SU-XA6XXX-X Series
Sinewave Output XO

Description
The SU-XA6XXX Series of crystal oscillators (XO) provides a general purpose sinewave output. It’s packaged in a miniature, FR-4 based 9x14 mm SMD package.

Applications and Features
- General purpose applications requiring a sinewave output
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Low Phase Noise and Jitter
- Frequency Range to 10 MHz
- SONET ± 20 ppm overall stability available
- High Shock Resistance, to 1000g
- COTS/Dual use

Creating a Part Number

Package code
SU  6 pad 9x14 mm SMD

Operating Voltage
A  3.3 V ± 5%

Enable Option
N  N/C

Frequency Stability, ppm
E  ±20
F  ±25
G  ±50
H  ±100
J  ±32
9  Customer specific

Temperature Range, °C
A  0 to 50
B  0 to 70
C  -20 to 70
D  -40 to 85
9  Customer Specific

Environmental
L  Contains a level of lead that is in excess of RoHS directive and is not designed for reflow
R  RoHS compliant
SU-XA6XXX-X Series

Drawing Specification

**OUTLINE TOLERANCE:**
±0.015" / 0.4mm
(Unless otherwise specified)

**PIN FUNCTIONS:**
[1] N/C
[2] N/C
[3] CASE / GROUND
[4] OUTPUT
[5] N/C
[6] SUPPLY VOLTAGE

**MARKING (EXAMPLE):**
SU-XXXX

Environmental and Mechanical Characteristics

<table>
<thead>
<tr>
<th>Operating temp. range</th>
<th>see part # table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Shock</td>
<td>Per MIL-STD-202, Method 213, Cond. A</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>Per MIL-STD-883, Method 1011, Cond. A</td>
</tr>
<tr>
<td>Vibration</td>
<td>Per MIL-STD-883, Method 2007, Cond. A</td>
</tr>
<tr>
<td>Hermetic Seal</td>
<td>Leak rate less than 1x10^-8 atm.cc/s of helium, crystal only.</td>
</tr>
<tr>
<td>Soldering conditions</td>
<td>See MAX reflow profile below. The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.</td>
</tr>
</tbody>
</table>

**MAX Reflow Profile**

The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.
SU-XA6XXX-X Series

### Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature Range</td>
<td>To</td>
<td>-40 to +85</td>
<td>ºC</td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>Tst</td>
<td>-50 to +90</td>
<td>ºC</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>Vcc</td>
<td>-0.5 to 3.6</td>
<td>V</td>
</tr>
</tbody>
</table>

### Electrical Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions, Note</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Frequency</td>
<td>Fo</td>
<td></td>
<td>1.0</td>
<td>10.0</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>Vcc</td>
<td>Code A (3.3V)</td>
<td>3.135</td>
<td>3.3</td>
<td>3.465</td>
<td>V</td>
</tr>
<tr>
<td>Supply Current (1)</td>
<td>Icc</td>
<td>Code A (3.3V)</td>
<td>10</td>
<td></td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Output Type</td>
<td></td>
<td>sinewave</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Load</td>
<td></td>
<td>Internally AC coupled</td>
<td>50</td>
<td>0</td>
<td>3</td>
<td>Ohm</td>
</tr>
<tr>
<td>Output Power (3)</td>
<td>Pout</td>
<td>Vcc=3.3V, 50 Ohm Load</td>
<td>-3</td>
<td>0</td>
<td>3</td>
<td>dBm</td>
</tr>
<tr>
<td>Output Impedance</td>
<td></td>
<td></td>
<td>50</td>
<td></td>
<td>Ohms</td>
<td></td>
</tr>
<tr>
<td>Return Loss</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Phase Noise</td>
<td>£(Δf)</td>
<td>@ 10 Hz @100 Hz @1KHz @10KHz @100KHz @&gt;1MHz</td>
<td>-90</td>
<td>-120</td>
<td>-135</td>
<td>dBc/Hz</td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>ΔF/F</td>
<td>Overall, including initial calibration, temperature, aging 10 years, shock and vibration</td>
<td>From ±20, see table for part number</td>
<td>ppm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1. All parameters, unless noted otherwise are specified for nominal conditions, i.e. ambient temperature is 25 ºC, Vcc – nominal.
2. Current is frequency dependent.
3. Other output levels are available up to +12 dBm.