetically sealed.

B: 4 pad (metal lid) - A ceramic package with a seam sealed metal lid, hermetically sealed.

C: 2 into 4 pad (ceramic lid) - A ceramic package with a resin sealed ceramic lid, hermetically sealed.

D: 4 pad (ceramic lid) - A ceramic package with a resin sealed ceramic lid, hermetically sealed.

Frequency Parameters

- Frequency: 6.0MHz to 84.0MHz
- Frequency Tolerance: $\pm 20.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Frequency Stability: $\pm 20.00\text{ppm}$ to $\pm 100.00\text{ppm}$
- Ageing: $\pm 5\text{ppm}$ max per year

Electrical Parameters

- Load Capacitance: 10.0pF to 75.0pF
- Shunt Capacitance: 7pF max
- Drive Level: 100 μ W max

Operating Temperature Ranges

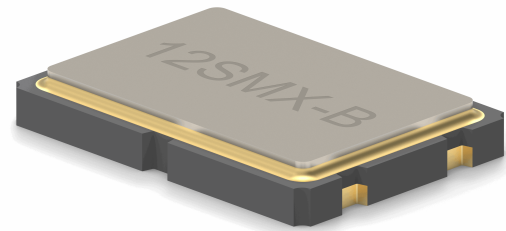
- 10 to 60°C
- 20 to 70°C
- 40 to 85°C

Environmental Parameters

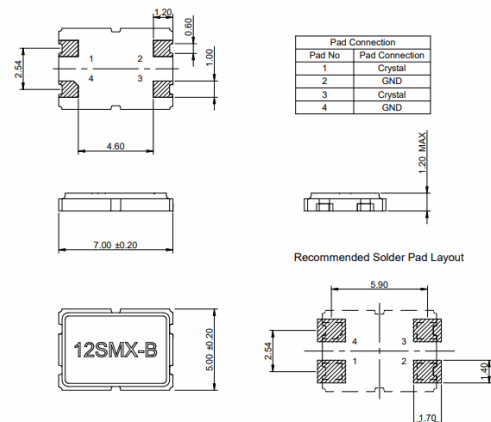
- Storage Temperature Range: -40 to 125°C
- Drop Test: In accordance with JIS-C0044; The specimen is measured for its frequency and resistance before the test. It is then dropped from a height of 75 cm or more as a free fall object onto a hard wooden plate of 30mm or more in thickness.
- Vibration Test: MIL-STD-202 Method 204. 5g for 20 minutes, 12 cycles in each of the 3 orientations, 10 - 2000 Hz. As per Table 11 of AEC-Q200.

Manufacturing Details

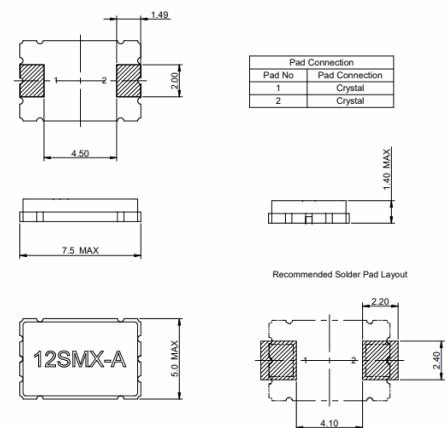
- RoHS Terminations: Ni, Au
- RoHS Reflow: 260°C max over 10 seconds



Outline (mm) -B = 4 pad (metal lid)



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



Sales Office Contact Details:

UK: +44 (0)1460 270200

Email: info@iqdfrequencyproducts.com

Web: www.iqdfrequencyproducts.com

Ordering Information

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

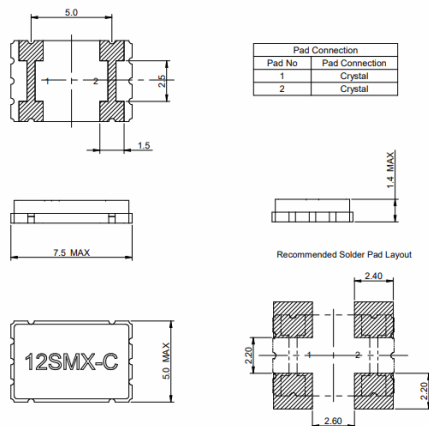
Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

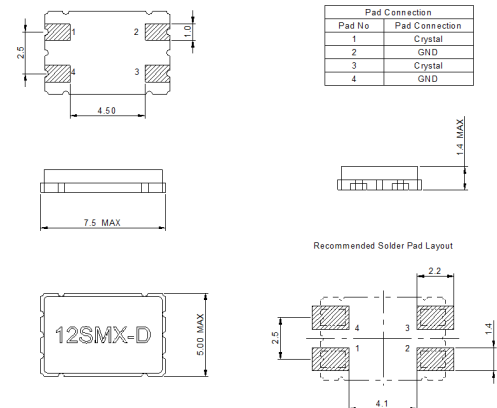
Packaging Details

- Tape & reel in accordance with EIA-481
Quantities below the standard reel size to be supplied on cut tape
Standard Pack Quantity: 1,000

Outline (mm) -C = 2 into 4 pad (ceramic lid)



Outline (mm) -D = 4 pad (ceramic lid)



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Electrical Specification - maximum limiting values

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Over Tone Order	ESR
		°C	ppm		Ω
6.0MHz	7.999999MHz	-10 to 60	±20	Fundamental	150
		-20 to 70	±20		150
		-40 to 85	±30		150
8.0MHz	9.999999MHz	-10 to 60	±20	Fundamental	80
		-20 to 70	±20		80
		-40 to 85	±30		80
10.0MHz	15.999999MHz	-10 to 60	±20	Fundamental	60
		-20 to 70	±20		60
		-40 to 85	±30		60
16.0MHz	49.999999MHz	-10 to 60	±20	Fundamental	40
		-20 to 70	±20		40
		-40 to 85	±30		40
50.0MHz	84.0MHz	-10 to 60	±20	3rd Overtone	100
		-20 to 70	±20		100
		-40 to 85	±30		100

*Stability Maximum values ±100ppm

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