

## Ultra Low Power EMI Reduction Oscillator

### Features

- FCC approved EMI attenuation
- Proprietary Low EMI Phase Modulated Sa  $\Phi_{ic}^{\text{TM}}$  Oscillator
- Modulation Output Clock Enable/Disable Function
- RoHS compliant & Pb free
- AEC-Q100 compliant (option)
- Frequency range 15MHz ~ 50MHz
- Supply voltage 1.62V ~ 3.63V
- CMOS output
- Operating temperature -40~125°C
- SMD seam sealing ceramic package 2.0mm x 1.6mm

### Electrical Specifications

Item	Specification
Frequency	15MHz ~ 50MHz
Supply Voltage (VDD)	1.8V ~ 3.3V <sup>[1]</sup> , $\pm 10\%$
Output Type	CMOS
Output Load	15 pF
Oscillation Mode	Fundamental
Frequency Stability	$\pm 50$ 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 ( $V_{OL}$ ) @ 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( $T_r$ ) / Fall( $T_f$ ) 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)	$\pm 3$ 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]  $T_r$  measure between 10% to 90%,  $T_f$  measure between 90% to 10% at 15pF load and  $V_{DD}$  1.8V~3.3V

[5] Measure at 24MHz,  $V_{DD}$  3.3V

[6] Measure at  $V_{DD}/2$

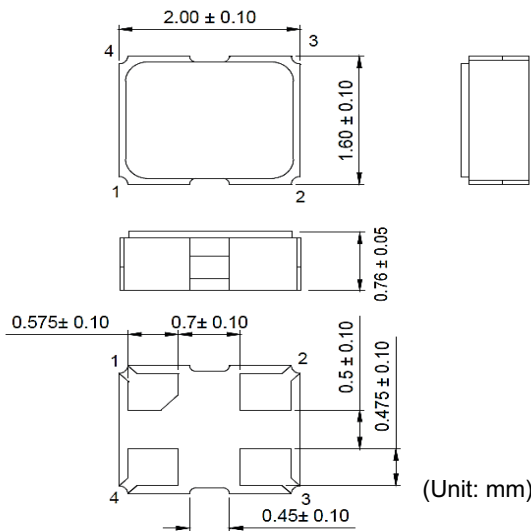
**Modulation Output Deviation [7], [8]**

Frequency (MHz)	Deviation range (%) @25°C		
	VDD1.8V	VDD2.5V	VDD3.3V
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
50	-	-	± 0.48

[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.

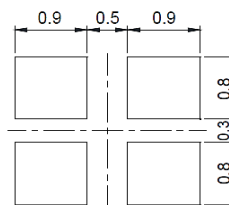
**Dimensions**



**Pad Function**

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

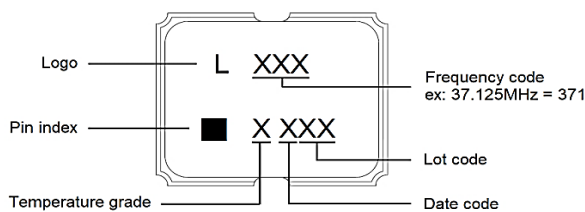
**Suggested Layout**



**Pin Definition**

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

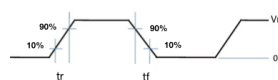
**Marking**



**Duty Cycle Timing**



**Output Rise/Fall Timing**



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

**Ordering Information**

