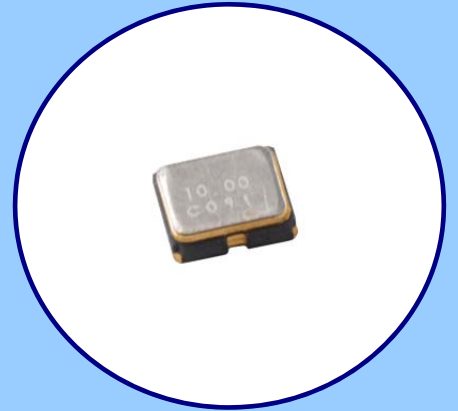


### FEATURES

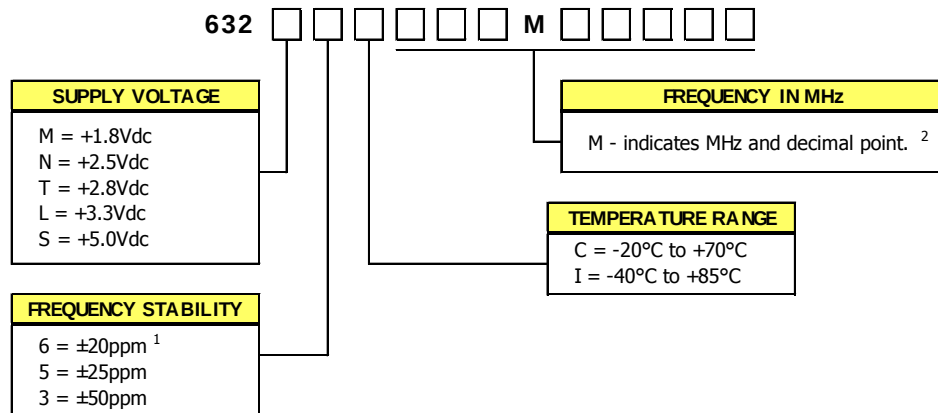
- Standard 3.2mm x 2.5mm 4-Pad Surface Mount Package
- HCMOS Output
- Fundamental and 3<sup>rd</sup> Overtone Crystal Designs
- Frequency Range 1 – 125 MHz
- Frequency Stability  $\pm 50$  ppm Standard,  $\pm 25$  ppm and  $\pm 20$  ppm Available
- Operating Voltages +1.8Vdc, +2.5Vdc, +2.8Vdc, +3.3Vdc or +5.0Vdc
- Operating Temperature to -40°C to +85°C
- Output Enable Standard
- Tape & Reel Packaging Standard, EIA-418
- **RoHS/Green Compliant [6/6]**



### APPLICATIONS

Model 632 is ideal for applications; such as broadband access, Ethernet/Gigabit Ethernet, microprocessors/DSP/FPGA, networking equipment computers and peripherals, digital video, cameras and other portable devices.

### ORDERING INFORMATION



<sup>1</sup> Consult factory for 6I Stability/Temperature availability.

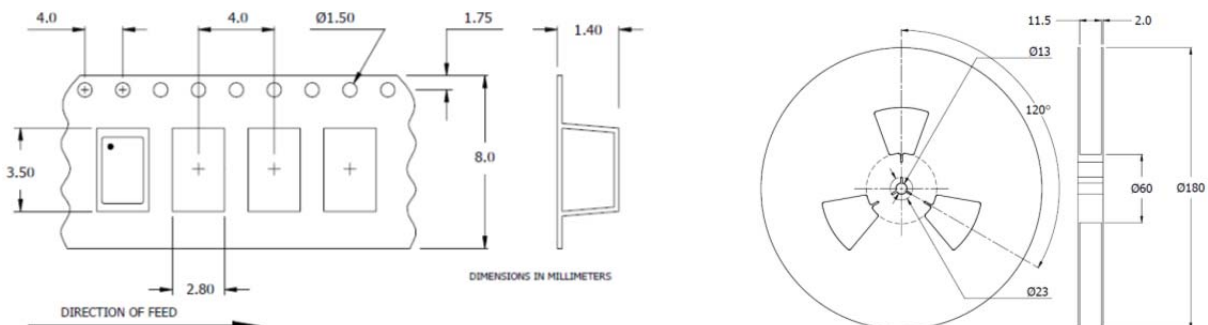
<sup>2</sup> Frequency is recorded with three leading significant digits before the 'M' and 5 significant digits after the 'M' [including zeros].

[Ex. 3.579545 MHz, code as 003M57954; 14.31818 MHz, code as 014M31818; 125 MHz, code as 125M00000]

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

### PACKAGING INFORMATION [reference]

Device quantity is 1k pcs. minimum and 3k pcs. maximum per 180mm reel. **8mm tape width.**

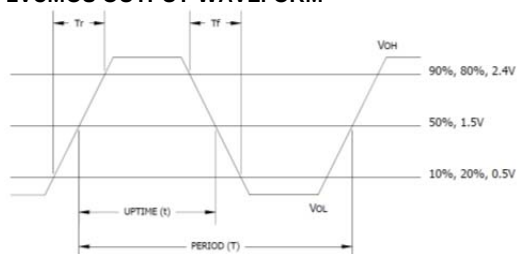
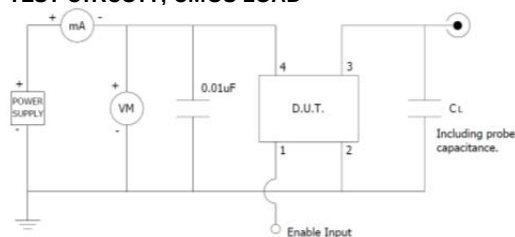


**ELECTRICAL CHARACTERISTICS**

| PARAMETER                                                                                                              | SYMBOL               | CONDITIONS                                                                                                                                                                  | MIN                                  | TYP                             | MAX                                  | UNIT     |
|------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|---------------------------------|--------------------------------------|----------|
| Maximum Supply Voltage                                                                                                 | $V_{CC}$             | -                                                                                                                                                                           | -0.5                                 | -                               | 4.0                                  | V        |
| Storage Temperature                                                                                                    | $T_{STG}$            | -                                                                                                                                                                           | -40                                  | -                               | +100                                 | °C       |
| Frequency Range                                                                                                        | $f_O$                | -                                                                                                                                                                           | 1.0                                  | -                               | 125                                  | MHz      |
| Frequency Stability<br>[See Note 1 and Ordering Information]                                                           | $\Delta f/f_O$       | -                                                                                                                                                                           | -                                    | -                               | 20, 25, 50                           | ± ppm    |
| Aging                                                                                                                  | $\Delta f/f_O$       | -                                                                                                                                                                           | -                                    | -                               | 3                                    | ± ppm/yr |
| Operating Temperature<br>Commercial<br>Industrial                                                                      | $T_A$                | -                                                                                                                                                                           | -20<br>-40                           | +25                             | +70<br>+85                           | °C       |
| Supply Voltage<br>Model 632M<br>Model 632N<br>Model 632T<br>Model 632L<br>Model 632S                                   | $V_{CC}$             | ± 10 %                                                                                                                                                                      | 1.62<br>2.25<br>2.52<br>2.97<br>4.50 | 1.8<br>2.5<br>2.8<br>3.3<br>5.0 | 1.98<br>2.75<br>3.08<br>3.63<br>5.50 | V        |
| Supply Current<br>Model 632M<br>[+18V]<br>Model 632N, 632T<br>[+2.5V, +2.8V]<br>Model 632L, 632S<br>[+3.3V, +5.0V]     | $I_{CC}$             | $C_L = 15\text{pF}$<br>1.0 MHz to 100 MHz<br>100.1 MHz to 125 MHz<br>1.0 MHz to 100 MHz<br>100.1 MHz to 125 MHz<br>1.0 MHz to 100 MHz<br>100.1 MHz to 125 MHz               | -<br>-<br>-<br>-<br>-<br>-           | -<br>-<br>-<br>-<br>-<br>-      | 7<br>12<br>10<br>20<br>15<br>25      | mA       |
| Output Load                                                                                                            | $C_L$                | -                                                                                                                                                                           | -                                    | -                               | 15                                   | pF       |
| Output Voltage Levels<br>Logic '1' Level<br>Logic '0' Level                                                            | $V_{OH}$<br>$V_{OL}$ | CMOS Load<br>CMOS Load                                                                                                                                                      | 90% $V_{CC}$<br>-                    | -<br>-                          | -<br>10% $V_{CC}$                    | V        |
| Output Current<br>Logic '1' Level [M,N,T,L,S]<br>Logic '0' Level [M,N,T,L,S]                                           | $I_{OH}$<br>$I_{OL}$ | $V_{OH} = 90\%V_{CC}$ [18V, 2.5/2.8V, 3.3V, 5.0V]<br>$V_{OL} = 10\%V_{CC}$ [18V, 2.5/2.8V, 3.3V, 5.0V]                                                                      | -<br>-                               | -<br>-                          | -2, -4, -8, -16<br>+2, +4, +8, +16   | mA       |
| Output Duty Cycle                                                                                                      | SYM                  | @ 50% Level                                                                                                                                                                 | 45                                   | -                               | 55                                   | %        |
| Rise and Fall Time<br>Model 632M<br>[+18V]<br>Model 632N, 632T<br>[+2.5V, +2.8V]<br>Model 632L, 632S<br>[+3.3V, +5.0V] | $T_R, T_F$           | @ 10% - 90% Levels, $C_L = 15\text{pF}$<br>1.0 MHz to 20 MHz<br>20.1 MHz to 125 MHz<br>1.0 MHz to 20 MHz<br>20.1 MHz to 125 MHz<br>1.0 MHz to 20 MHz<br>20.1 MHz to 125 MHz | -<br>-<br>-<br>-<br>-<br>-           | -<br>-<br>-<br>-<br>-<br>-      | 5<br>4<br>4<br>3<br>3<br>2           | ns       |
| Start Up Time                                                                                                          | $T_S$                | Application of $V_{CC}$                                                                                                                                                     | -                                    | -                               | 2                                    | ms       |
| Enable Function<br>Enable Input Voltage<br>Disable Input Voltage                                                       | $V_{IH}$<br>$V_{IL}$ | Pin 1 Logic '1', Output Enabled<br>Pin 1 Logic '0', Output Disabled                                                                                                         | 0.7* $V_{CC}$<br>-                   | -<br>-                          | -<br>0.3* $V_{CC}$                   | V        |
| Enable Time [M,N,T,L,S]                                                                                                | $T_{PLZ}$            | Pin 1 Logic '1'                                                                                                                                                             | -                                    | -                               | 2                                    | ms       |
| Standby Current                                                                                                        | $I_{ST}$             | Pin 1 Logic '0', Output Disabled                                                                                                                                            | -                                    | -                               | 15                                   | µA       |
| Period Jitter, pk-pk                                                                                                   | pjpk-pk              | -                                                                                                                                                                           | -                                    | -                               | 40                                   | ps       |
| Phase Jitter, RMS                                                                                                      | tjrms                | Bandwidth 12 kHz - 20 MHz                                                                                                                                                   | -                                    | -                               | 1                                    | ps       |

Notes:

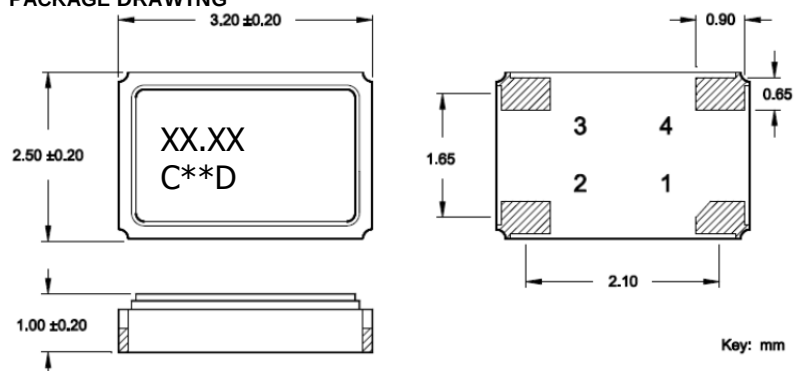
- Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and aging.

**LVC MOS OUTPUT WAVEFORM**

**TEST CIRCUIT, CMOS LOAD**

**ENABLE TRUTH TABLE**

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

## 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 – Manufacturing Date Code.  
[See Table 1 for codes.]
5. Complete CTS part number, frequency value and date code information must appear on reel and carton labels.

### NOTES

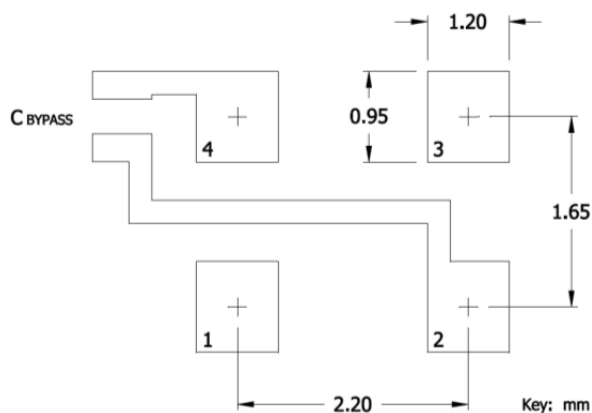
1. Termination pads (e4). Barrier-plating is nickel [Ni] with gold [Au] flash plate.
2. Reflow conditions per JEDEC J-STD-020; 260°C maximum, 20 seconds.
3. MSL = 1.

TABLE I

| YEAR |      |      |      |      | MONTH |     |     |     |     |     |     |     |     |     |     |     |
|------|------|------|------|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2001 | 2005 | 2009 | 2013 | 2017 | 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   |

### SUGGESTED SOLDER PAD GEOMETRY

C<sub>BYPASS</sub> should be ≥ 0.01 uF.



### D.U.T. PIN ASSIGNMENTS

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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

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