

AB-X0A3XX-X Series
SINE-WAVE UHF, Low Phase Noise XO

Rev. J

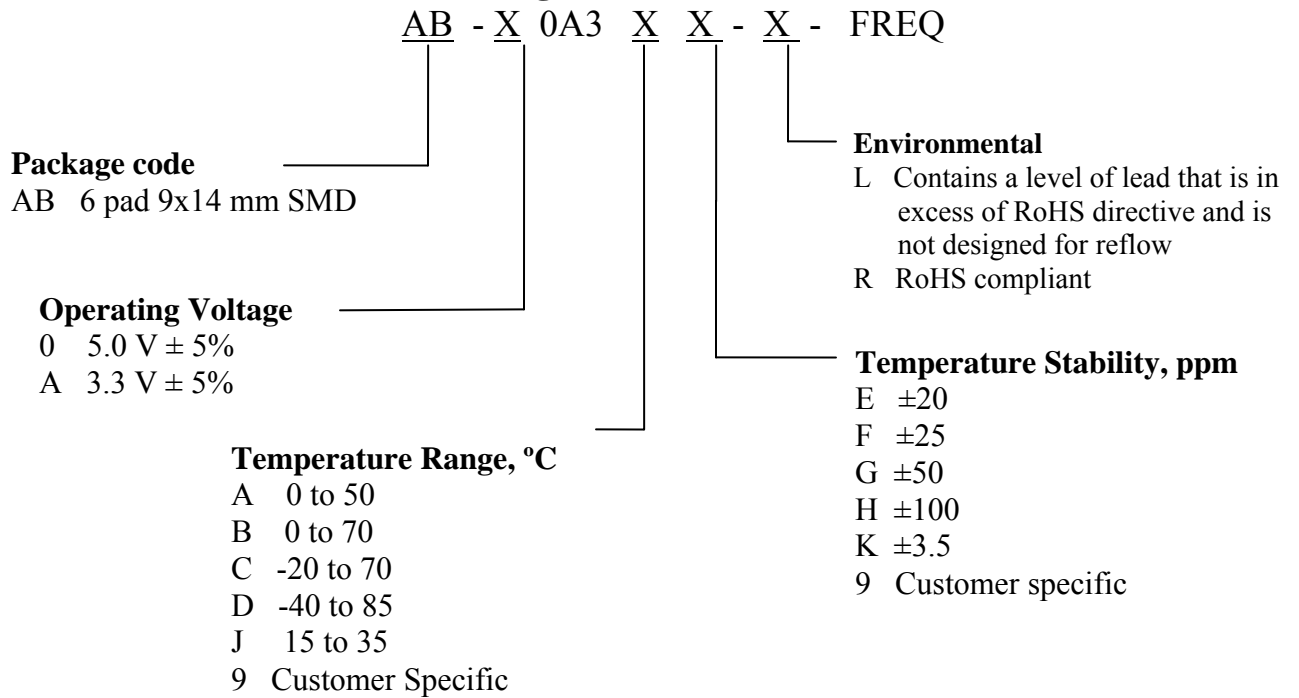
Description

The **AB-X0A3XX** crystal oscillators (XO) provides ultra high frequency with a single-ended sinewave output. The device is based on low noise analog harmonic frequency multiplication, providing exceptionally low Phase Noise and Jitter. It's packaged in a miniature, FR-4 based 9x14 mm SMD package.

Applications and Features

- Wide frequency range – 200.0MHz to 1.000 GHz
- Fiber Channel; 10 GbE; Infiniband; Network Processors; SONET/SDH
- High Reliability – NEL HALT/HASS qualified for crystal oscillator start-up conditions
- Extremely Low Phase Noise and Jitter
- High Shock Resistance, to 1000g
- COTS/Dual use

Creating a Part Number



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Drawing Specification

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

PIN FUNCTIONS:
[1] N/C
[2] N/C
[3] GROUND
[4] OUTPUT
[5] N/C
[6] Vcc

MARKING (EXAMPLE):
AB-XXXX

OUTLINE TOLERANCE:
+/-0.015" / 0.4mm
(Unless otherwise specified)

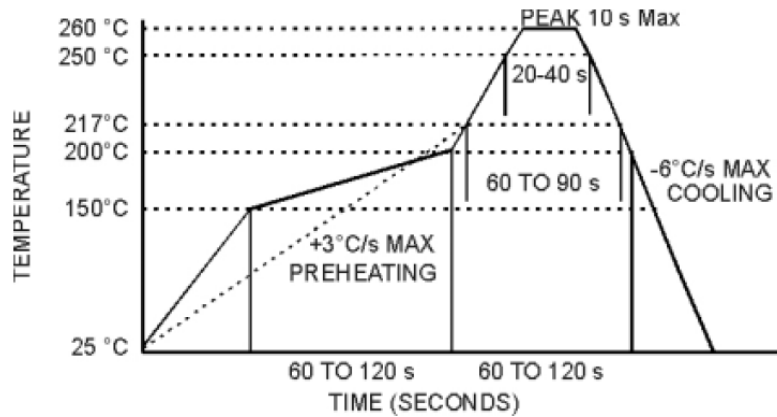
All dimensions: Inches [mm]

RECOMMENDED PAD LAYOUT

Environmental and Mechanical Characteristics

| | |
|------------------------------|---|
| Operating temp. range | see part # table |
| Mechanical Shock | Per MIL-STD-202, Method 213, Cond. A |
| Thermal Shock | Per MIL-STD-883, Method 1011, Cond. A |
| Vibration | Per MIL-STD-883, Method 2007, Cond. A |
| Hermetic Seal | Leak rate less than 1×10^{-8} atm.cc/s of helium, crystal only. |
| Soldering conditions | See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. NO CLEAN assembly is recommended |

MAX Reflow Profile



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

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Absolute Maximum Ratings

| Parameter | Symbol | Value | Unit |
|-----------------------------|--------|-------------|------|
| Operating Temperature Range | To | -40 to +85 | °C |
| Storage Temperature Range | Tst | -50 to +90 | °C |
| Supply Voltage | Vcc | -0.5 to 5.5 | V |

Electrical Parameters (1)

| Parameter | Symp | Conditions, Note | MIN | TYP | MAX | Unit | |
|---------------------|----------------------------|--|---|---|---------------|--------|----|
| Nominal Frequency | Fo | | 200 | | 1,000 | MHz | |
| Supply Voltage | Vcc | Code 0 Code A | 4.75 3.135 | 5.0 3.3 | 5.25 3.465 | V | |
| Output Power | Pout | Vcc=3.3V, 50 Ohm Load <=400MHz Vcc=5.0V, 50 Ohm Load <=400MHz Vcc=3.3V, 50 ohm Load >400MHz Vcc=5.0V, 50 ohm Olad >400MHz | 0 4 -5 0 | 3 7 0 5 | 5 | dBm | |
| Supply current | Icc | Vcc=3.3V, 50 Ohm Load Vcc=5.0V, 50 Ohm Load | | 100 120 | 110 130 | mA | |
| Load | | Internally AC coupled | 45 | 50 | 55 | Ohm | |
| Output Impedance | | | | 50 | | Ohm | |
| Return Loss | | | | 10 | | dB | |
| Jitter | Integrated | J | Integrated from Phase Noise, 12 KHz to 20 MHz , RMS | | 0.1 | 0.2 | ps |
| | | | 100Hz to 80KHz,RMS | | | 1.0 | ps |
| | | | 50 KHz to 80 MHz | | | 0.3 | ps |
| | Wavecrest characterized | J | Random period, | | | 2.5 | ps |
| | | | Accumul., pk-to- pk | | | 25 | ps |
| | | | Deterministic | | | 1 | ps |
| Sub-Harmonics | | @ 500.0MHz | | -50 | -46 | dBc | |
| Phase Noise | £(Δf) | @ 500.0MHz | @ 10 Hz @100 Hz @1 KHz @10KHz @100KHz @>1MHz | -70 -103 -128 -145 -150 -155 | | dBc/Hz | |
| Frequency Stability | ΔF/F | See table for creating a part number | | | | ppm | |

Note 1. All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal Load.