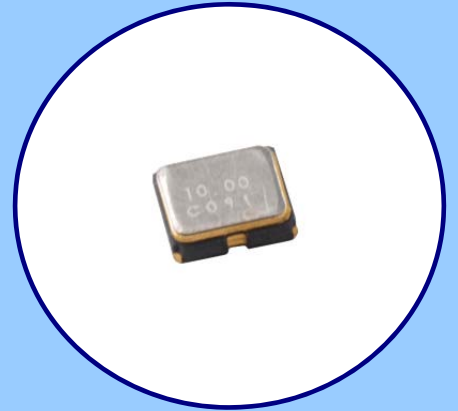


### FEATURES

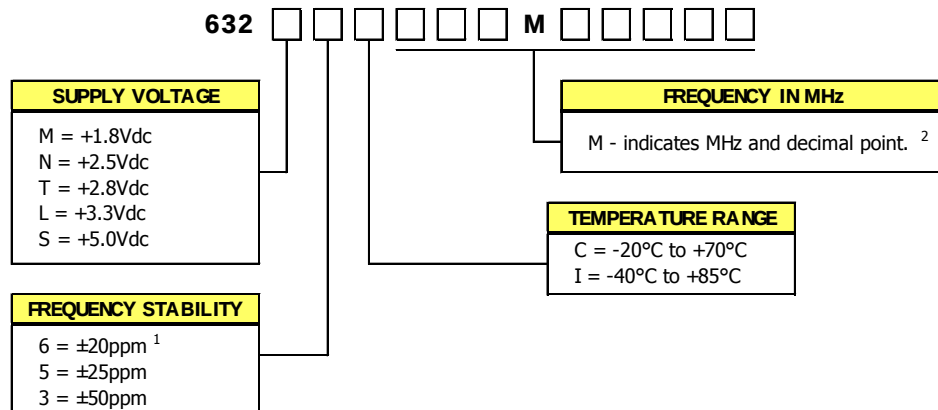
- Standard 3.2mm x 2.5mm 4-Pad Surface Mount Package
- HCMOS Output
- Fundamental and 3<sup>rd</sup> Overtone Crystal Designs
- Frequency Range 1 – 125 MHz
- Frequency Stability  $\pm 50$  ppm Standard,  $\pm 25$  ppm and  $\pm 20$  ppm Available
- Operating Voltages +1.8Vdc, +2.5Vdc, +2.8Vdc, +3.3Vdc 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.

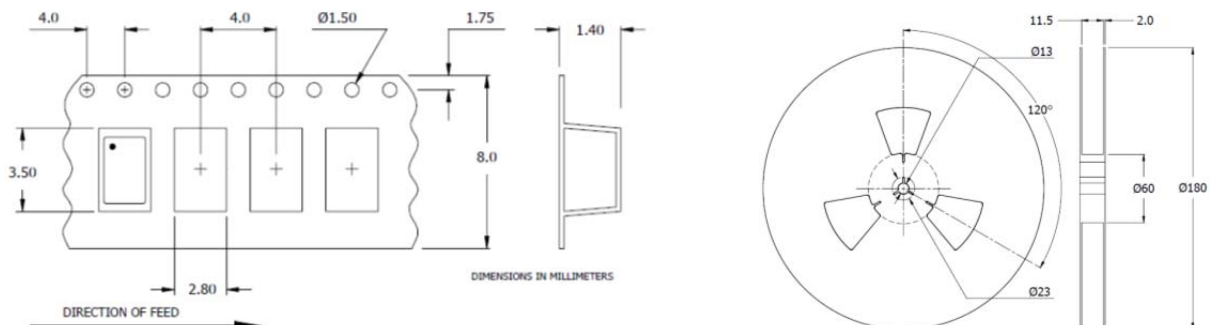
<sup>2</sup> Frequency is recorded with three leading significant digits before the 'M' and 5 significant digits after the 'M' [including zeros].

[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                                        | $T_A$          | -                                                          | -20<br>-40                           | +25                             | +70<br>+85                           | °C       |
| Supply Voltage                                               | $V_{CC}$       | ± 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                                               | $I_{CC}$       | $C_L = 15pF$<br>1.0 MHz to 100 MHz<br>100.1 MHz to 125 MHz | -<br>-<br>-                          | -<br>-<br>-                     | 7<br>12                              | mA       |
| Model 632M<br>[+18V]                                         |                |                                                            |                                      |                                 |                                      |          |
| Model 632N, 632T<br>[+2.5V, +2.8V]                           |                |                                                            |                                      |                                 | 10<br>20                             |          |
| Model 632L, 632S<br>[+3.3V, +5.0V]                           |                |                                                            |                                      |                                 | 15<br>25                             |          |
| Output Load                                                  | $C_L$          |                                                            | -                                    | -                               | 15                                   | pF       |
| Output Voltage Levels                                        |                |                                                            |                                      |                                 |                                      |          |
| Logic '1' Level                                              | $V_{OH}$       | CMOS Load                                                  | 90% $V_{CC}$                         | -                               | -                                    | V        |
| Logic '0' Level                                              | $V_{OL}$       | CMOS Load                                                  | -                                    | -                               | 10% $V_{CC}$                         |          |
| Output Current                                               |                |                                                            |                                      |                                 |                                      |          |
| Logic '1' Level [M,N,T,L,S]                                  | $I_{OH}$       | $V_{OH} = 90\%V_{CC}$ [1.8V, 2.5/2.8V, 3.3V, 5.0V]         | -                                    | -                               | -2, -4, -8, -16                      | mA       |
| Logic '0' Level [M,N,T,L,S]                                  | $I_{OL}$       | $V_{OL} = 10\%V_{CC}$ [1.8V, 2.5/2.8V, 3.3V, 5.0V]         | -                                    | -                               | +2, +4, +8, +16                      |          |
| Output Duty Cycle                                            | SYM            | @ 50% Level                                                | 45                                   | -                               | 55                                   | %        |
| Rise and Fall Time                                           |                | @ 10% - 90% Levels, $C_L = 15pF$                           |                                      |                                 |                                      |          |
| Model 632M<br>[+18V]                                         | $T_R, T_F$     | 1.0 MHz to 20 MHz<br>20.1 MHz to 125 MHz                   | -<br>-                               | -<br>-                          | 5<br>4                               | ns       |
| Model 632N, 632T<br>[+2.5V, +2.8V]                           |                | 1.0 MHz to 20 MHz<br>20.1 MHz to 125 MHz                   | -<br>-                               | -<br>-                          | 4<br>3                               |          |
| Model 632L, 632S<br>[+3.3V, +5.0V]                           |                | 1.0 MHz to 20 MHz<br>20.1 MHz to 125 MHz                   | -<br>-                               | -<br>-                          | 3<br>2                               |          |
| Start Up Time                                                | $T_S$          | Application of $V_{CC}$                                    | -                                    | -                               | 2                                    | ms       |
| Enable Function                                              |                |                                                            |                                      |                                 |                                      |          |
| Enable Input Voltage                                         | $V_{IH}$       | Pin 1 Logic '1', Output Enabled                            | 0.7* $V_{CC}$                        | -                               | -                                    | V        |
| Disable Input Voltage                                        | $V_{IL}$       | Pin 1 Logic '0', Output Disabled                           | -                                    | -                               | 0.3* $V_{CC}$                        |          |
| 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                                    |          |

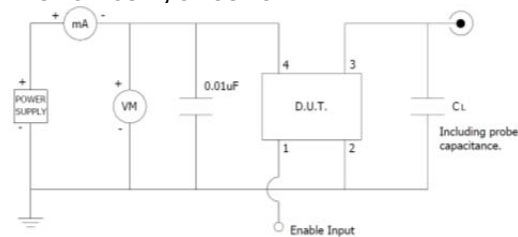
Notes:

- 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 |      |      |      |      | 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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