

ISSUE 4; April 2016

## Description

- Low EMI Spread Spectrum surface mount crystal oscillator in a ceramic package hermetically sealed with a seam sealed metal lid
- $\pm 0.125\%$  Centre Spread
- $\pm 0.25\%$  Centre Spread
- $\pm 0.5\%$  Centre Spread
- $\pm 1\%$  Centre Spread
- $\pm 2\%$  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:  $\pm 25.00\text{ppm}$  to  $\pm 100.00\text{ppm}$
- Ageing:  $\pm 3\text{ppm}$  max per year

## Electrical Parameters

- Supply Voltage: 2.5V  $\pm 5\%$
- 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  $\pm 0.125\%$ ,  $\pm 0.25\%$ ,  $\pm 0.5\%$ ,  $\pm 1\%$ ,  $\pm 2\%$
  - 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: 10 $\mu$ A max

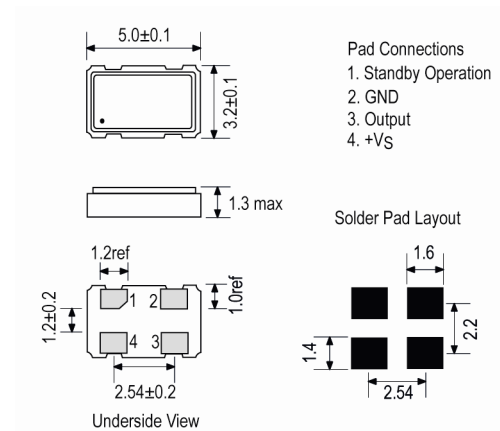
## Noise Parameters

- Cycle to Cycle Jitter (1- $\sigma$ ): 100ps max

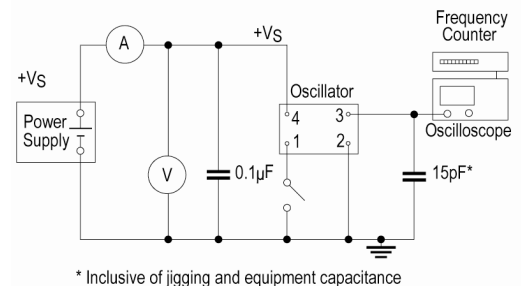
## Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock: 1500G, 0.5ms, 3 times in each of 3 mutually perpendicular planes
- Vibration: 20G, 20-2000Hz, 1.52mm amplitude, 4 cycles of 20mins in 3 mutually perpendicular planes (total 4hrs)

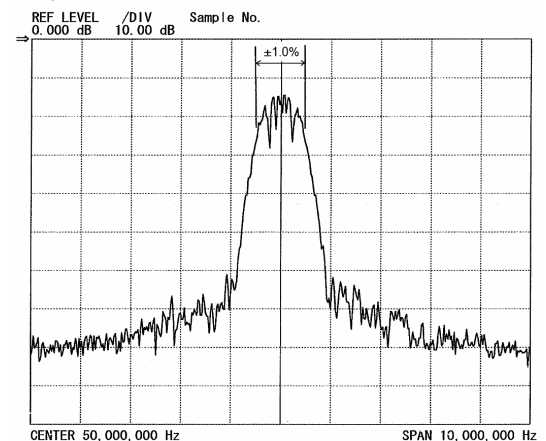
## Outline (mm) $\pm 0.125\%$ = Centre Spread



## Test Circuit



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



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**Ordering Information**

- Frequency\*
- Model\*
- Modulation Ratio\*
- Output
- Frequency Stability\*
- Operating Temperature Range\*
- Supply Voltage
- (\*minimum required)
- Example:  
 20.0MHz IQXS-11 ±1%  
 CMOS ±50ppm -10 to 70C 2.5V

**Compliance**

- RoHS Status (2011/65/EU)      Compliant
- REACh Status                      Compliant
- MSL Rating (JDEC-STD-033):    Not Applicable

**Packaging Details**

- Pack Style: Bulk      Loose in bulk pack  
 Pack Size: 100
- Pack Style: Reel      Tape & reel in accordance with EIA-481-D  
 Pack Size: 1,000

**Electrical Specification - maximum limiting values 2.5V ±5%**

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

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