

**AN-XA7XSXX-X Series  
HF SMD TCXO/VCTCXO  
Ultra Low Phase Noise**

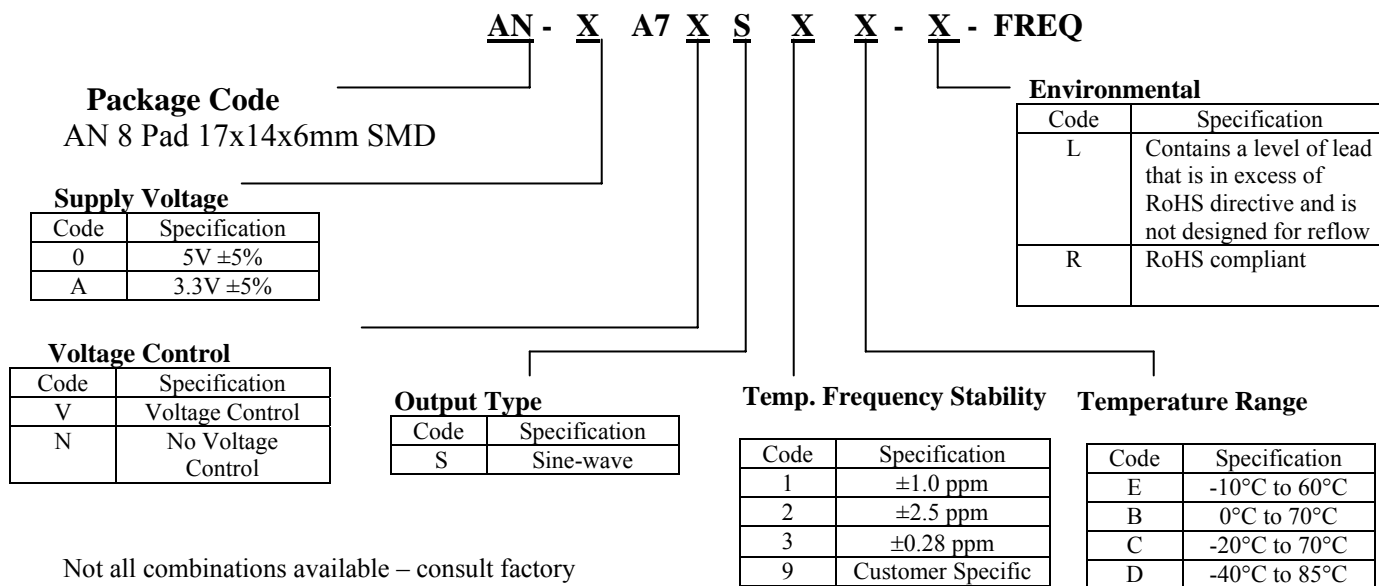
**Rev. M**

**Description:** The AN-XA7XSXX Series of SMD temperature compensated crystal oscillators (TCXO), provides High Frequency with excellent temperature stability, extremely low phase noise and jitter with Sine-wave output in a small surface mount FR4 based package.

**Features**

- **Small, Low Profile SMD Package**
- **Very Low Phase Jitter and Phase Noise**
- **Excellent Frequency Stability**
- **Frequency – up to 250 MHz**
- **No Multiplication – no sub-harmonics**
- **Stratum3 available**
- **COTS/Dual use**

**Creating a Part Number**



## AN-XA7XSXX-X Series

## Rev. M

(1)

**Specifications**

| Parameter                   | Symb | Condition   | Min                          | Typ                                  | Max           | Unit                                   | Note   |  |
|-----------------------------|------|---|------------------------------|--------------------------------------|---------------|--|--|--|
| <b>Electrical</b>           |      |   |                              |                                      |               |  |  |  |
| Frequency Range             | F    | Sine-wave   | 10                           |                                      | 250           | MHz                                    |  |  |
| Input Voltage               | Vcc  |   | 3.135<br>4.75                | 3.30<br>5.0                          | 3.465<br>5.25 | V                                      | A<br>0   |  |
| Input Current               | Icc  | Sine  |                              |                                      | 40            | mA                                     | @100MHz, 3.3V                                      |  |
| Frequency Stab.             | ΔF/F | Overall, available                                |                              |                                      | ±4.6          |  | 20 years   |  |
| Frequency Stability         | ΔF/F | vs. Temperature<br>vs. Vcc<br>aging               |                              | ±0.5<br>±0.1<br>±1<br>±2.5<br>±3.5   | ±1            | ppm<br>ppm/V<br>ppm/year<br>ppm<br>ppm | See chart<br><br>First Year<br>7 years<br>10 years |  |
| Calibration                 | ΔF/F | As shipped, 25°C                                  |                              |                                      | ±0.5          | ±1                                     | ppm  |  |
| Load                        |      | Sine  | Internally AC-coupled 50 Ohm |                                      |               |  |  |  |
| Output power <sup>(2)</sup> | P    | Sine-wave Into<br>50 Ohms                         | 0<br>4                       | 3<br>7                               |               | dBm                                    | 3.3V<br>5.0V                                       |  |
| Start up time               | Ts   |   |                              | 2                                    | 100           | ms                                     |  |  |
| Phase Jitter                |      | 1σ  |                              | 0.4<br>0.2                           | 1<br>0.4      | ps                                     | 100Hz to 20MHz<br>12KHz to 20MHz                   |  |
| Subharmonics                |      |   |                              |                                      |               | none                                   |  |  |
| Spurious                    |      |   |                              |                                      | -60           | dBc                                    |  |  |
| Harmonics                   |      | Sine-wave   |                              | -30                                  | -25           | dBc                                    |  |  |
| SSB Phase Noise             |      | @10Hz<br>@100 Hz<br>@1 KHz<br>@10 KHz<br>@100 KHz |                              | -80<br>-110<br>-140<br>-155<br>-160  |               | dBc/Hz                                 | @100MHz  |  |
| SSB Phase Noise             |      | @10Hz<br>@100 Hz<br>@1 KHz<br>@10 KHz<br>@100 KHz |                              | -105<br>-135<br>-150<br>-160<br>-165 |               | dBc/Hz                                 | @20 MHz  |  |
| Input Impedance             |      |   |                              |                                      | >10K Ohm      |  |  |  |
| Control voltage             | Vc   |   | 0                            |                                      | 3.0           | V                                      |  |  |
| Modulation bandwidth        | MB   |   |                              |                                      | 1.5           | Hz                                     |  |  |
| Deviation                   | ΔF/F | Vc=0V to 3.3V, 25°C                               | ±5                           | ±7                                   |               | ppm                                    |  |  |

- Note 1) All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load  
 2) Higher output power available – consult factory (current consumption may increase)

### Absolute Maximum Ratings

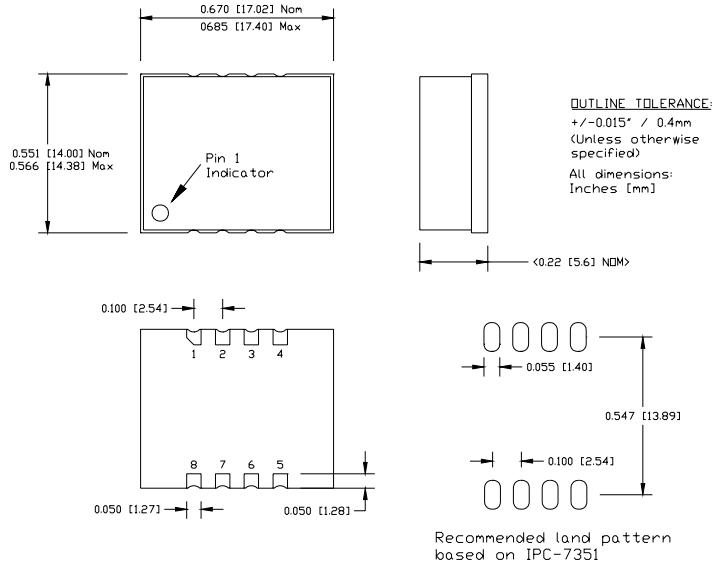
| Parameter                | Symb | Condition | Min  | Typ | Max | Unit | Note |
|--------------------------|------|-----------|------|-----|-----|------|------|
| Input Break Down Voltage | Vcc  |           | -0.5 |     | 5.5 | V    |      |
| Storage temp.            | Ts   |           | -40  |     | 105 | °C   |      |
| Contr. Voltage           | Vc   |           | -1   |     | 9   | V    |      |

### Environmental and Mechanical

|                       |  |  |  |  |  |  |  |
|-----------------------|--|--|--|--|--|--|--|
| Operating temp. range | 0°C to 70°C , -40°C to 85°C, see chart, page 1   |  |  |  |  |  |  |
| Mechanical Shock      | Per MIL-STD-202, Method 213, Cond. E   |  |  |  |  |  |  |
| Thermal Shock         | Per MIL-STD-883, Method 1011, Cond. A  |  |  |  |  |  |  |
| Vibration             | Per MIL-STD-883, Method 2007, Cond. A  |  |  |  |  |  |  |
| Soldering Conditions  | See MAX reflow profile; The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended. |  |  |  |  |  |  |
| Hermetic Seal         | Leak rate less than 1x10 <sup>-8</sup> atm.cc/s of helium (crystal only)   |  |  |  |  |  |  |

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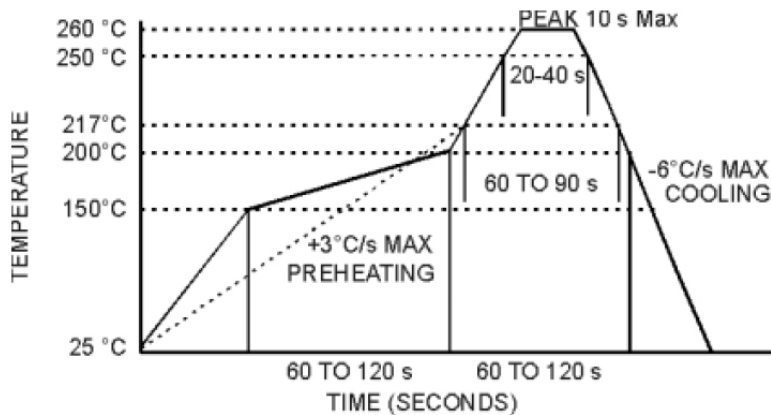
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## Electrical Connections

|         |   |
|---------|---|
| Pin out | Pin 1=Vcc; Pin 2=Do Not Connect; Pin 3=GND; Pin 4=GND; Pin 5=Output; Pin 6= Optional Voltage Control; Pin 7 & 8= Do Not Connect |
|---------|---|

## Maximum solder reflow profile



The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended.