



### FEATURES

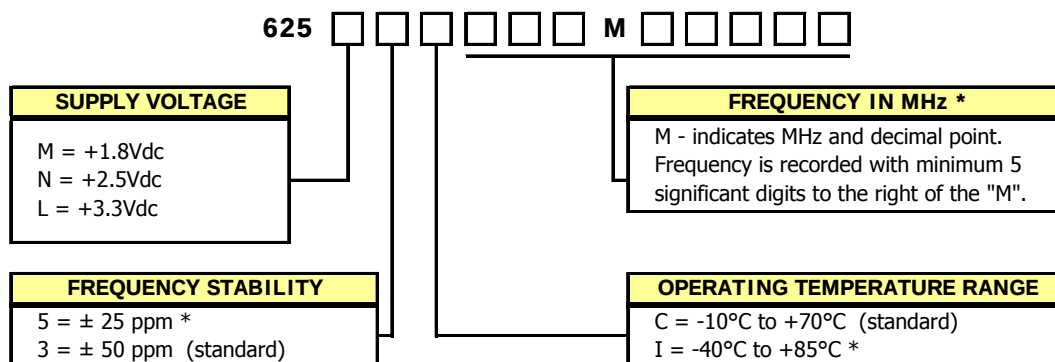
- Standard 2.5x2.0mm Surface Mount Footprint
- CMOS Compatible
- **Fundamental and 3<sup>RD</sup> Overtone Crystals**
- Frequency Range 1.0 – 50 MHz
- Frequency Stability,  $\pm 50$  ppm
- +1.8Vdc, +2.5Vdc, +3.3Vdc Operation
- Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Output Enable Standard
- Tape & Reel Packaging
- **RoHS/Green Compliant (6/6)**

### DESCRIPTION

The Model 625 is a ceramic packaged Clock oscillator offering reduced size and enhanced stability. The small size means it is perfect for any application. The enhanced stability means it is the perfect choice for today's communications applications that require tight frequency control.



### ORDERING INFORMATION



\* Contact factory for availability.

**Not all performance combinations and frequencies may be available.  
Contact your local CTS Representative or CTS Customer Service for availability.**

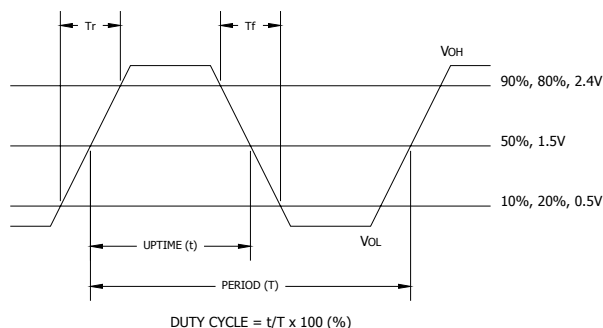
## ELECTRICAL CHARACTERISTICS

|                                    | PARAMETER                                                    | SYMBOL               | CONDITIONS                              | MIN                  | TYP               | MAX                  | UNIT     |
|------------------------------------|--------------------------------------------------------------|----------------------|-----------------------------------------|----------------------|-------------------|----------------------|----------|
| Absolute Maximums                  | Maximum Supply Voltage                                       | $V_{CC}$             | -                                       | -0.5                 | -                 | 4.0                  | V        |
|                                    | Storage Temperature                                          | $T_{STG}$            | -                                       | -55                  | -                 | 125                  | °C       |
|                                    | Frequency Range<br>(See Note 1)                              | $f_O$                | -                                       | 1.0                  | -                 | 50                   | MHz      |
|                                    | Frequency Stability<br>(See Note 2 and Ordering Information) | $\Delta f/f_O$       | -                                       | -                    | -                 | 50                   | ± ppm    |
|                                    | Aging                                                        | $\Delta f/f_O$       | -                                       | -                    | 3                 | 5                    | ± ppm/yr |
|                                    | Operating Temperature<br>Commercial<br>Industrial            | $T_A$                | -                                       | -10<br>-40           | 25                | 70<br>85             | °C       |
| Electrical and Waveform Parameters | Supply Voltage<br>Model 625M<br>Model 625N<br>Model 625L     | $V_{CC}$             | ± 10 %                                  | 1.62<br>2.25<br>2.97 | 1.8<br>2.5<br>3.3 | 1.98<br>2.75<br>3.63 | V        |
|                                    | Supply Current                                               | $I_{CC}$             | 1.0 MHz to 30 MHz $C_L=15pF$            | -                    | -                 | 6                    | mA       |
|                                    | Model 625M                                                   |                      | 30.1 MHz to 54 MHz $C_L=15pF$           | -                    | -                 | 10                   |          |
|                                    | Model 625N                                                   |                      | 1.0 MHz to 30 MHz $C_L=15pF$            | -                    | -                 | 8                    |          |
|                                    |                                                              |                      | 30.1 MHz to 54 MHz $C_L=15pF$           | -                    | -                 | 10                   |          |
|                                    | Model 625L                                                   |                      | 1.0 MHz to 30 MHz $C_L=15pF$            | -                    | -                 | 10                   |          |
|                                    |                                                              |                      | 30.1 MHz to 54 MHz $C_L=15pF$           | -                    | -                 | 15                   |          |
|                                    | Output Load                                                  | $C_L$                |                                         |                      |                   | 15                   | pF       |
|                                    | Output Voltage Levels                                        | $V_{OH}$<br>$V_{OL}$ | CMOS Load                               | 90% $V_{CC}$         | -                 | -                    | V        |
|                                    | Logic '1' Level                                              |                      | CMOS Load                               | -                    | -                 | 10% $V_{CC}$         |          |
|                                    | Logic '0' Level                                              |                      |                                         |                      |                   |                      |          |
|                                    | Output Current                                               | $I_{OH}$<br>$I_{OL}$ | $V_{OH} = 90\%V_{CC}$ (1.8V, 2.5, 3.3V) | -                    | -                 | -2, -4, -8           | mA       |
|                                    | Logic '1' Level                                              |                      | $V_{OL} = 10\%V_{CC}$ (1.8V, 2.5, 3.3V) | -                    | -                 | +2, +4, +8           |          |
|                                    | Logic '0' Level                                              |                      |                                         |                      |                   |                      |          |
|                                    | Output Duty Cycle                                            | SYM                  | @ 50% Level                             | 45                   | -                 | 55                   | %        |
|                                    | Rise and Fall Time                                           | $T_{Rz}$ , $T_F$     | @ 10% - 90% Levels, $C_L = 15$ pF       |                      |                   | 10                   | ns       |
|                                    | Start Up Time                                                | $T_S$                | Application of $V_{CC}$                 | -                    | -                 | 10                   | ms       |
|                                    | Enable Function                                              | $V_{IH}$<br>$V_{IL}$ | Pin 1 Logic '1', Output Enabled         | 0.7* $V_{CC}$        | -                 | -                    | V        |
|                                    | Enable Input Voltage                                         |                      | Pin 1 Logic '0', Output Disabled        | -                    | -                 | 0.3* $V_{CC}$        |          |
|                                    | Disable Input Voltage                                        |                      |                                         |                      |                   |                      |          |
|                                    | Enable Time                                                  | $T_{PLZ}$            | Pin 1 Logic '1'                         | -                    | -                 | 10                   | ms       |
|                                    | Standby Current                                              | $I_{ST}$             | Pin 1 Logic '0', Output Disabled        | -                    | -                 | 10                   | uA       |
|                                    | Period Jitter, Pk-Pk                                         | -                    | -                                       | -                    | -                 | 100                  | ps       |
|                                    | Period Jitter, RMS                                           | -                    | -                                       | -                    | -                 | 25                   |          |
|                                    | Phase Jitter, RMS                                            | -                    | Bandwidth 12 kHz - 20 MHz               | -                    | < 2               | -                    |          |

Notes:

1. Contact factory for available frequencies.
2. Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and aging.

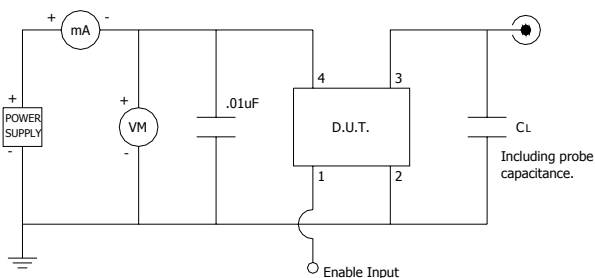
### CMOS/TTL OUTPUT WAVEFORM



### ENABLE TRUTH TABLE

| PIN 1     | PIN 3     |
|-----------|-----------|
| Logic '1' | Output    |
| Open      | Output    |
| Logic '0' | High Imp. |

### TEST CIRCUIT, CMOS LOAD

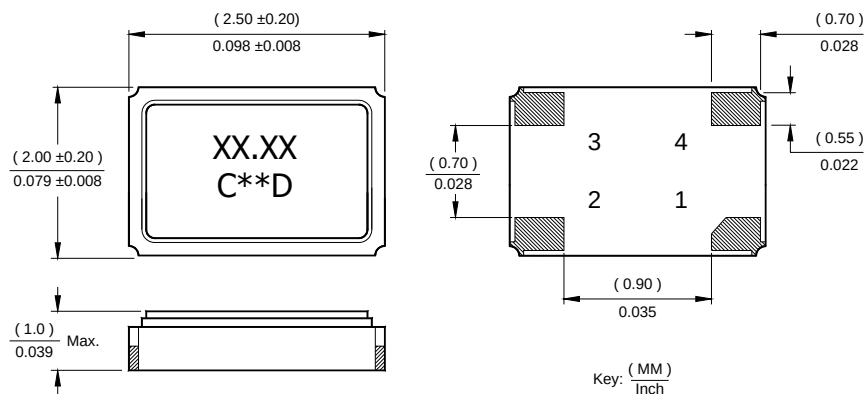


### D.U.T. PIN ASSIGNMENTS

| PIN | SYMBOL          | DESCRIPTION              |
|-----|-----------------|--------------------------|
| 1   | EOH             | Enable Input             |
| 2   | GND             | Circuit & Package Ground |
| 3   | Output          | RF Output                |
| 4   | V <sub>CC</sub> | Supply Voltage           |

## MECHANICAL SPECIFICATIONS

### PACKAGE DRAWING



### MARKING INFORMATION

1. XX.XX – Frequency in MHz.
2. C – CTS and Pin 1 identifier.
3. \*\* – Manufacturing Site Code.
4. D – Manufactured Date Code. See Table I for codes.

### NOTES

1. Termination pads (e4), barrier-plating is nickel (Ni) with gold (Au) flash plate.
2. Reflow conditions per JEDEC J-STD-020.

### SUGGESTED SOLDER PAD GEOMETRY

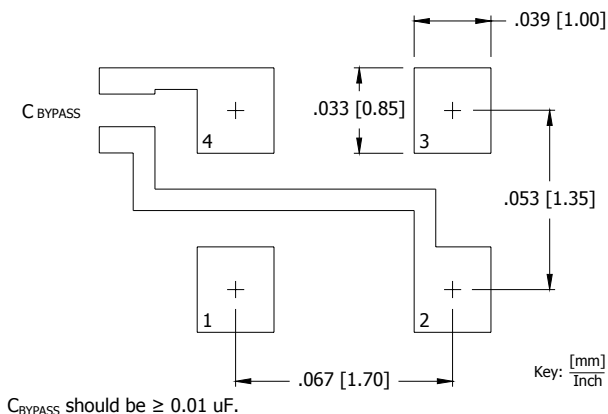
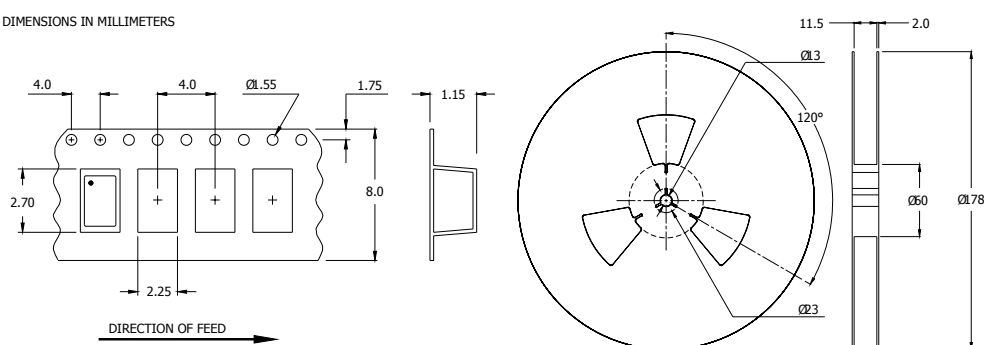


**TABLE I**

| YEAR \ MONTH |      |      |      |      | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|--------------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2001         | 2005 | 2009 | 2013 | 2017 | A   | B   | C   | D   | E   | F   | G   | H   | J   | K   | L   | M   |
| 2002         | 2006 | 2010 | 2014 | 2018 | N   | P   | Q   | R   | S   | T   | U   | V   | W   | X   | Y   | Z   |
| 2003         | 2007 | 2011 | 2015 | 2019 | a   | b   | c   | d   | e   | f   | g   | h   | j   | k   | l   | m   |
| 2004         | 2008 | 2012 | 2016 | 2020 | n   | p   | q   | r   | s   | t   | u   | v   | w   | x   | y   | z   |

## TAPE AND REEL INFORMATION

DIMENSIONS IN MILLIMETERS



Device quantity is 3,000 pieces per 178mm reel minimum.

## ENVIRONMENTAL SPECIFICATIONS

|                                  |                                                                                                                                        |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Temperature Cycle:               | 400 cycles from -55°C to +125°C, 10 minute dwell at each temperature, 1 minute transfer time between temperatures.                     |
| Mechanical Shock:                | 1,500g's, 0.5mS duration, 1/2 sinewave, 3 shocks each direction along 3 mutually perpendicular planes (18 total shocks).               |
| Sinusoidal Vibration:            | 0.06 inches double amplitude, 10 to 55 Hz and 20g's, 55 to 2,000 Hz, 3 cycles each in 3 mutually perpendicular planes (9 times total). |
| Gross Leak:                      | No leak shall appear while immersed in an FC40 or equivalent liquid at +125°C for 20 seconds.                                          |
| Fine Leak:                       | Mass spectrometer leak rates less than $2 \times 10^{-8}$ ATM cc/sec air equivalent.                                                   |
| Resistance to Solder Heat:       | Product must survive 3 reflows of +260°C peak, 10 seconds maximum.                                                                     |
| High Temperature Operating Bias: | 2,000 hours at +125°C, maximum bias, disregarding frequency shift.                                                                     |
| Frequency Aging:                 | 1,000 hours at +85°C, full bias, less than $\pm 5$ ppm shift.                                                                          |
| Moisture Sensitivity Level:      | Level 1 per JEDEC J-STD-020.                                                                                                           |

## QUALITY AND RELIABILITY

Quality systems meet or exceed the requirements of ISO 9000:2000 standards.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)