

ISSUE 1; March 2016

Description

- Low stability and low jitter 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:
 - SATA
 - SAS
 - Ethernet
 - PCI Express
 - Video
 - WiFi
 - Computing
 - Storage
 - Networking
 - Telecom
 - Industrial control
- 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 1.8V, 2.5V, 2.8V or 3.0V. Other package size options are available as 2.5 x 2.0mm, 5.0 x 3.2mm or 7.0 x 5.0mm.
- Note: All electrical characteristics are specified with 15pF output load and at nominal supply voltage unless otherwise stated.

Frequency Parameters

- Frequency 1.0MHz to 80.0MHz
- Frequency Stability ±10.00ppm to ±50.00ppm
- Ageing ±1.5ppm max 1st year, ±5ppm max over 10yrs, @ 25°C
- Frequency Stability: Inclusive of frequency tolerance @ 25°C, operating temperature range, supply voltage variation and load variation.

Electrical Parameters

- Supply Voltage 3.3V ±10%
- Absolute Maximum Supply Voltage Rating: -0.5 to 4.0V
- Supply Current (F=20MHz, @ Vs=3.3V and no load): 33mA max

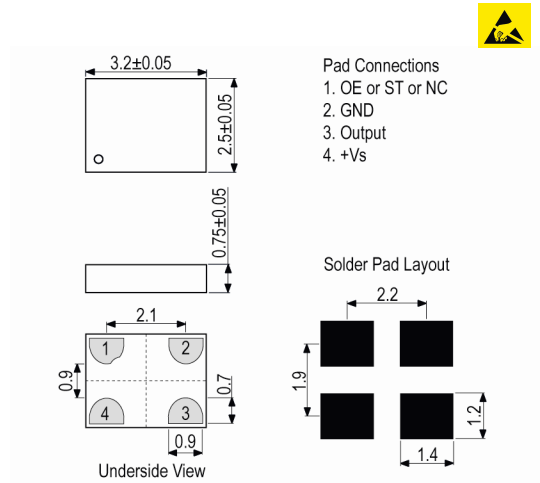
Operating Temperature Ranges

- -20 to 70°C
- -40 to 85°C

Output Details

- Output Compatibility CMOS
- Drive Capability 15pF
- Output Voltage Levels:
 - Output Low (VoL): 10%Vs max
 - Output High (VoH): 90%Vs min
- Programmable Drive Strength: The IQMS-135 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=31mA max. A pull-up resistor of 10kΩ max is recommended if pad 1 is not externally connected.
Output Enable/Disable Time (F=80MHz): 150ns 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 70μA 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): 10ms 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': 250kΩ max
Pad 1: ST logic '0': 2MΩ min
- Start Up Time (measured from the time Vs reaches its rated minimum value): 10ms max

Noise Parameters

- Period Jitter (F=75MHz): 2ps RMS max
- Phase Jitter (F=10MHz, 12kHz to 20MHz): 1ps RMS 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 (10/90%)	Duty Cycle
		°C	ppm	mA	ns	%
1.0MHz	80.0MHz	-20 to 70	\pm 10.0	33	2	45/55%
		-40 to 85	\pm 10.0	33	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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