EMI Reduction Oscillator

## Features

- FCC approved method of EMI attenuation
- Proprietary "SaΦic™" technology
- Supply voltage 1.65V~3.63V
- Frequency range 1~125Mhz
- Output Multiple Deviation Selections
- Minimum frequency deviation selection capability
- Pin1 modes: Spread disable
- Package QFN:3.2x2.5mm

## Applications

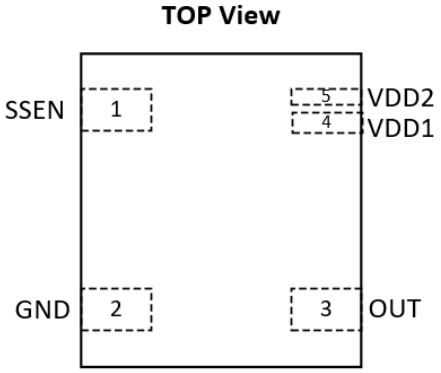
- SATA, Ethernet, PCI express, Video, Wireless
- Computing, Storage, Networking, Telecom, Industrial Control

## Table1. Electrical Characteristics

| Parameter | Symbol | Min. | Typ. | Max. | Unit. | Condition |
|---|---|---|---|---|---|---|
| Output Frequency Range | F | 1 | 100 | 125 | MHz | $V_{DD}$=1.8V |
| Frequency Stability | F_stab | -20 | | +20 | PPM | Inclusive of initial tolerance at 25 ºC， and variations over operating temperature, rated power supply voltage and load. |
| Operating Temperature Range | T_use | -40 | | +85 | ºC | |
| Supply Volage | $V_{DD}$ | 1.65 | 1.8-3.3 | 3.63 | V | |
| Current Consumption | $I_{DD}$ | - | | 28 | mA | No load condition, f=100MHz, $V_{DD}$ =1.8V |
| OE mode disable current | I_od | | | 18 | mA | When OE=GND, output is Pulled Down |
| Duty Cycle | DC | 45 | | 55 | % | Please refer figure 2 |
| Rise/Fall Time | Tr, Tf | | 1.5 | | nS | 15pF load, 10%~90% $V_{DD}$, high drive ($V_{DD}$ =1.8V) |
| Output Voltage High | $V_{OH}$ | $V_{DD}$ -0.4 | - | - | $V_{DD}$ | $I_{OH}$=-4mA, $I_{OL}$=4mA, Standard Drive |
| Output Voltage Low | $V_{OL}$ | - | - | 0.4 | $V_{DD}$ | |
| Input Voltage High | $V_{IH}$ | 70% | - | - | $V_{DD}$ | Pin1, OE |
| Input Volage Low | $V_{IL}$ | - | - | 30% | $V_{DD}$ | Pin1, OE |
| Startup Time | T_start | - | 5 | 7 | mS | Measure from the time $V_{DD}$ reaches its rated minimum value. |
| PK-PK Period Jitter | T_jitt | - | 200 | 350 | pS | F=100MHz, $V_{DD}$ =1.8V |
| First year Aging | F_aging | -1.5 | | +1.5 | PPM | 25 ºC |
| 10-year Aging | | -5 | | +5 | PPM | |

## Table2. Pin Configuration

| Pin | Symbol | | Functionality |
|---|---|---|---|
| 1 | SSEN | Input | Modulation Output Clock Mode Enable Pin<br>H (Logic "1"): Enable<br>L (Logic "0"): Disable |
| 2 | GND | Power | Electrical ground |
| 3 | OUT | Output | Oscillator output |
| 4 | $V_{DD1}$ | Power | Power supply voltage |
| 5 | $V_{DD2}$ | Power | Power supply voltage |




## Table3. Deviation select Table

| Deviation Select | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| Deviation | -0.9% | ±0.45% | -0.5% | ±0.25% |

Notes: Please refer to ordering information for deviation select.

## Test Circuit and Waveform

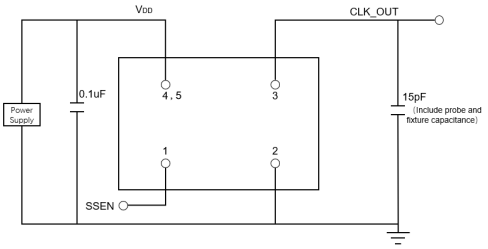



Figure 1. Test Circuit

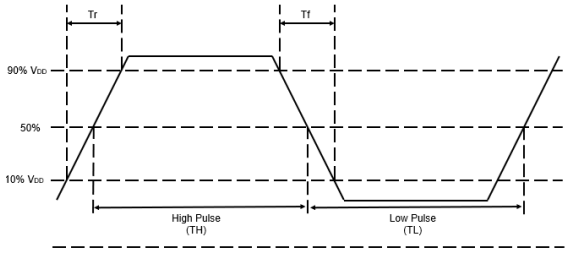
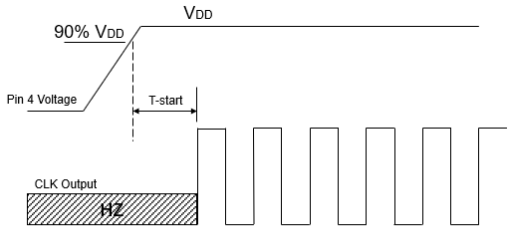



Figure 2. Waveform

Notes: Duty Cycle is computed as Duty Cycle = TH/Period.

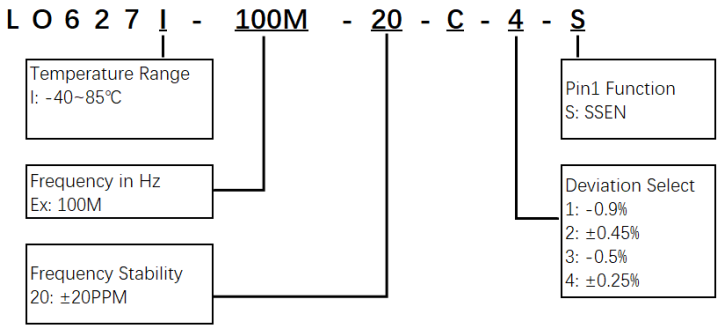
## Timing Diagram



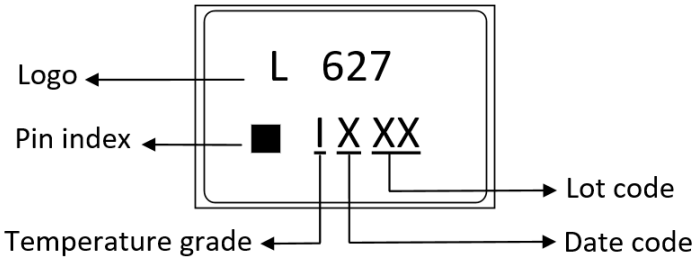

T-start: Time to start from power-off

Figure 3. Startup Timing

## Ordering Information

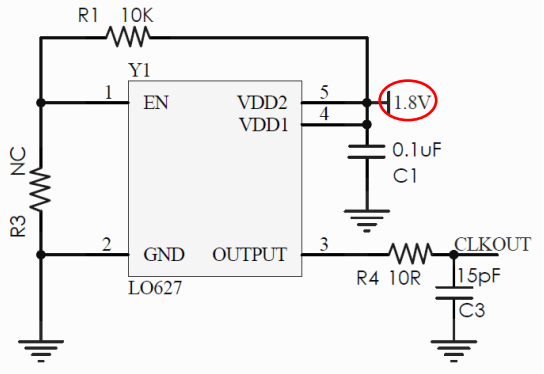


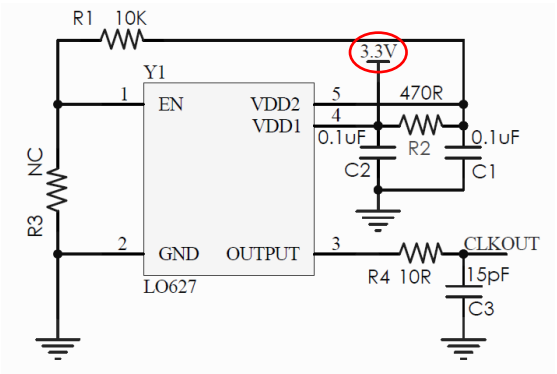

## Marking




| Temperature Grade | Temperature Range | Frequency Stability (PPM) |
|---|---|---|
| I | -40~85℃ | ±20 |

## Application Schematic

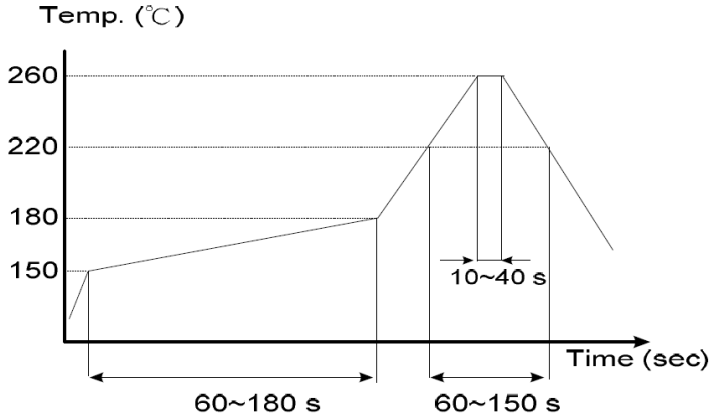


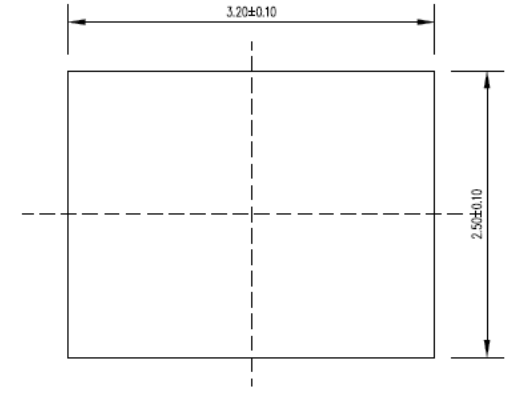

**Remark**：Footprint please refer page4.

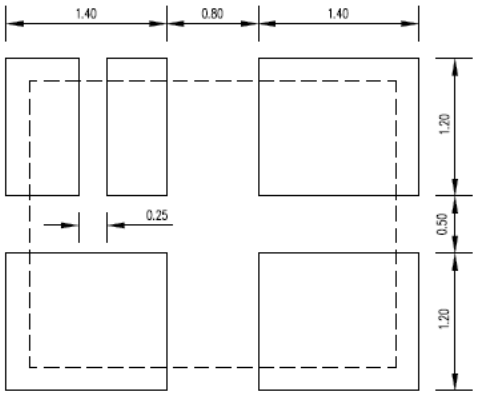
## Suggested reflow profile

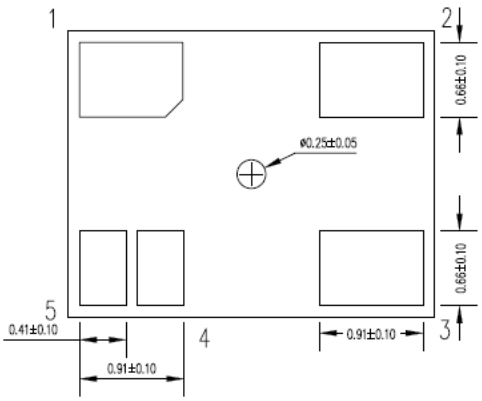
**Total time :600 sec. Max  Solder melting point:220℃**



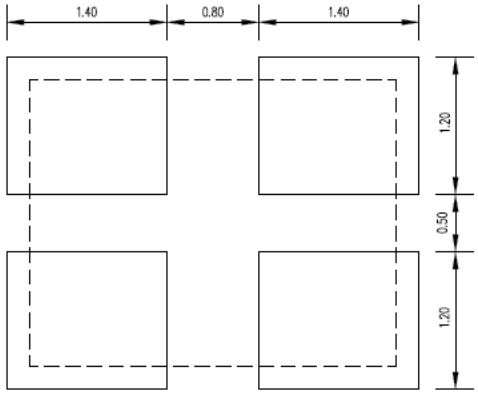

## Package Dimension




Units : mm



## evision History

| Revision Number | Date of Release | Changes |
|---|---|---|
| 1.0 | 12/01/2023 | Preliminary datasheet |
| 1.1 | 03/22/2024 | Modify the marking |
| 1.2 | 12/06/2024 | Add 3.3V application. |
| 1.3 | 01/06/2025 | Add -0.5%, -0.9% deviation |
| 1.4 | 03/25/2025 | Updated the pin functionality |
| 1.5 | 05/23/2025 | Modify table3 |