

**AN-XC2XXXX-X Series
HF SMD TCXO/VCTCXO
Ultra Low Phase Noise**

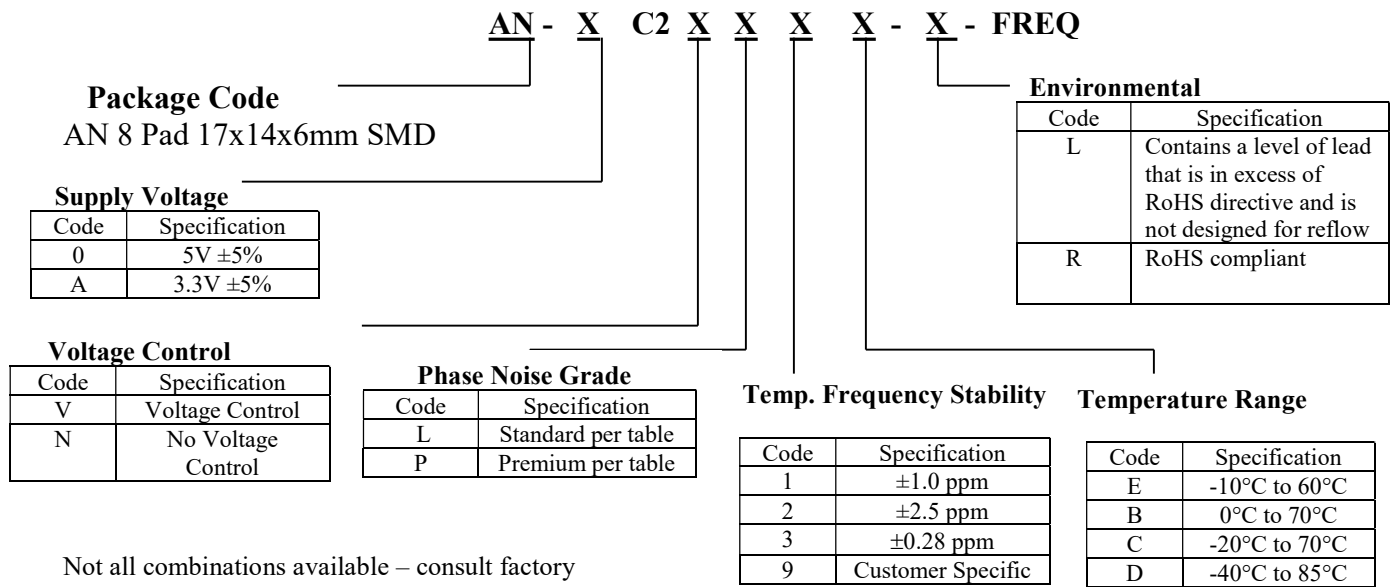
Rev. B

Description: The AN-XC2XXXX Series of SMD temperature compensated crystal oscillators (TCXO/VCTCXO), provides High Frequency with excellent temperature stability, extremely low phase noise and jitter with CMOS 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 200 MHz**
- **No Multiplication – no sub-harmonics**
- **Stratum3 available**
- **COTS/Dual use**

Creating a Part Number



AN-XC2XXXX-X Series

Rev. B

Specifications

| Parameter | Symb | Condition | Min | Typ | Ma x | Unit | Note |
|----------------------|-----------------|---|--------------------|--------------------------------------|--------------------|---------------------------------|---|
| Electrical | | | | | | | |
| Frequency Range | F | CMOS | 10 | | 200 | MHz | |
| Input Voltage | V _{cc} | | 3.135 4.75 | 3.30 5.0 | 3.465 5.25 | V | A 0 |
| Input Current | I _{cc} | CMOS | | | 40 | mA | @100MHz, 3.3V |
| Frequency Stab. | ΔF/F | Overall, available | | | ±4.6 | | 20 years |
| Frequency Stability | ΔF/F | vs. Temperature vs. V _{cc} aging | | ±0.5 ±0.1 ±1 ±3.5 | ±1 | ppm ppm/V ppm/year ppm | See chart First Year 10 years |
| Calibration | ΔF/F | As shipped, 25°C | | ±0.5 | ±1 | ppm | |
| Load | | CMOS | 15pF/10K Ohm | | | | |
| Duty cycle | | @50% | 45 | 50 | 55 | % | CMOS |
| Rise/Fall time | Tr/Tf | 20 to 80 % | | 3 | | ns | CMOS |
| Logic "1" level | V _{oh} | CMOS | 0.9V _{cc} | | | V | |
| Logic "0" level | V _{ol} | CMOS | | | 0.1V _{cc} | V | |
| Start up time | T _s | | | 2 | 100 | ms | |
| Phase Jitter | | 1σ | | 0.4 0.2 | 1 0.4 | ps | 100Hz to 20MHz 12KHz to 20MHz |
| Subharmonics | | | | none | | | |
| Spurious | | | | | -60 | dBc | |
| SSB Phase Noise | | @10Hz @100 Hz @1 KHz @10 KHz @100 KHz | | -80 -110 -140 -155 -160 | -135 | dBc/Hz | @100MHz, Grade L |
| SSB Phase Noise | | @10Hz @100 Hz @1 KHz @10 KHz @100 KHz | | -90 -120 -150 -160 -165 | | | @100MHz, Grade P |
| SSB Phase Noise | | @10Hz @100 Hz @1 KHz @10 KHz @100 KHz | | -105 -135 -150 -160 -165 | | dBc/Hz | @20 MHz |
| Input Impedance | | | >10K Ohm | | | | |
| Control voltage | V _c | | 0 | | 3.0 | V | |
| Modulation bandwidth | MB | | | | 1.5 | Hz | |
| Deviation | ΔF/F | V _c =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 V_{cc} & Nominal Load
 2) Higher output power available – consult factory (current consumption may increase)

Absolute Maximum Ratings

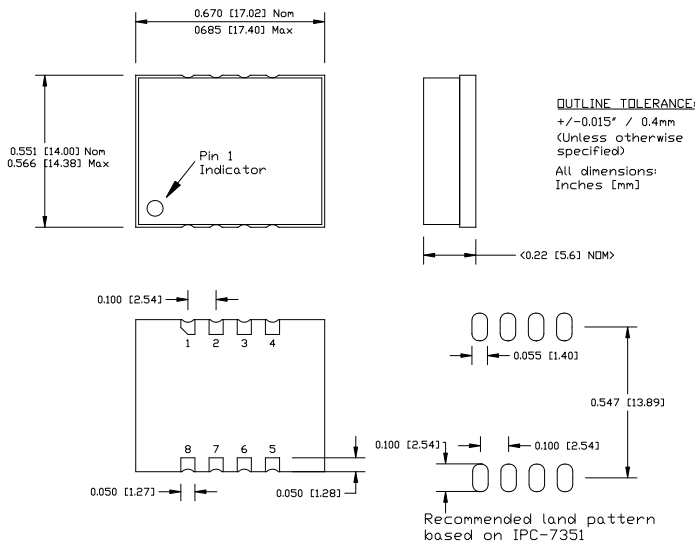
| Parameter | Symb | Condition | Min | Typ | Max | Unit | Note |
|--------------------------|-----------------|-----------|------|-----|-----|------|------|
| Input Break Down Voltage | V _{cc} | | -0.5 | | 5.5 | V | |
| Storage temp. | T _s | | -40 | | 105 | ° C | |
| Contr. Voltage | V _c | | -1 | | 9 | V | |

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Environmental and Mechanical

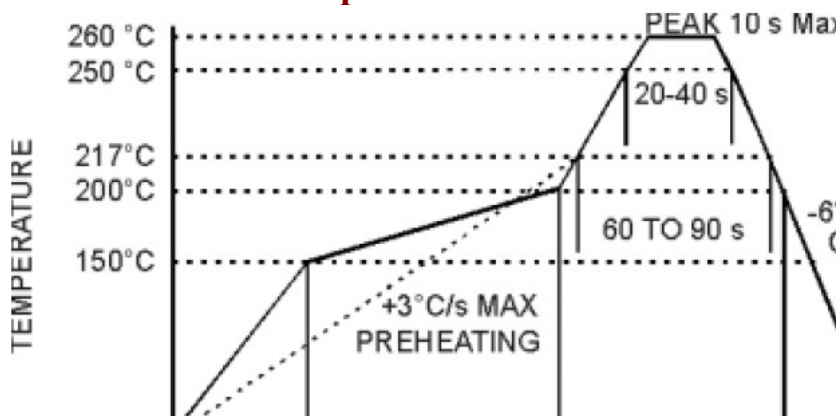
| | |
|------------------------------|--|
| Operating temp. range | 0°C to 70°C, -40°C to 85°C, see chart, page 1 |
| Mechanical Shock | Per MIL-STD-202, Method 213, Cond. E |
| Thermal Shock | Per MIL-STD-883, Method 1011, Cond. A |
| Vibration | Per MIL-STD-883, Method 2007, Cond. A |
| Soldering Conditions | 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 1×10^{-8} atm.cc/s of helium (crystal only) |



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.