SUNTSU

MEMS Low Power 4 Pad CMOS Oscillator

# SML53C Series

5.0mm x 3.2mm

## Features

- ±20ppm (Frequency Stability) Available
- MEMS Oscillator
- LVCMOS/HCMOS Output
- 1.62V to 3.63V Continuous Supply Voltage Option
- Low Power Programmable Oscillator

## Applications

- Intelligent Terminal
- Ethernet
- Consumer Electronics
- Communication Equipment

## Part Numbering Guide

**SML 53 C S A 48 S - 25.000M**

- **SML** — SUNTSU MEMS LOW POWER OSCILLATOR
- **53** — 5.0mm x 3.2mm
- **C** — CMOS
- **S** — SUPPLY VOLTAGE: S : 1.62V ~ 3.63V
- **A** — FREQUENCY STABILITY: A : ±50ppm; B : ±30ppm; C : ±25ppm; D : ±20ppm
- **48** — OPERATING TEMPERATURE RANGE: 07 : 0°C - +70°C; 17 : -10°C - +70°C; 27 : -20°C - +70°C; 37 : -30°C - +75°C; 38 : -30°C - +85°C; 48 : -40°C - +85°C
- **S** — (ENABLE/DISABLE): BLANK : No Connection; E : Enable/Disable; S : Standby
- **25.000M** — FREQUENCY: MHz

RoHS COMPLIANT

| Electrical Parameters | Units | Minimum | Typical | Maximum | Remarks |
|---|---|---|---|---|---|
| Frequency Range | MHz | 1 | | 110 | |
| Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change.) | ppm | -20 | | 20 | See part numbering guide for options |
| First Year Aging | ppm | -1.5 | | 1.5 | |
| Operating Temperature | °C | -40 | | 85 | See part numbering guide for options |
| Storage Temperature | °C | -65 | | 150 | |
| Supply Voltage ($V_{DD}$) | V | 1.62 | | 3.63 | |
| Current ($I_{DD}$) - 1.8V to 3.3V | mA | | 3.8 | 4.5 | No load condition, f=20MHz |
| OE Disable Current | mA | | | 4.2 | |
| Standby Current | µA | | | 4.3 | |
| Output Logic Levels High ($V_{OH}$) | V | 0.90*$V_{DD}$ | | | |
| Output Logic Levels Low ($V_{OL}$) | V | | | 0.10*$V_{DD}$ | |
| Rise (TR) and Fall (TF) Time | ns | | 1.3 | 2.5 | |
| Symmetry (Duty Cycle) | % | 45 | 50 | 55 | |
| Input Voltage - Enable | V | 0.7*$V_{DD}$ | | | |
| Input Voltage - Disable | V | | | 0.3*$V_{DD}$ | |
| Input Pull-up Impedance | kΩ | 50 | 87 | 150 | |
| Start-Up Time | ms | | | 5 | |
| Enable/Disable Time | ns | | | 130 | |
| Resume Time | ms | | | 5 | |
| RMS Period Jitter | ps | | 1.8 | 3 | |
| Peak to Peak Period Jitter | ps | | 12 | 25 | |
| RMS Phase Jitter (Random) | ps | | 1.3 | 2 | 12kHz ~ 20MHz |




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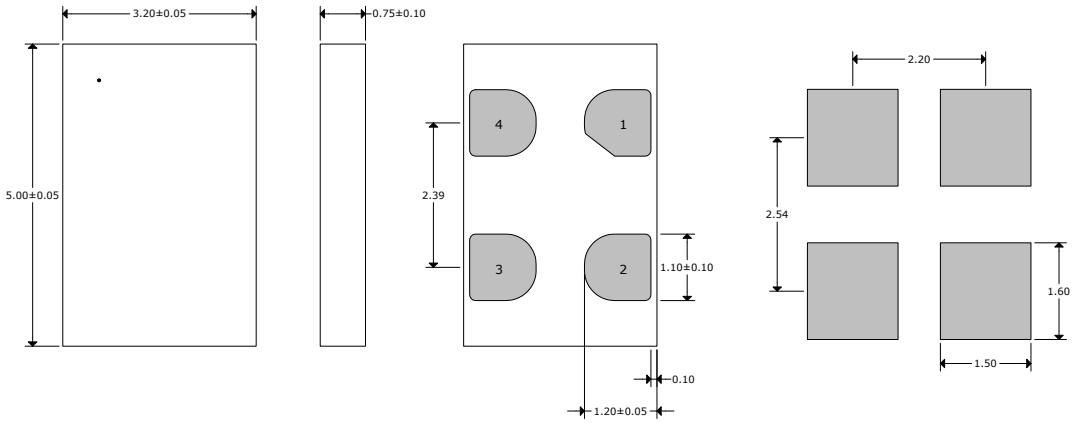
# SML53C Series

5.0mm x 3.2mm

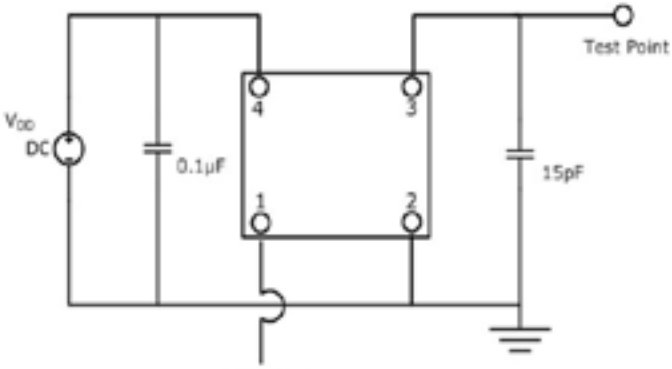
## Outline Drawing & Land Pattern

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



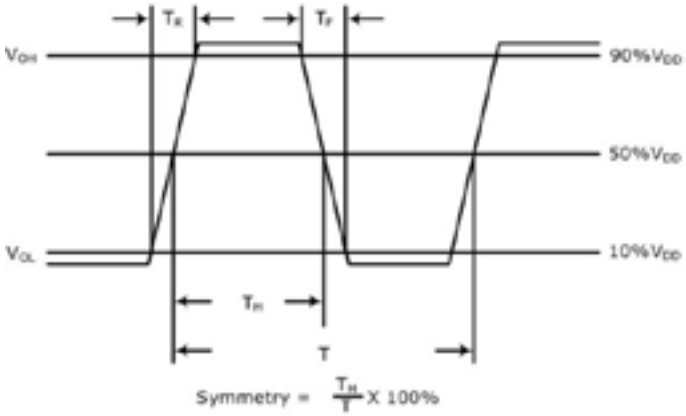

| PIN | FUNCTION |
|---|---|
| 1 | E/D or Standby or NC |
| 2 | GND |
| 3 | OUTPUT |
| 4 | $V_{DD}$ |

## Test Circuit (CMOS)



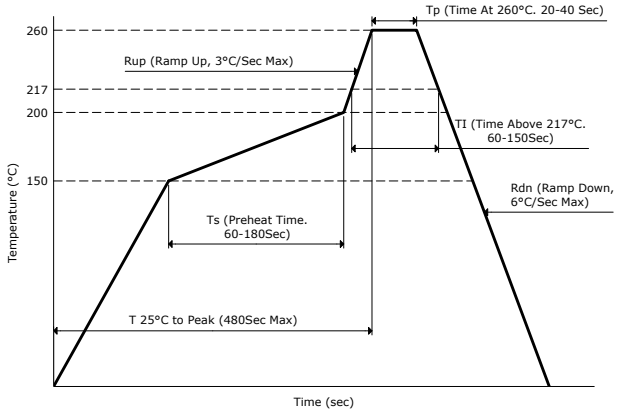

E/D - Standby - NC

## Waveform (CMOS)

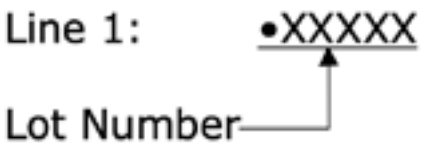



Symmetry = $\frac{T_H}{T}$ X 100%

## Reflow Profile




## Part Marking





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Specifications are subject
to change without notice.

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## Tape And Reel Dimensions

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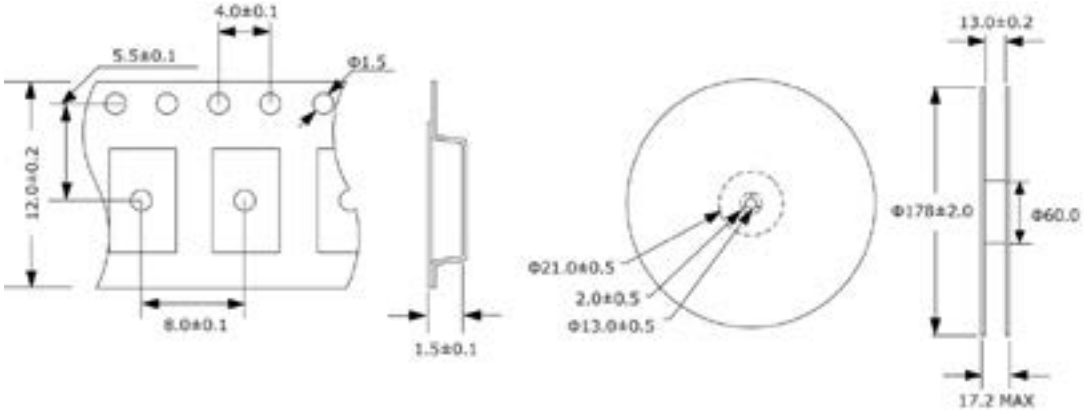
1,000pcs/Reel




| Environmental Specifications | | Mechanical Specifications | |
|---|---|---|---|
| Temperature Cycling | JESD22, Method A104 | 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 | Moisture Resistance | MIL-STD-883, Method 1004 |
| Solderability | MIL-STD-883, Method 2003 | Resistance to Solvents | MIL-STD-202, Method 215 |
| Moisture Sensitivity | MSL 1 @ 260°C | Resistance to Soldering Heat | MIL-STD-202, Method 210, Condition K |



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