LO204 Series

Low Power Dual Mode EMI Reduction Oscillator

Features

- FCC approved EMI attenuation
- Proprietary Low EMI Phase Modulated SaΦic™ Oscillator
- Dual Mode Clock Output : Low phase jitter clock or Low EMI clock
- RoHS compliant & Pb free
- AEC-Q100 G1
- Frequency range 20MHz ~ 40MHz
- Supply voltage 1.62V ~ 3.63V
- CMOS output
- Operating temperature -40~125ºC
- SMD seam sealing ceramic package 2.0mm x 1.6mm

Electrical Specifications

Item	Specification
Frequency	20MHz ~ 40MHz
Supply Voltage (VDD)	1.8V ~ 3.3V [1], ±10%
Output Type	CMOS
Output Load	15 pF
Oscillation Mode	Fundamental
Frequency Stability	±50 ppm [1] [2] [3]
Operation Temperature Range	-40ºC ~ 125ºC [1]
Storage Temperature Range	-55ºC ~ 125ºC
Output Voltage Low (V_{OL}) @ VDD = 3.3V, I_{OL} = 12mA @ VDD = 1.8V, I_{OL} = 4mA	0.2VDD Max.
Output Voltage High (V_{OH}) @ VDD = 3.3V, I_{OH} = -12mA @ VDD = 1.8V, I_{OH} = -4mA	0.8VDD Min.
Rise(Tr) / Fall(Tf) Time [4]	6 ns Max.
Dynamic Supply Current [5]	2.5mA EN=Low / 4.0mA EN=High
Duty Cycle [6]	45% ~ 55%
Start-Up Time	1 ms Max.
Phase Jitter (12kHz~5MHz)	0.5 ps Max. [3][5]
Aging (at 25ºC)	±3 ppm/year Max.
Modulation Output Clock Mode	Pin 1 selectable

[1] Ordering options

[2] Inclusive of frequency tolerance at 25°C, variations over operating temperature, supply voltage, load and 1st year aging at 25°C.

[3] Modulation output clock mode is disabled.

[4] Tr measure between 10% to 90%, Tf measure between 90% to 10% at 15pF load and V_{DD} 1.8V~3.3V

[5] Measure at 24MHz, V_{DD} 1.8V

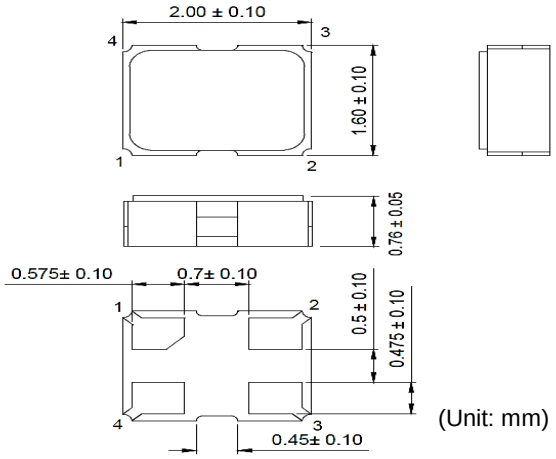
[6] Measure at V_{DD} /2

Modulation Output Deviation [7], [8]

Frequency (MHz)	Deviation range (%) @25°C		
	VDD 1.8V	VDD 2.5V	VDD 3.3V
20	± 0.54	± 0.36	± 0.29
24	± 0.62	± 0.42	± 0.34
25	± 0.65	± 0.45	± 0.35
27	± 0.70	± 0.54	± 0.40

[7] The deviation range can vary by ±20% over voltage and temperature.
[8] Modulation output mode is enabled, contact us for available frequencies and deviation range.

Dimensions

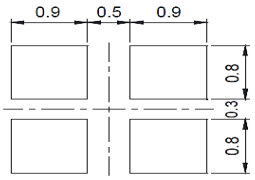


(Unit: mm)

Pad Function

1	EN
2	GND
3	OUTPUT
4	VDD

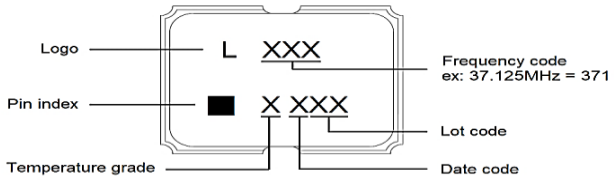
Suggested Layout



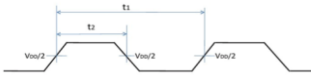
Pin Definition

Pin#	Symbol	Functionality
1	EN	Modulation Output Clock Mode Enable Pin H (Logic "1") : Enable L (Logic "0") : Disable Internal pull-high resistor
2	GND	System ground reference
3	OUTPUT	Oscillator output
4	VDD	System power supply

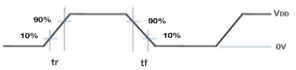
Marking



Duty Cycle Timing

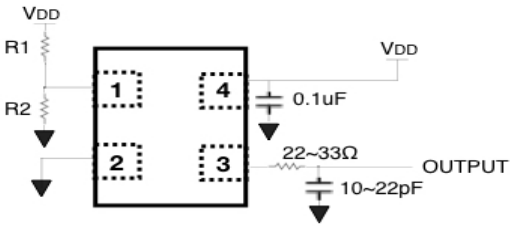


Output Rise/Fall Timing



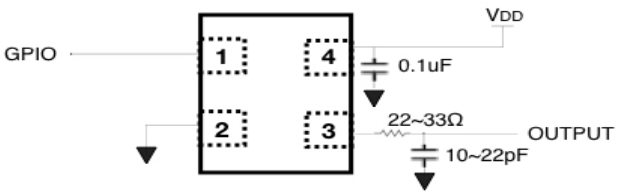
Temperature grade	Temperature range	Frequency stability (ppm)
A	-40ºC ~ 125ºC	±50

Schematics



Non-modulated clock output when R1=NC and, R2=0 ohm

Modulated clock output when R1=NC or 4.7K, R2=NC



Non-modulated clock output when GPIO=Low

Modulated clock output when GPIO=High

Ordering Information

LO204 A - 24M - 50 - C

Product series

Operating temperature range

A : -40~125°C

Frequency in Hz

Frequency stability

50: +/-50ppm

Supply voltage

A : 3.3V

C : 1.8V