Low Power EMI Reduction Oscillator

FEATURES

- FCC approved EMI attenuation;
- Frequency range 20MHz ~ 40MHz;
- Supply voltage 1.62V ~ 3.63V;
- CMOS output;
- Proprietary Low EMI Phase Modulated SaΦic™ Oscillator;
- Dual Mode Clock Output: Low phase jitter clock or Low EMI clock;
- Operating temperature -40~125ºC;
- SMD seam sealing ceramic package 2.5mmx2.0mm, 2.0mmx1.6mm;
- AEC-Q100 Grade1;

ELECTRICAL SPECIFICATIONS

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

Note 1 Ordering options
Note 2 Inclusive of frequency tolerance at 25°C, variations over operating temperature, supply voltage, load and 1st year aging at 25°C.
Note 3 Tr measure between 10% to 90%, Tf measure between 90% to 10% at 15pF load and VDD 1.8V~3.3V
Note 4 Measure at 24MHz, VDD 1.8V
Note 5 Measure at VDD /2

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Modulation Output Deviation [6], [7]

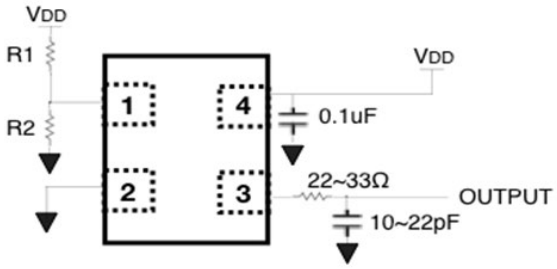
Frequency (MHz)	Deviation range (%) @25ºC		
	VDD 1.8V	VDD 2.5V	VDD 3.3V
20	± 0.38	± 0.22	± 0.17
24	± 0.42	± 0.27	± 0.19
25	± 0.45	± 0.28	± 0.20
27	± 0.50	± 0.29	± 0.23
30	± 0.50	± 0.29	± 0.23

Note 6 The deviation range can vary by ±20% over voltage and temperature.
Note 7 Modulation output mode is enabled, contact us for available frequencies and deviation range.

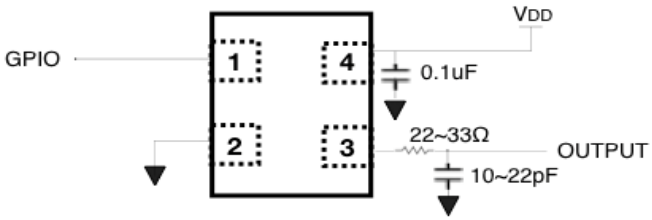
Pin Definition

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

Schematics

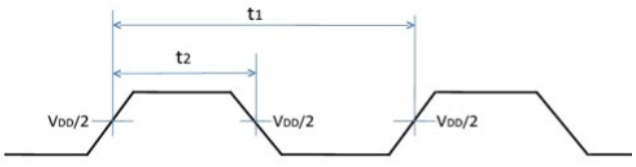


R1=NC, R2=0R, High Z
R1=NC or 4.7K, R2=NC, modulated clock

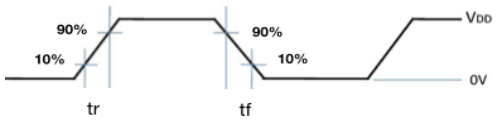


GPIO=low, High Z
GPIO=High, modulated clock.

WAVEFORM CONDITIONS



Duty Cycle Timing



Output Rise/Fall Timing

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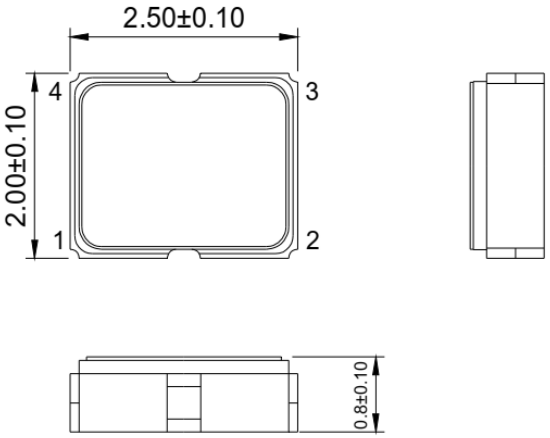
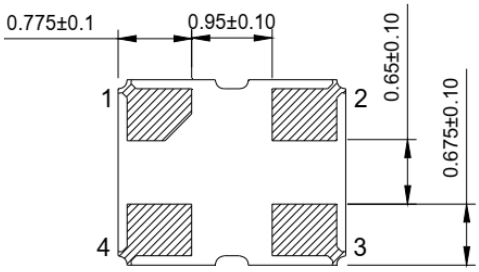
DIMENSIONS

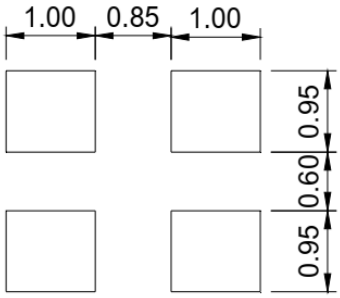
2520



Pad Functions:
1:Enable Control
2:GND
3:OUT
4:VDD



Suggested Layout



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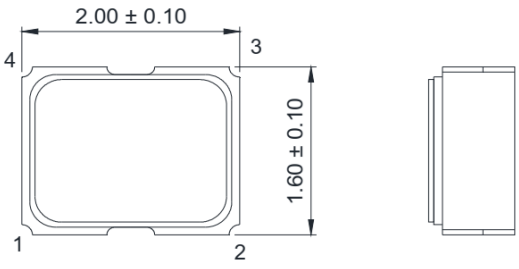
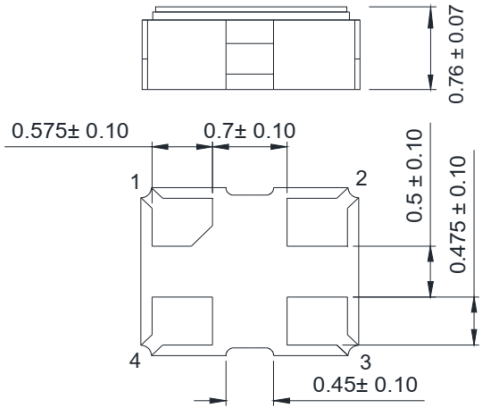


PAD FUNCTION:
1: ENABLE CONTROL
2: GND
3: OUT
4: VDD



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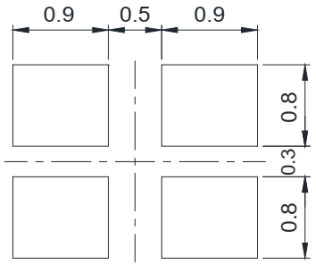

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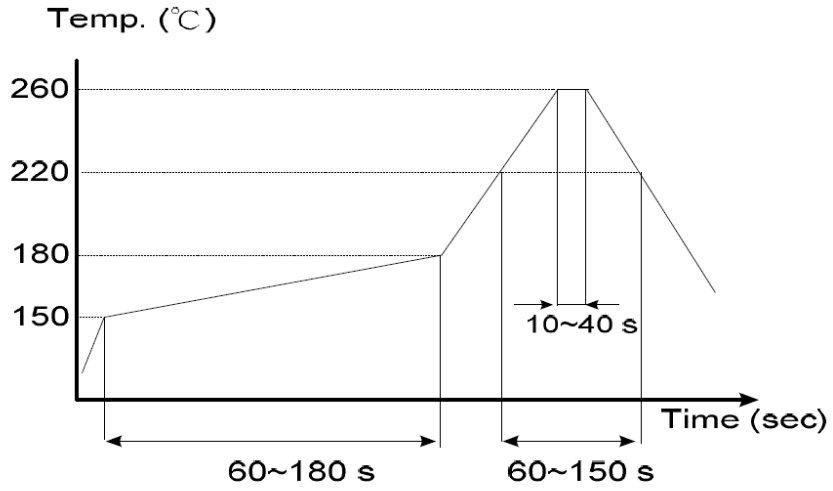
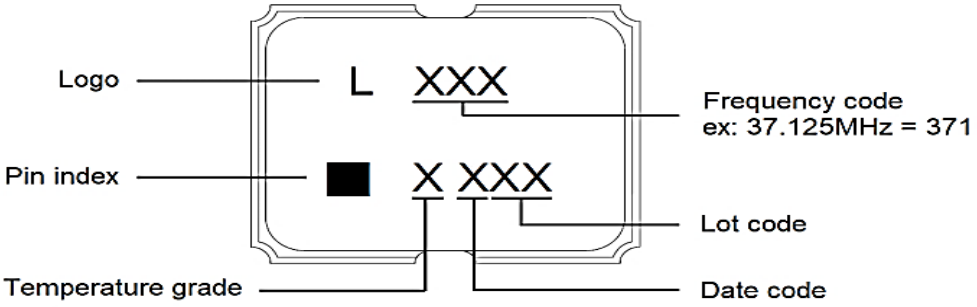
SUGGESTED REFLOW PROFILE

Total time: 600 sec. Max
Solder melting point:220℃

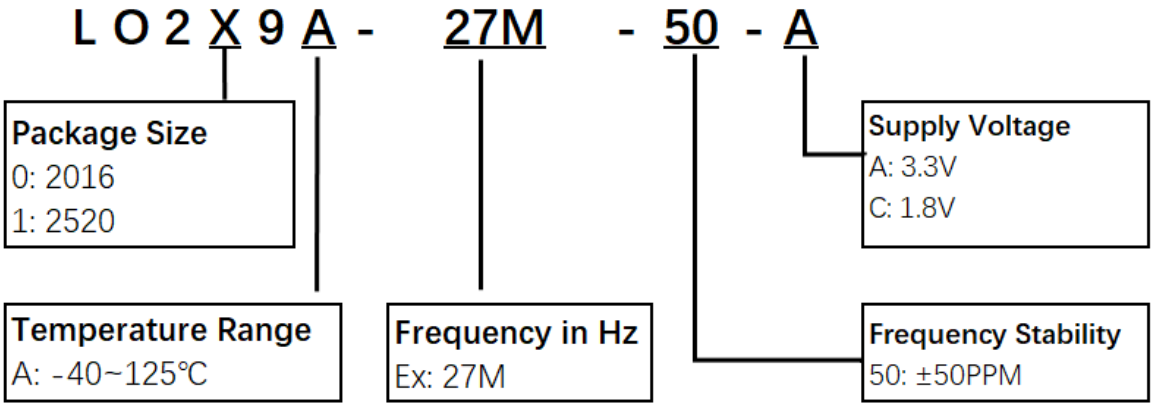


MARKING



Temperature Grade	Temperature Range	Frequency Stability	Unit
A	-40~125℃	±50	PPM

ORDERING INFORMATION



Email:amy@lfc-semi.com www.lfc-semi.com

Revision History

Revision Number	Date of Release	Changes
1.0	10/20/2022	1: Preliminary

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