

| FEATURES   | APPLICATIONS   |
|--|--|
| <ul style="list-style-type: none"> <li>- ±0.5ppm (Frequency Stability) Available</li> <li>- Clipped Sinewave</li> <li>- (VC)TCXO</li> <li>- RoHS Compliant</li> <li>- Tape and Reel</li> </ul> | <ul style="list-style-type: none"> <li>- GPS</li> <li>- Mobile Communication Equipment</li> <li>- Cellular and Cordless Phones</li> <li>- IP Networking</li> </ul> |

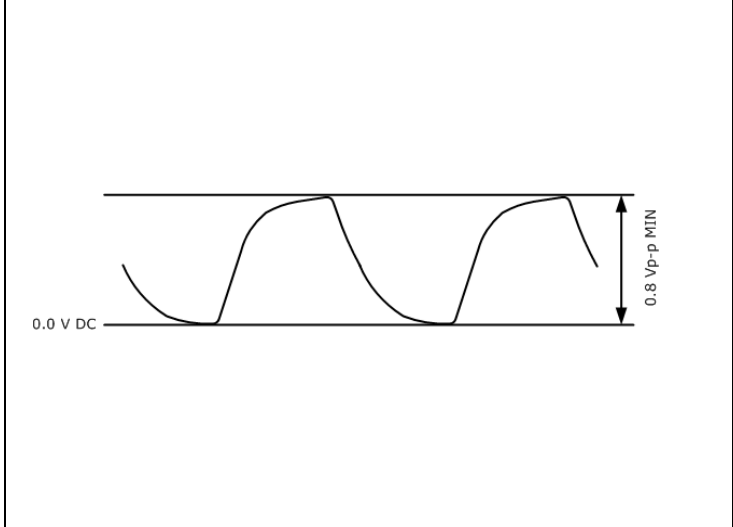
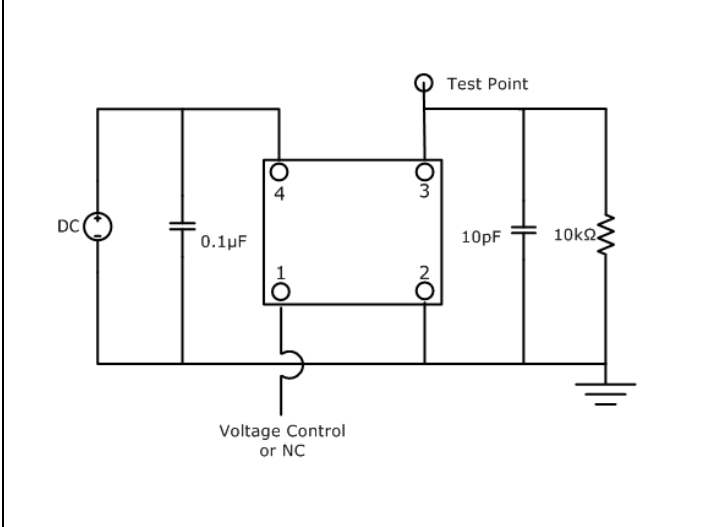


| PART NUMBERING GUIDE  |  |
|---|--|
| <p><b>SUNTSU TCXO</b> → <b>STC 32 K 33 R 48 V E - 32.000M</b> ← <b>FREQUENCY (MHz)</b></p> <p><b>3.2mm x 2.5mm</b></p> <p><b>CLIPPED SINEWAVE</b></p> <p><b>SUPPLY VOLTAGE</b><br/>           18: 1.8V±5%<br/>           25: 2.5V±5%<br/>           27: 2.7V±5%<br/>           30: 3.0V±5%<br/>           33: 3.3V±5%</p> <p><b>FREQUENCY STABILITY</b><br/>           N: ±5.0ppm<br/>           O: ±2.5ppm<br/>           P: ±2.0ppm<br/>           Q: ±1.5ppm<br/>           R: ±1.0ppm<br/>           F: ±0.5ppm</p> | <p><b>PULLABILITY</b><br/>           BLANK: TCXO<br/>           E: ±12.0ppm<br/>           F: ±8.0ppm<br/>           G: ±5.0ppm</p> <p><b>TCXO/ VCTCXO</b><br/>           BLANK: TCXO<br/>           V: VCTCXO</p> <p><b>OPERATING TEMPERATURE RANGE</b><br/>           07: 0°C to +70°C<br/>           16: -10°C to +60°C<br/>           17: -10°C to +70°C<br/>           27: -20°C to +70°C<br/>           38: -30°C to +85°C<br/>           48: -40°C to +85°C</p> |
| <p>Cage Code: 4GUT4<br/>           To customize your parameters contact a Suntsu representative.</p>  |  |

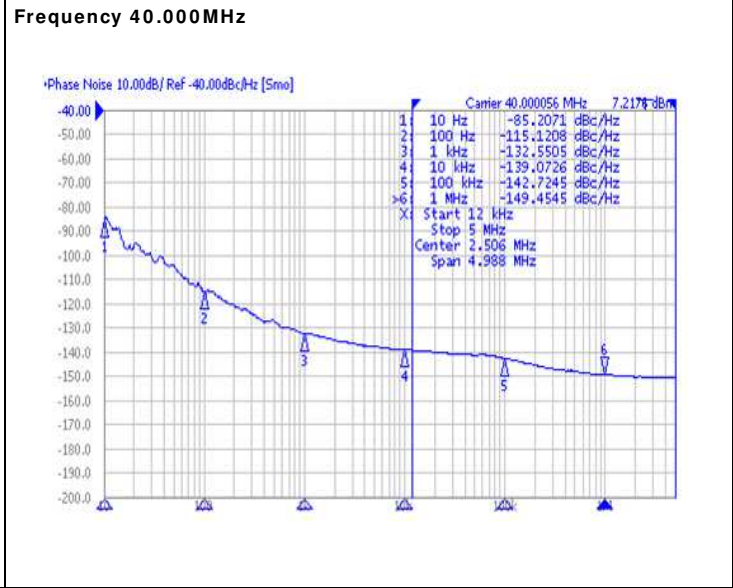
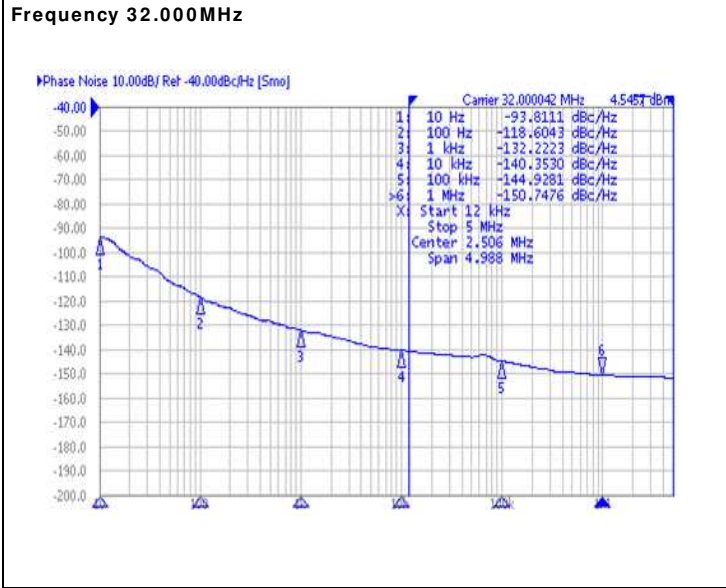
| ELECTRICAL PARAMETERS                                     | UNITS            | MIN.  | TYP. | MAX.            | REMARKS                               |
|---|------------------|-------|------|-----------------|---------------------------------------|
| Frequency Range   | MHz              | 6     |      | 40              |                                       |
| Frequency Tolerance at +25°C                              |                  | -1.5  |      | +1.5            | 1 hour after reflow.                  |
| Frequency Stability vs. Operating Temperature (Ref. 25°C) |                  | -1.0  |      | 1.0             | See part numbering guide for options. |
| vs. Supply Voltage  | ppm              | -0.3  |      | 0.3             | V <sub>DD</sub> ±5% change.           |
| vs. Load  |                  | -0.2  |      | 0.2             | ±10% change.                          |
| vs. Aging   |                  | -1.0  |      | 1.0             | 1 year.                               |
| Operating Temperature                                     | °C               | -40   |      | +85             | See part numbering guide for options. |
| Storage Temperature                                       |                  | -55   |      | +125            |                                       |
| Supply Voltage (V <sub>DD</sub> )                         | V                | 3.135 | 3.3  | 3.465           | See part numbering guide for options. |
| Current (I <sub>DD</sub> )                                | mA               |       |      | 2               |                                       |
| Control Voltage (V <sub>C</sub> , VCTCXO)                 | V                | 0     |      | V <sub>DD</sub> | Center Voltage: V <sub>DD</sub> *50%. |
| Pullability (VCTCXO)                                      | ppm              | ±5.0  |      | ±12.0           | See part numbering guide for options. |
| Linearity (VCTCXO)  | %                |       |      | 10              |                                       |
| Output Load (Clipped Sinewave)                            | kΩ//pF           |       |      | 10//10          |                                       |
| Output Logic Levels                                       | V <sub>P-P</sub> | 0.8   |      |                 |                                       |
| Symmetry (Duty Cycle)                                     | %                | 40    | 50   | 60              |                                       |
| Start-Up Time   | ms               |       |      | 3               |                                       |
| VC Input Impedance (VCTCXO)                               | kΩ               | 100   |      |                 |                                       |
| Phase Noise (Typical)                                     | 10Hz Offset      |       |      | -85             |                                       |
|   | 100Hz Offset     |       |      | -115            |                                       |
|   | 1kHz Offset      |       |      | -135            |                                       |
|   | 10kHz Offset     |       |      | -145            |                                       |
|   | 100kHz Offset    |       |      | -150            |                                       |

| OUTLINE DRAWING                              |  |     |          |   |                                      |   |     |   |        |   |                 |
|--|--|-----|----------|---|--------------------------------------|---|-----|---|--------|---|-----------------|
|  | <p>RECOMMENDED LAND PATTERN</p>  |     |          |   |                                      |   |     |   |        |   |                 |
|  | <table border="1"> <thead> <tr> <th>PIN</th> <th>FUNCTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>V<sub>C</sub>(VCTCXO) or NC (TCXO)</td> </tr> <tr> <td>2</td> <td>GND</td> </tr> <tr> <td>3</td> <td>OUTPUT</td> </tr> <tr> <td>4</td> <td>V<sub>DD</sub></td> </tr> </tbody> </table> | PIN | FUNCTION | 1 | V <sub>C</sub> (VCTCXO) or NC (TCXO) | 2 | GND | 3 | OUTPUT | 4 | V <sub>DD</sub> |
| PIN  | FUNCTION   |     |          |   |                                      |   |     |   |        |   |                 |
| 1  | V <sub>C</sub> (VCTCXO) or NC (TCXO)   |     |          |   |                                      |   |     |   |        |   |                 |
| 2  | GND  |     |          |   |                                      |   |     |   |        |   |                 |
| 3  | OUTPUT   |     |          |   |                                      |   |     |   |        |   |                 |
| 4  | V <sub>DD</sub>  |     |          |   |                                      |   |     |   |        |   |                 |
| <p>NOTE: Dimensions in millimeters (mm).</p> |  |     |          |   |                                      |   |     |   |        |   |                 |

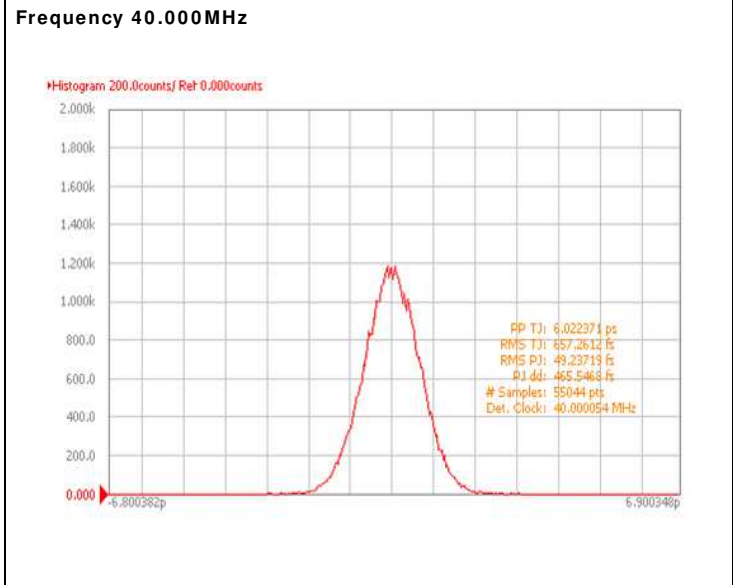
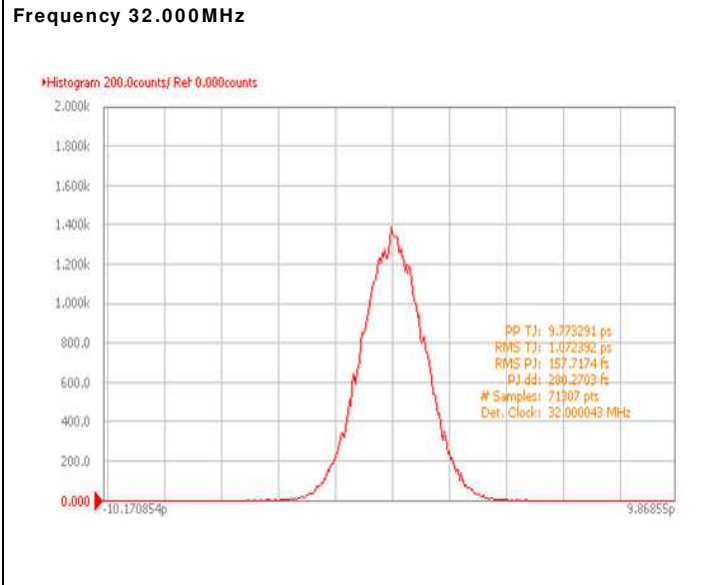
**TEST CIRCUIT (CLIPPED SINE WAVE)      WAVEFORM (CLIPPED SINE WAVE)**



**TYPICAL PHASE NOISE PERFORMANCE (MEASURED BY AGILENT E5052A)**



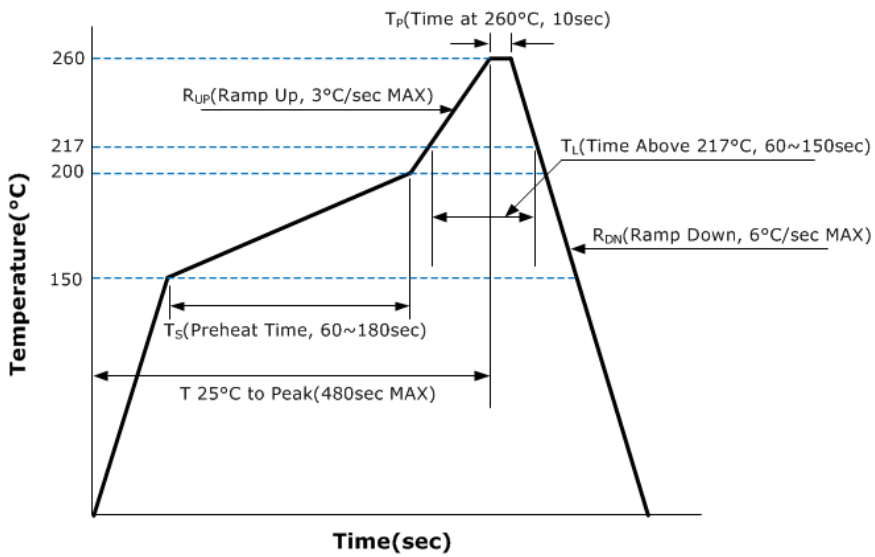
**TYPICAL JITTER PERFORMANCE (MEASURED BY AGILENT E5052A)**



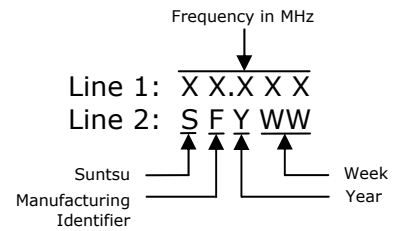
### ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

|                              |                                       |
|------------------------------|---------------------------------------|
| Temperature Cycling          | MIL-STD-883, Method 1010, Condition B |
| Fine Leak Test               | MIL-STD-883, Method 1014, Condition A |
| Gross Leak Test              | MIL-STD-883, Method 1014, Condition C |
| Mechanical Shock             | MIL-STD-883, Method 2002, Condition B |
| Vibration                    | MIL-STD-883, Method 2007, Condition A |
| Moisture Resistance          | MIL-STD-883, Method 1004              |
| Moisture Sensitivity         | J-STD-020, MSL 1                      |
| Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition K  |
| Resistance to Solvents       | MIL-STD-202, Method 215               |
| Solderability                | MIL-STD-883, Method 2003              |

### REFLOW PROFILE

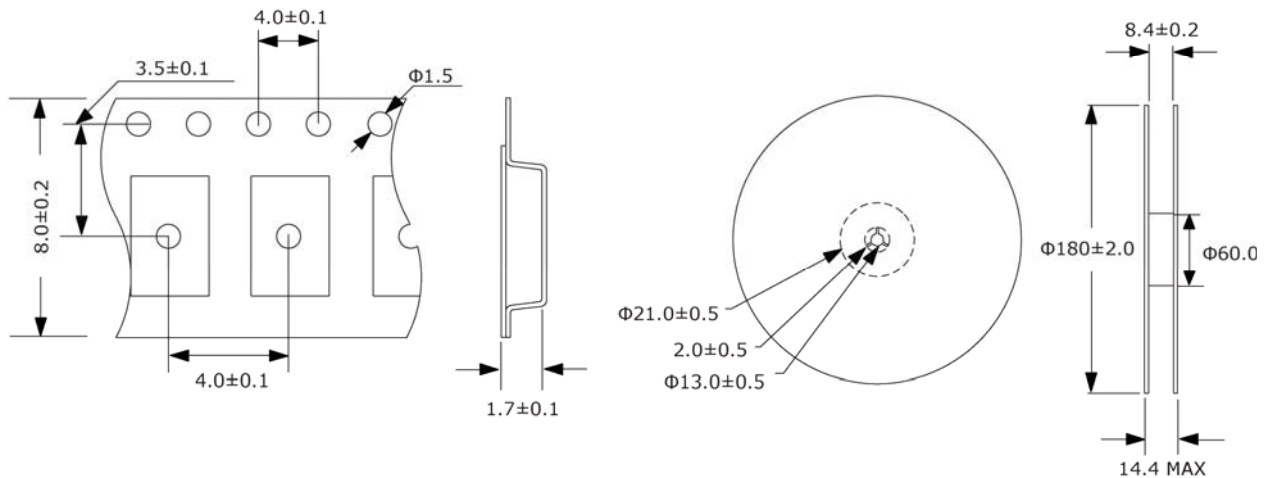


### MARKING



### TAPE AND REEL DIMENSIONS

3,000pcs/reel



NOTE: Dimensions in millimeters (mm); drawing is not to scale.