

ISSUE 5; September 2023

Description

- Low EMI Spread Spectrum surface mount crystal oscillator in a ceramic package hermetically sealed with a seam sealed metal lid.

Modulation ratio options:

- ±0.125% Centre Spread
- ±0.25% Centre Spread
- ±0.5% Centre Spread
- ±1% Centre Spread
- ±2% Centre Spread
- 0.25% Down Spread
- 0.5% Down Spread
- 1% Down Spread
- 2% Down Spread
- 4% Down Spread

Frequency Parameters

- Frequency: 1.0MHz to 166.0MHz
- Frequency Stability: ±25.00ppm to ±100.00ppm
- Ageing: ±3ppm max per year

Electrical Parameters

- Supply Voltage: 2.5V ±5%
- Internal Spread Spectrum Modulation Frequency: 30kHz to 40kHz

Operating Temperature Ranges

- 10 to 70°C
- 40 to 85°C

Output Details

- Output Compatibility: CMOS
- Drive Capability: 15pF max
- Modulation Ratios:
 - Centre Spread ±0.125%, ±0.25%, ±0.5%, ±1%, ±2%
 - Down Spread -0.25%, -0.5%, -1%, -2%, -4%

Output Control

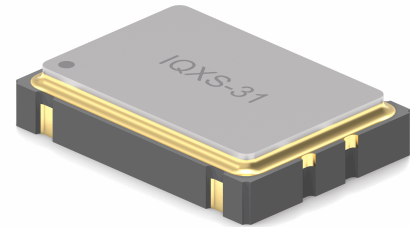
- Standby Operation:
 - Logic '1' to pad 1 enables oscillator output
 - Logic '0' to pad 1 disables oscillator output, the oscillator output goes to a high impedance state
 - No connection to pad 1 enables oscillator output
- Standby Current: 10µA max

Noise Parameters

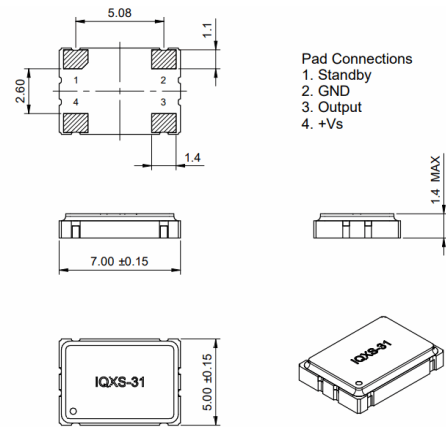
- Cycle to Cycle Jitter (1-σ): ±250ps max

Environmental Parameters

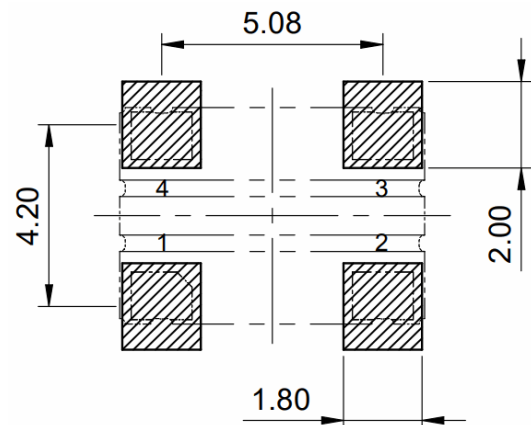
- Storage Temperature Range: -55 to 125°C
- Shock: 1500g, 0.5mS, 3 times for all 6 directions
- Vibration: 20g, 20~2000Hz, 1.52mm, 3 direction; Sweep 20 min for each cycle, 4 cycles for each direction



Outline (mm)



Solderpad Layout



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Ordering Information

- Frequency*
Model*
Modulation Ratio*
Output
Frequency Stability*
Operating Temperature Range*
Supply Voltage
(*minimum required)
- Example
20.0MHz IQXS-31 $\pm 1\%$
CMOS $\pm 50\text{ppm}$ -10 to 70C 2.5V

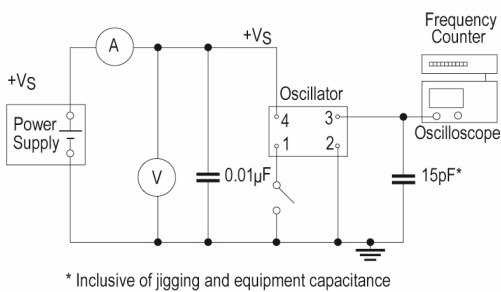
Compliance

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

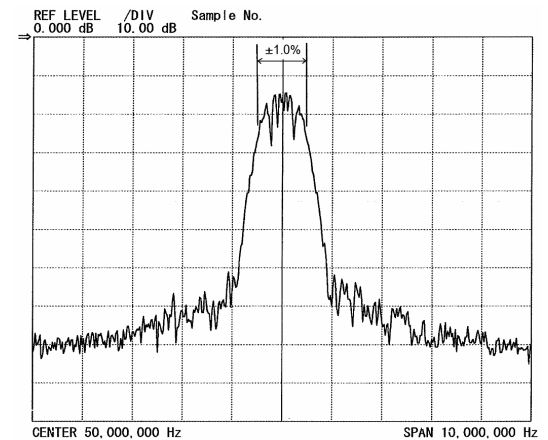
Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 1,000
- Pack Style: Cutt Cut tape
Pack Size: 1

Test Circuit



Example Output Spectrum (Centre Spread $\pm 1\%$)



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Electrical Specification - maximum limiting values 2.5V \pm 5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		$^{\circ}$ C	ppm	mA	ns	%
1.0MHz	49.999999MHz	-10 to 70 -40 to 85	\pm 25.0 \pm 25.0	20 20	10 10	40/60 40/60
50.0MHz	99.999999MHz	-10 to 70 -40 to 85	\pm 25.0 \pm 25.0	30 30	5 5	40/60 40/60
100.0MHz	149.999999MHz	-10 to 70 -40 to 85	\pm 25.0 \pm 25.0	30 30	4 4	40/60 40/60
150.0MHz	166.0MHz	-10 to 70 -40 to 85	\pm 25.0 \pm 25.0	35 35	3 3	40/60 40/60

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