

ISSUE 1; April 2016

Description

- High frequency and low power MEMS oscillator with CMOS output in a plastic package featuring a programmable drive strength feature to optimise specific clock applications. Factory programmable for a short lead time. Uses SiTime's MEMS First™ technology.
- APPLICATIONS:
GPON/GPON
Network switches
Routers
Servers
Embedded systems
Ethernet
PCI-E
DDR
- This specification provides guidance on the performance of 3.3V devices in a 3.2 x 2.5mm package. Other supply voltage options are available at 1.5V, 1.8V, 2.5V, 2.8V or 3.0V. Other package size options are available as 2.0 x 1.6mm, 2.5 x 2.0mm, 5.0 x 3.2mm or 7.0 x 5.0mm.
- Note: All Min and Max limits are specified over temperature and rated operating voltage with 15pF output load unless otherwise stated. Typical values are @ 25°C and nominal supply voltage.

Frequency Parameters

- Frequency 115.0MHz to 137.0MHz
- Frequency Stability ±20.00ppm to ±50.00ppm
- Frequency Stability: Inclusive of frequency tolerance @ 25°C, operating temperature range, supply voltage variation, load variation and 1st year ageing.

Electrical Parameters

- Supply Voltage 3.3V ±10%
- Absolute Maximum Supply Voltage Rating: -0.5 to 4.0V
- Supply Current (F=125MHz, @ Vs=3.3V and no load): 7.5mA max

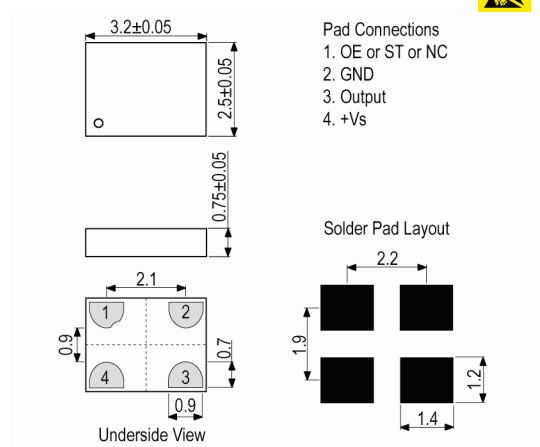
Operating Temperature Ranges

- -20 to 70°C
- -40 to 85°C

Output Details

- Output Compatability CMOS
- Drive Capability 15pF
- Output Voltage Levels:
Output Low (VoL): 10%Vs max
Output High (VoH): 90%Vs min
- Programmable Drive Strength: The IQMS-134 includes a programmable drive strength feature to provide a flexible tool to optimise the clock rise/fall time for specific applications.
- Slower rise and fall time provides reduced EMI. Fast rise and fall time gives reduced jitter. Please contact an IQD Sales Office to discuss options.

Outline (mm)



Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: 0800 1808 443

France: 0800 901 383
USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

Output Control

- Enable/Disable Mode (OE):
Logic '1' (70%Vs min) to pad 1 enables the oscillator output.
Logic '0' (30%Vs max) to pad 1 disables the oscillator output, the output goes to a high impedance state. Only the output driver is disabled. Supply current=4.2mA max. A pull-up resistor of 10kΩ max is recommended if pad 1 is not externally connected.
Output Enable/Disable Time (F=137MHz): 122ns max
(Note: For other frequencies time=100ns + 3 cycles.)
- Standby Mode (ST):
Logic '1' (70%Vs min) to pad 1 enables the oscillator output.
Logic '0' (30%Vs max) to pad 1 the oscillator output is low level (weak pull-down). Device goes to sleep mode. Supply current reduces to 4.3µA max. A pull-up resistor of 10kΩ max is recommended if pad 1 is not externally connected.
Resume Time (measured from the time pad 1 crosses 50% threshold): 5ms max
- No Connect Mode (NC):
No connection to pad 1 enables the oscillator output.
- Input Pull-Up Impedance:
Pad 1: OE logic '1' or logic '0', or ST logic '1': 150kΩ max
Pad 1: ST logic '0': 2MΩ min
- Start Up Time (measured from the time Vs reaches its rated minimum value): 5ms max

Noise Parameters

- Period Jitter (F=125MHz): 3ps RMS max
- Phase Jitter (F=125MHz, 12kHz to 20MHz): 2ps RMS max
- Peak to Peak Jitter (F=125MHz): 25ps max

Environmental Parameters

- Storage Temperature Range: -65 to 150°C
- Junction Temperature: 150°C max
- Electrostatic Discharge: 2000V max
- Mechanical Shock: MIL-STD-883F, Method 2002.
- Vibration: MIL-STD-883F, Method 2007.
- Thermal Cycling: JESD-22, Method A104.
- Solderability: MIL-STD-883F, Method 2003.

Manufacturing Details

- Maximum Process Temperature: 260°C (40secs max)
- Note: Connect a capacitor of 0.1µF min between Vs and GND.

Compliance

- | | |
|------------------------------|-----------|
| ■ RoHS Status (2011/65/EU) | Compliant |
| ■ REACH Status | Compliant |
| ■ MSL Rating (JDEC-STD-033): | 1 |

Packaging Details

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

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Electrical Specification - maximum limiting values 3.3V \pm 10%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current (NoLoad)	Rise and Fall Time (80/20%)	Duty Cycle
		°C	ppm	mA	ns	%
115.0MHz	137.0MHz	-20 to 70	\pm 20.0	7.5	2	45/55%
		-40 to 85	\pm 20.0	7.5	2	45/55%

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

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