AN-XA32CXXX-X Series
HF SMD TCXO/VCTCXO
Ultra Low Phase Noise

Rev. A

Description: The AN-XA32CXXX 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 - X A32C X X X - X - FREQ

Package Code
AN 8 Pad 17x14x6mm SMD

Supply Voltage

Code	Specification
0	5V ±5%
A	3.3V ±5%

Environmental

Code	Specification
L	Contains a level of lead that is in excess of RoHS directive and is not designed for reflow
R	RoHS compliant

TCXO/VCTCXO Option

Code	Specification
X	No V. Control
V	W/V. Control

Temp. Frequency Stability

Code	Specification
1	±1.0 ppm
2	±2.5 ppm
3	±0.28 ppm
9	Customer Specific

Temperature Range

Code	Specification
E	-10°C to 60°C
B	0°C to 70°C
C	-20°C to 70°C
D	-40°C to 85°C

Not all combinations available – consult factory

NEL FREQUENCY CONTROLS, INC.
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Specifications (1)

Electrical

Parameter	Symb	Conditions	Min	Typ	Max	Unit	Note
Frequency Range	F	CMOS	10		200	MHz	
Input Voltage	Vcc		3.135 4.75	3.30 5.0	3.465 5.25	V	A 0
Input Current	Icc	CMOS			40	mA	@100MHz, 3.3V
Frequency Stab.	ΔF/F	Overall, available			±4.6		20 years
Frequency Stability	ΔF/F	vs. Temperature vs. Vcc 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, 25ºC		±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	Voh	CMOS	0.9Vcc			V	
Logic "0" level	Vol	CMOS			0.1Vcc	V	
Start up time	Ts			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		dBc/Hz	@100MHz
SSB Phase Noise		@10Hz @100 Hz @1 KHz @10 KHz @100 KHz		-105 -135 -150 -160 -165		dBc/Hz	@20 MHz
Voltage control	Vc		0		3.0	V	
Setability	Vc0	For Fnom	1.2	1.5	1.8	V	No internal bias
Modulation Bandwidth	Fm			2		Hz	For aging compensation only
Tuning Slope		Monotonic, Power		10		Ppm/V	

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

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 $1x10^{-8}$ atm.cc/s of helium (crystal only)

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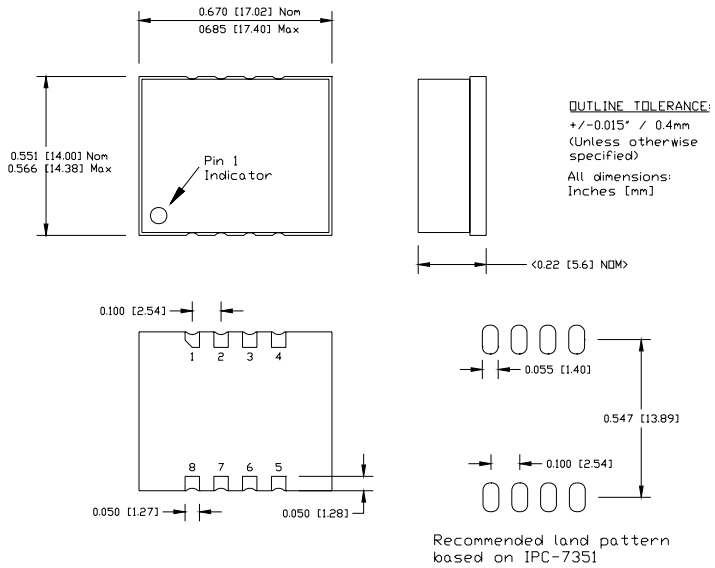
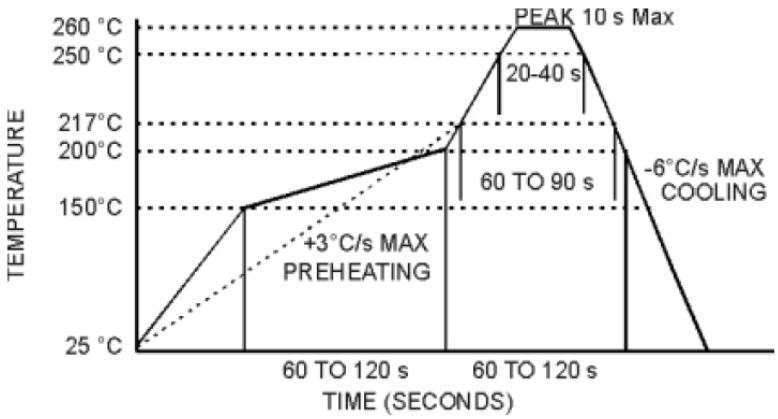


Electrical Connections

Pin out	Pin 1=Vcc; Pin 2=Do Not Connect; Pin 3=GND; Pin 4= Output; Pin 5=Do Not Connect; Pin 6= Optional Voltage Control (consult factory); Pin 7= Do Not Connect; Pin 8= GND

Maximum solder reflow profile



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