

ISSUE 3; April 2016

### Description

- Spread Spectrum surface mount crystal oscillator in a ceramic package with a hermetically sealed metal lid
- ±0.5% Centre Spread
- ±1% Centre Spread
- ±2% Centre Spread
- 1% Down Spread
- 2% Down Spread
- 4% Down Spread

### Frequency Parameters

- Frequency: 12.0MHz to 168.0MHz
- Frequency Stability: ±50.00ppm
- Ageing: ±5ppm max per year

### Electrical Parameters

- Supply Voltage: 3.3V ±5%

### Operating Temperature Ranges

- 10 to 70°C

### Output Details

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

### Output Control

- Tri-state Operation:
  - Logic '1' to pad 1 (>80% Vs) enables oscillator output
  - Logic '0' to pad 1 (<20% Vs) disables oscillator output, the oscillator output goes to a high impedance state
  - No connection to pad 1 enables oscillator output

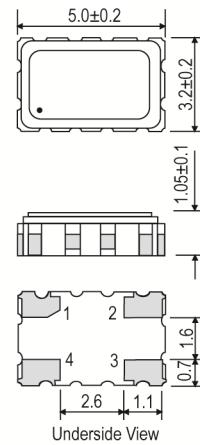
### Noise Parameters

- Cycle to Cycle Jitter (1σ):
  - 12MHz to <20MHz: 200ps max
  - 20MHz to 168MHz: 100ps max

### Environmental Parameters

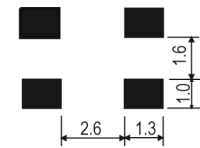
- Storage Temperature Range: -40 to 85°C
- Drop: Natural drop, 3 times from 100cm onto a hard wooden board 30mm thick
- Vibration: 10-55Hz, 1.5mm displacement (10Hz-36Hz), 4G (36Hz-55Hz), sweep time 1min/oct, 2hrs duration in each of 3 mutually perpendicular planes

### Outline (mm) ±0.5% = Centre Spread

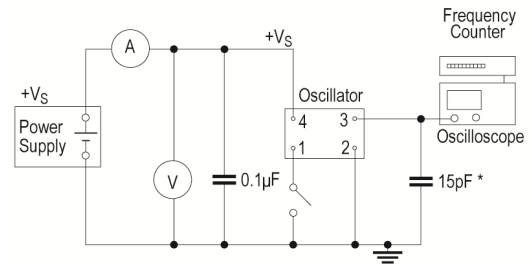


- Pad Connections
1. Tri-state Operation
  2. GND
  3. Output
  4. +Vs

### Solder Pad Layout

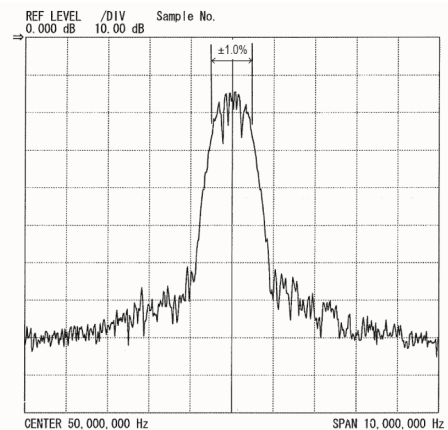


### Test Circuit



\* Inclusive of jiggging and equipment capacitance

### Example Output Spectrum (Centre Spread ±1%)



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### Ordering Information

- Frequency\*  
Model\*  
Modulation Ratio\*  
Output  
Frequency Stability  
Operating Temperature Range  
Supply Voltage  
(\*minimum requirement)
- Example  
90MHz CFSS-3 ±1%  
CMOS ±50ppm -10 to 70C 3.3V

### Compliance

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

### Packaging Details

- Pack Style: Cutt      In tape, cut from a reel  
Pack Size: 1
- Pack Style: Reel      Tape & reel in accordance with EIA-481-D  
Pack Size: 1,000
- Pack Style: Bulk      Loose in bulk pack  
Pack Size: 100

### Electrical Specification - maximum limiting values 3.3V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
12.0MHz	27.999999MHz	-10 to 70	±50.0	13	5	40/60%
28.0MHz	79.999999MHz	-10 to 70	±50.0	15	5	40/60%
80.0MHz	168.0MHz	-10 to 70	±50.0	30	5	40/60%

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

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