

| Features |
|---------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ±20ppm (Tolerance) Available Plastic SMD Type Tape and Reel |

| Applications |
|-----------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Real Time Clock Measurement instruments Wireless Applications |



Part Numbering Guide

SWS 61 4 12 D 48 - 32.768K

SUNTSU WATCH SMT
CRYSTAL

6.9mm x 1.4mm

4 PAD

LOAD CAPACITANCE
12 : 12.5pF
7 : 7.0pF

FREQUENCY TOLERANCE
D : ±20ppm

OPERATING TEMPERATURE RANGE

16 : -10°C - +60°C
48 : -40°C - +85°C

FREQUENCY
kHz



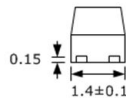
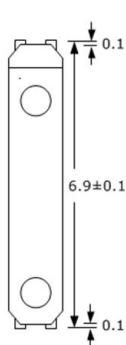
Cage Code: 4GUT4

To customize your parameters contact a Suntsu representative.

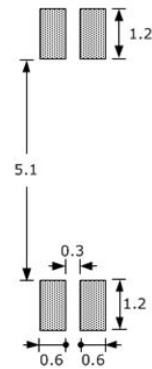
| Electrical Parameters | Units | Minimum | Typical | Maximum | Remarks |
|-------------------------------|--------------------|---------|---------|---------|---------------------------------------|
| Frequency Range | kHz | | 32.768 | | |
| Frequency Tolerance at +25°C | ppm | -20 | | +20 | |
| Frequency Stability vs. Aging | ppm | -3 | | +3 | First year @ +25°C. |
| Frequency Coefficient (β) | ppm/T ² | -0.040 | -0.034 | -0.028 | |
| 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 | 7 | | 12.5 | See part numbering guide for options. |
| Shunt Capacitance | pF | | 1.2 | | |
| Drive Level | μW | | | 1 | |
| Insulation Resistance | MΩ | 500 | | | @ 100VDC ± 15V. |
| Equivalent Series Resistance | kΩ | | | 65 | |

Outline Drawing & Recommended Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

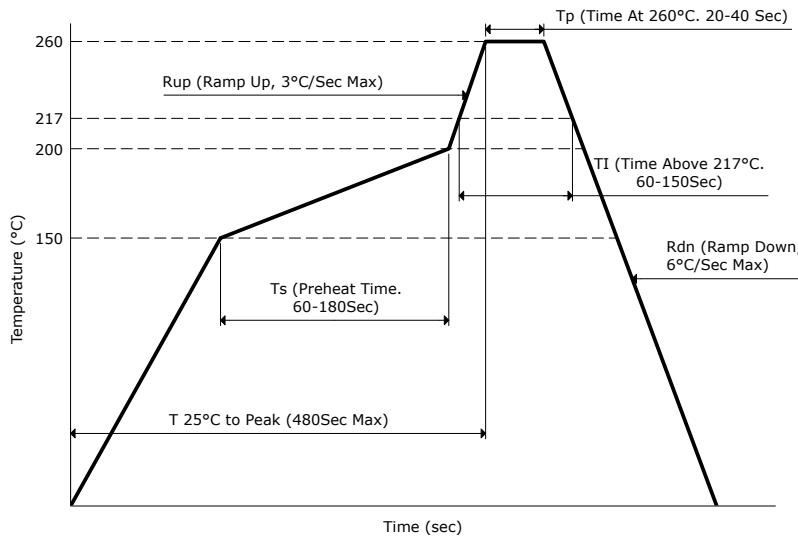


ELECTRODE ARRANGEMENT (BOTTOM VIEW)



| Environmental Specifications | | Mechanical Specifications | |
|------------------------------|---------------------------------------|------------------------------|---------------------------------------|
| Temperature Cycling | MIL-STD-883, Method 1010, Condition B | Mechanical Shock | MIL-STD-202, Method 213, Condition B |
| 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 B |
| 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 |

Reflow Profile & Part Marking



Line 1: XXXXX
 ↑
 Lot Code

Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

3,000pcs / Reel

