

Ultra Low Power EMI Reduction Oscillator

Features

- FCC approved EMI attenuation
- Proprietary Low EMI Phase Modulated SaΦ ic™ Oscillator
- Output Clock Tri-State Mode
- RoHS compliant & Pb free
- AEC-Q100 compliant (option)
- Frequency range 20MHz ~ 40MHz
- Supply voltage 1.62V ~ 3.63V
- CMOS output
- Operating temperature -40~125°C
- SMD seam sealing ceramic package 2.5mm x 2.0mm

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	-40°C ~ 125°C ^[1]
Storage Temperature Range	-55°C ~ 125°C
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]	10 mA Max.
Duty Cycle ^[6]	45% ~ 55%
Start-Up Time	1 ms Max.
Phase Jitter (12kHz~5MHz)	1 ps Max. ^[3]
Aging (at 25°C)	±3 ppm/year Max.
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] Non-modulated clock

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

[5] Measure at 24MHz, VDD 3.3V

[6] Measure at VDD /2

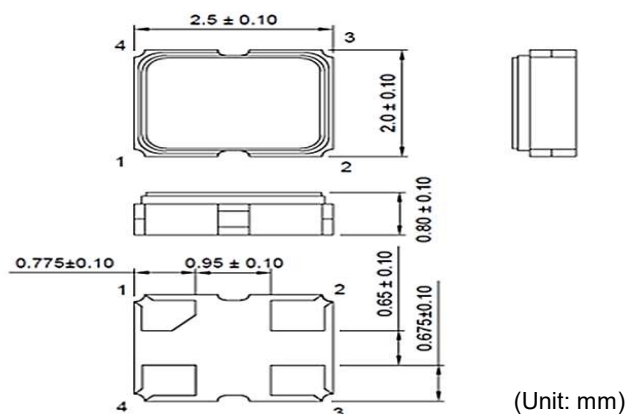
Modulation Output Deviation [7], [8]

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.

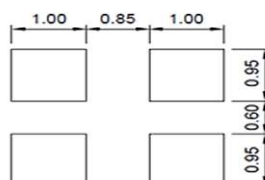
Dimensions



Pad Function

- 1 EN
- 2 GND
- 3 OUTPUT
- 4 VDD

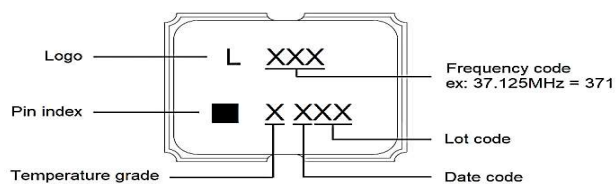
Suggested Layout



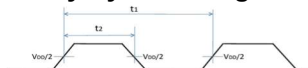
Pin Definition

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

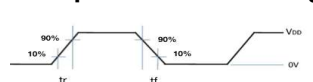
Marking



Duty Cycle Timing



Output Rise/Fall Timing



Temperature grade	Temperature range	Frequency stability (ppm)
I	-40°C ~ 85°C	±30
E	-40°C ~ 105°C	±50 / ±60
A	-40°C ~ 125°C	±50 / ±100

Ordering Information

LO215	A	-	24.576M	-	50	-	C
Product series			Frequency in Hz				Supply voltage
Operating temperature range							A : 3.3V
I : -40~85°C							B : 2.5V
E : -40~105°C							C : 1.8V
A : -40~125°C							D : 2.8V
							Frequency stability
							30 : +/-30ppm
							50 : +/-50ppm
							60 : +/-60ppm
							100 : +/-100ppm