



ISSUE 4; February 2012 - RoHS 2011/65/EU

Description

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

Frequency Range

- Frequency 8.00 to 170.00MHz

Supply Voltage

- Voltage 3.3V ±5%

Ageing

- Ageing ±5ppm max per year

Output Compatibility & Load

- Output Compatibility CMOS
- Drive Capability 15pF max

Frequency Stabilities

- Frequency Stability ±100ppm

Operating Temperature Ranges

- -40 to 85°C
- -10 to 70°C

Electrical Parameters

- Start Up Time: 10ms max
- Power-up time for all Vs to reach minimum specified voltage: 0.05ms to 500ms
- Power ramp must be monotonic
- Internal Spread Spectrum Modulation Frequency: 30kHz to 33kHz

Frequency Stability

- Inclusive of tolerance, supply voltage and output load variations over the operating temperature range

Output Details

- Modulation Ratios:
Centre Spread ±0.25%, ±0.5%, ±0.75%, ±1%, ±1.5%, ±2%
Down Spread -0.5%, -1%, -1.5%, -2%, -3%, -4%

Output Control

- Tri-state Operation:
Logic '1' (>70%Vs) to pad 1 enables oscillator output
Logic '0' (<30%Vs) to pad 1 disable oscillator output, the oscillator goes into a high impedance state
No connection to pad 1 enables oscillator output
- Spread Spectrum Operation:
Logic '1' to pad 2 (>70% Vs) spread spectrum is off
Logic '0' to pad 2 (<30% Vs) spread spectrum is on
No connection to pad 2 spread spectrum is on

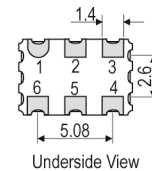
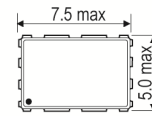
Noise Parameter

- Cycle to Cycle Jitter (SS on):
8MHz to <133MHz: 400ps max pk-pk
133MHz to 170MHz: 250ps max pk-pk

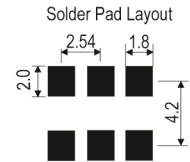
Environmental Parameters

- Storage Temperature Range: -40 to 85°C

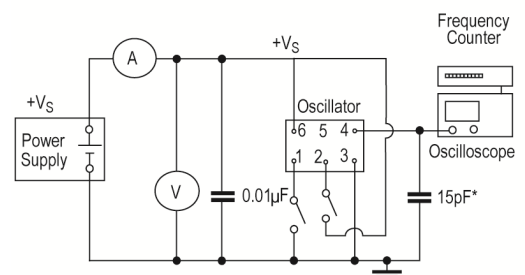
Outline (mm)



- Pad Connections
1. Tri-State Operation
 2. SS Operation
 3. GND
 4. Output
 5. N/C
 6. +Vs



Test Circuit



*Inclusive of jigging and equipment capacitance

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- Shock: MIL-STD-202F, Method 231B: 1000G, 0.5ms
- Vibration: MIL-STD-202F, Method 204D, Condition D: 20G, 10-2000Hz, 4hrs duration in each of 3 mutually perpendicular planes

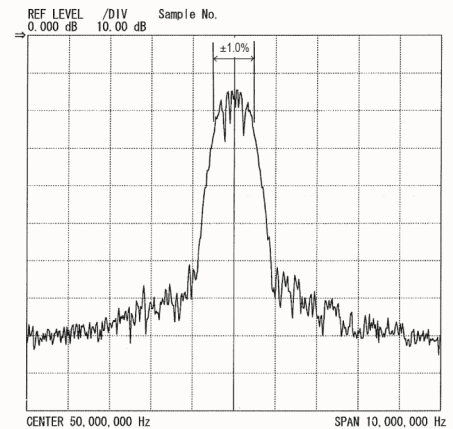
Ordering Information (*minimum required)

- Frequency*
- Model*
- Modulation Ratio*
- Output
- Frequency Stability
- Operating Temperature Range*
- Supply Voltage
- (*minimum requirement)
- Example
- 90MHz CFSS-2 $\pm 1.5\%$
- CMOS $\pm 100\text{ppm}$ -10 to 70C 3.3V

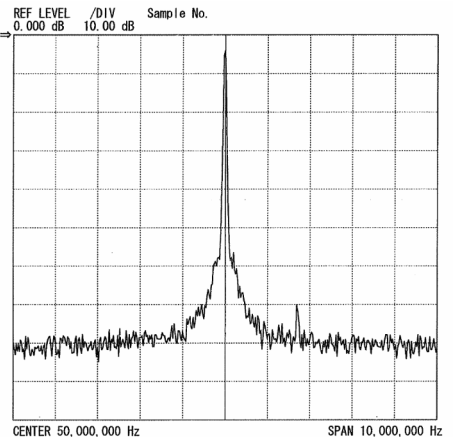
Packing Details

- 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
- Alternative packing options available

Example Output Spectrum (SS on)



Example Output Spectrum (SS off)



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

| Frequency Range | Temp Range | Stability | | Current Draw | Rise & Fall (20 to 80%) | Duty Cycle % |
|--------------------|-------------|-----------|---------|--------------|-------------------------|--------------|
| | | Min | Max | | | |
| 8.00 to <170.00MHz | -10 to 70°C | ±100ppm | ±100ppm | 50.0mA | 3ns | 45/55% |
| | -40 to 85°C | ±100ppm | ±100ppm | 50.0mA | 3ns | 45/55% |

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