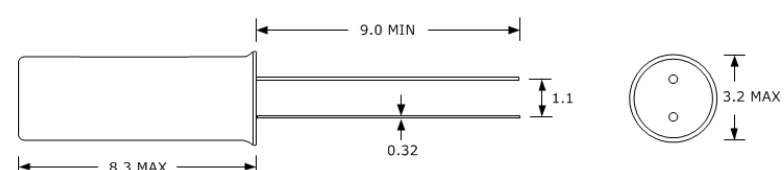


| FEATURES  | APPLICATIONS  |
|---|---|
| <ul style="list-style-type: none"> <li>- ±10ppm (Tolerance) Available</li> <li>- RoHS Compliant</li> <li>- Miniature Package</li> </ul> | <ul style="list-style-type: none"> <li>- Real Time Clock</li> <li>- Measurement instruments</li> <li>- Wireless Applications</li> </ul> |



| PART NUMBERING GUIDE  |   |
|---|---|
| <p><b>SUNTSU WATCH CRYSTAL</b> → <b>SWT 83 2 12 D 48 - 32.768kHz</b> ← <b>FREQUENCY (kHz)</b></p> <p><b>8.3mm x 3.2mm</b> →</p> <p><b>2 LEAD</b> →</p> <p><b>LOAD CAPACITANCE</b></p> <p>18: 18.0pF<br/>12: 12.5pF<br/>8: 8.0pF<br/>7: 7.0pF<br/>6: 6.0pF</p> | <p><b>OPERATING TEMPERATURE RANGE</b></p> <p>16: -10°C to + 60°C<br/>48: -40°C to + 85°C</p> <p><b>FREQUENCY TOLERANCE</b></p> <p>D: ±20ppm<br/>F: ±10ppm</p> |
| <p>Cage Code: 4GUT4<br/>To customize your parameters contact a Suntsu representative.</p>   |   |

| ELECTRICAL PARAMETERS         | UNITS              | MIN.   | TYP.   | MAX.   | REMARKS                               |
|-------------------------------|--------------------|--------|--------|--------|---------------------------------------|
| Frequency Range               | kHz                |        | 32.768 |        |                                       |
| Frequency Tolerance at +25°C  | ppm                | -20    |        | +20    | See part numbering guide for options. |
| Frequency Stability vs. Aging | ppm                | -3     |        | +3     | First year @ +25°C.                   |
| Frequency Coefficient (β)     | ppm/T <sup>2</sup> | -0.040 | -0.035 | -0.030 |                                       |
| Operating Temperature         | °C                 | -40    |        | +85    | See part numbering guide for options. |
| Turnover Temperature          | °C                 | +20    | +25    | +30    |                                       |
| Storage Temperature           | °C                 | -55    |        | +125   |                                       |
| Load Capacitance              | pF                 |        | 12.5   |        | See part numbering guide for options. |
| Shunt Capacitance             | pF                 |        | 1.5    |        |                                       |
| Drive Level                   | μW                 |        |        | 1      |                                       |
| Insulation Resistance         | MΩ                 | 500    |        |        | @ 100V <sub>DC</sub> ± 15V.           |
| Equivalent Series Resistance  | kΩ                 |        |        | 35     |                                       |

| OUTLINE DRAWING   | MARKING  |
|---|--|
|  | <p>Line 1: <b>XX.XXX F Y WW</b></p> <p>Frequency in kHz → XX.XXX<br/>Manufacturing Identifier → F<br/>Year → Y<br/>Week → WW</p> |
| <p>NOTE: Dimensions in millimeters (mm).</p>  |  |

| ENVIRONMENTAL SPECIFICATIONS |                                       | MECHANICAL SPECIFICATIONS    |                                       |
|------------------------------|---------------------------------------|------------------------------|---------------------------------------|
| Temperature Cycling          | MIL-STD-883, Method 1010, Condition B | Mechanical Shock             | MIL-STD-202, Method 213, Condition C  |
| Fine Leak Test               | MIL-STD-883, Method 1014, Condition A | Vibration                    | MIL-STD-883, Method 2007, Condition A |
| Gross Leak Test              | MIL-STD-883, Method 1014, Condition C | Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition K  |
| Moisture Resistance          | MIL-STD-883, Method 1004              | Resistance to Solvents       | MIL-STD-202, Method 215               |
| Moisture Sensitivity         | J-STD-020, MSL 1                      | Solderability                | MIL-STD-883, Method 2003              |