

## Ultra Low Power EMI Reduction Oscillator

### Features

- FCC approved EMI attenuation
- Proprietary Low EMI Phase Modulated SaΦ ic™ Oscillator
- Modulation Output Clock Enable/Disable Function
- 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 <sup>[1]</sup> , ±10%
Output Type	CMOS
Output Load	15 pF
Oscillation Mode	Fundamental
Frequency Stability	±50 ppm <sup>[1] [2] [3]</sup>
Operation Temperature Range	-40°C ~ 125°C <sup>[1]</sup>
Storage Temperature Range	-55°C ~ 125°C
Output Voltage Low (V <sub>OL</sub> ) @ VDD = 3.3V, I <sub>OL</sub> = 12mA @ VDD = 1.8V, I <sub>OL</sub> = 4mA	0.2VDD Max.
Output Voltage High (V <sub>OH</sub> ) @ VDD = 3.3V, I <sub>OH</sub> = -12mA @ VDD = 1.8V, I <sub>OH</sub> = -4mA	0.8VDD Min.
Rise(Tr) / Fall(Tf) Time <sup>[4]</sup>	6 ns Max.
Dynamic Supply Current <sup>[5]</sup>	10 mA Max.
Duty Cycle <sup>[6]</sup>	45% ~ 55%
Start-Up Time	1 ms Max.
Phase Jitter (12kHz~5MHz)	1 ps Max. <sup>[3]</sup>
Aging (at 25°C)	±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 VDD 1.8V~3.3V

[5] Measure at 24MHz, VDD 3.3V

[6] Measure at VDD /2

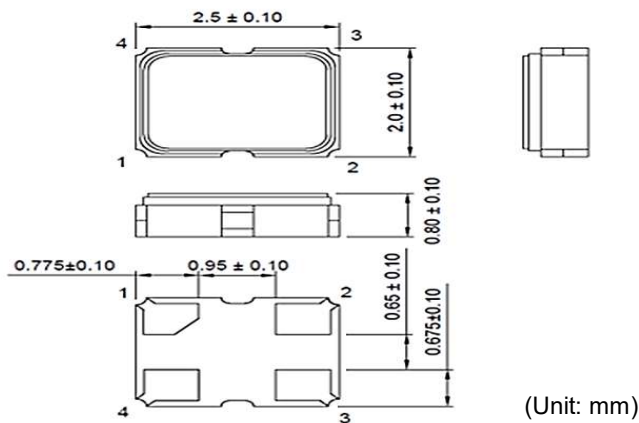
## Modulation Output Deviation [7], [8]

Frequency (MHz)	Deviation range (%) @25°C		
	VDD 1.8V	VDD 2.5V	VDD 3.3V
15	± 0.067	± 0.05	± 0.042
24 / 25	± 0.11	± 0.08	± 0.07
27	± 0.12	± 0.09	± 0.08
37.125	± 0.13	± 0.10	± 0.08

[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.

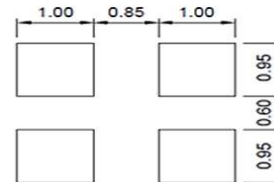
## Dimensions



### Pad Function

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

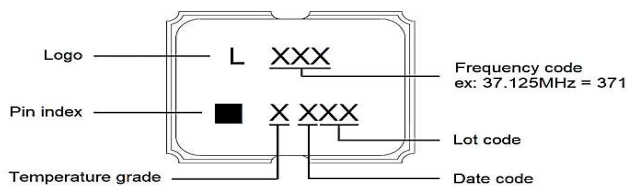
### Suggested Layout



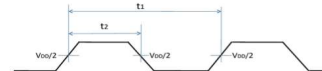
## Pin Definition

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

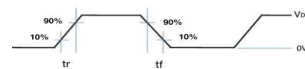
## Marking



### 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

LO218		A	-	24.576M	-	50	-	C
Product series		Operating temperature range		Frequency in Hz		Supply voltage		
		I : -40~85°C				A : 3.3V		
		E : -40~105°C				B : 2.5V		
		A : -40~125°C				C : 1.8V		
						D : 2.8V		
						Frequency stability		
						30 : +/-30ppm		
						50 : +/-50ppm		
						60 : +/-60ppm		
						100 : +/-100ppm		