

O-ESQ-XXXYY-EX-X-X-500 MHz Reference OCXO Module in Aluminum Case

Product Data Sheet

Features

- Extraordinary Low Phase Noise, 2 Options
- Internally Locked to Precision 10 MHz OCXO with Excellent Temperature Stability and Aging
- External Reference is Optional
- 500 MHz

Applications

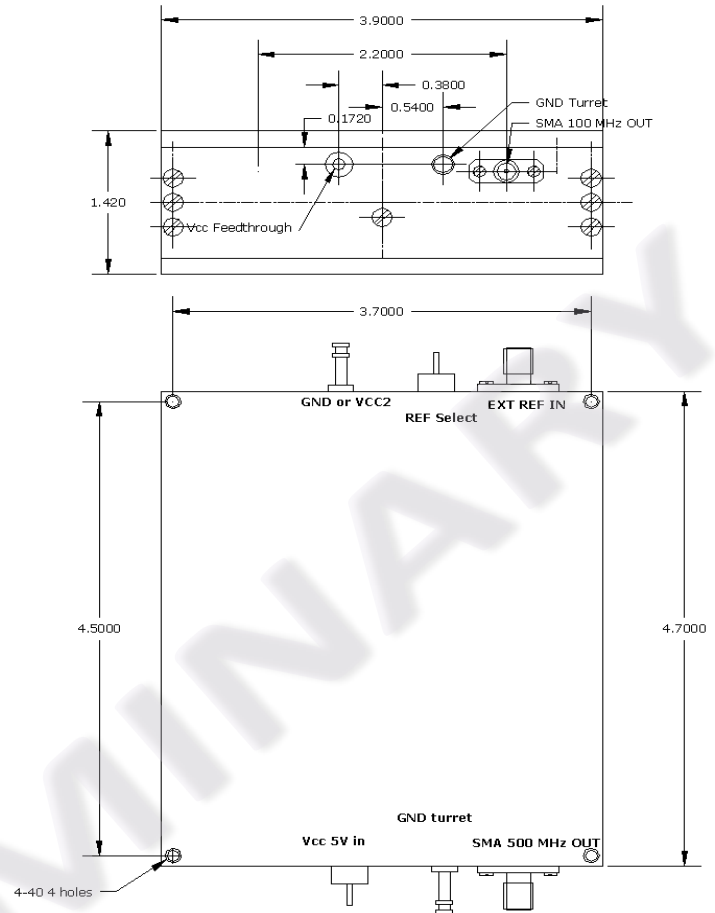
- Radar
- Advanced Computing
- Instrumentation
- COTS/Dual use

Inputs

- External Reference – SMA Female
- Vcc, Vcc2 (optional) - Feedthrough
- Reference select - Feedthrough

Output

RF OUT - SMA Female



Mechanical Dimensions, inches

Extraordinary Low Phase Noise OCXO Reference Module

Data Sheet 1944B

Rev. B

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
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Absolute Maximum Ratings

Input Break	V _{cc}		-0.5		6.5	V	
Down Voltage	V _{cc2}		-0.5		12.0		
Storage temper.	T _s		-40		85	°C	

Electrical (1)

Frequency	F			500		MHz	
Frequency stability	$\Delta F/F$	vs. Temp.		± 5		ppb	See table below
		vs. Supply			1	ppb/5% change	
		Vs. load			1	ppb/5% change	
Aging		per day per first year 10 years		5E-10 5E-8	0.3	ppm	After 30 days of continuous operation
Allan Deviation		.01s to 1s		5E-13			
SSB Phase Noise	$\mathcal{L}(\Delta f)$	10 Hz		-97		dBc/Hz	Grade E2
		100 Hz		-127			
		1 KHz		-153			
		10 KHz		-168			
		100 KHz		-171			
		1 MHz		-171			
		10 MHz		-174			
		100 MHz		-176			
		10 Hz		-100			Grade E4
		100 Hz		-130			
		1 KHz		-156			
		10 KHz		-170			
		100 KHz		-174			
		1 MHz		-174			
10 MHz		-176					
100 MHz		-178					
Retrace		After 30 minutes		± 10		ppb	
G-sensitivity		worst direction			± 0.5	ppb/G	
Input Voltage	V _{cc}		4.9	5.0	5.5	V	
	V _{cc2}		9.0	10.0	11.0		
Mechanical Frequency Adjustment				± 0.4		ppm	Location TBD
Power consumption	P	steady state, 25°C start-up		6.0 18	7.5 20	W	Still air
Spectral Purity		Output power		15		dBm	Non-supply related
		Subharmonics			-60	dBc	
		Spurious			-80	dBc	
		Harmonics		-35	-30		
Load		50 Ohm (Internally AC-coupled)					
Warm-up time	τ	to 0.1ppm accuracy		5	8	minutes	During warm-up the output signal can be scrambled, jittery, and not usable altogether
Output Waveform		Sine-wave					
External Reference		Sine Wave	+10		+14	dBm	
Reference select		Floating Logic "1"	Internal External				With REF select option A not Connected

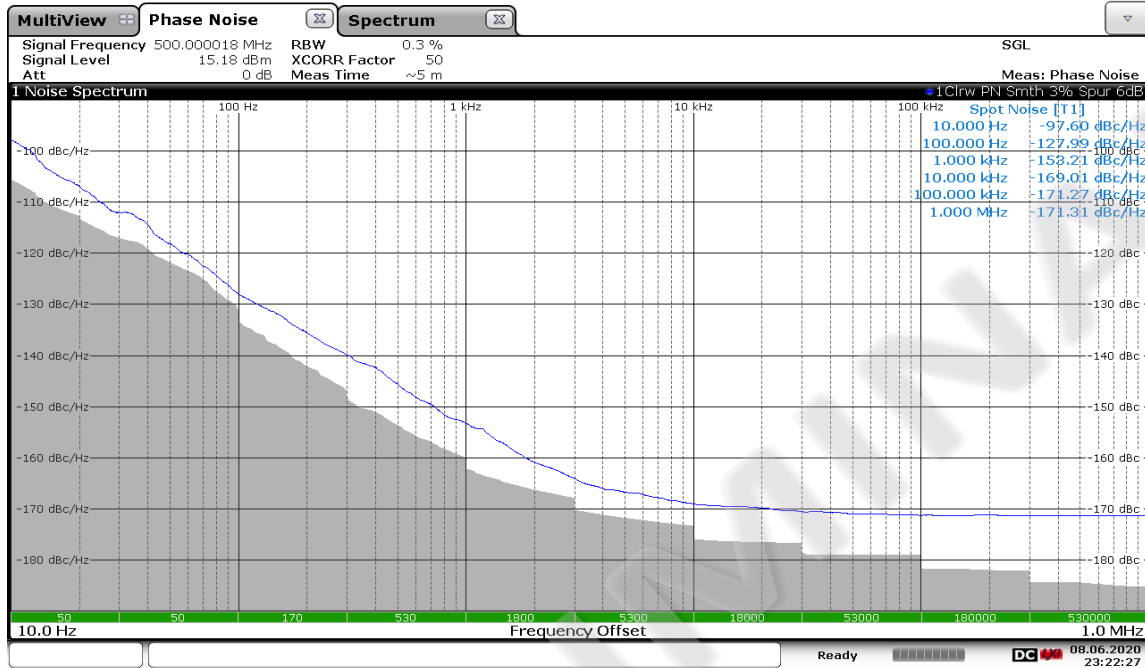
All parameters for internal reference

Rev. B

Environmental and Mechanical

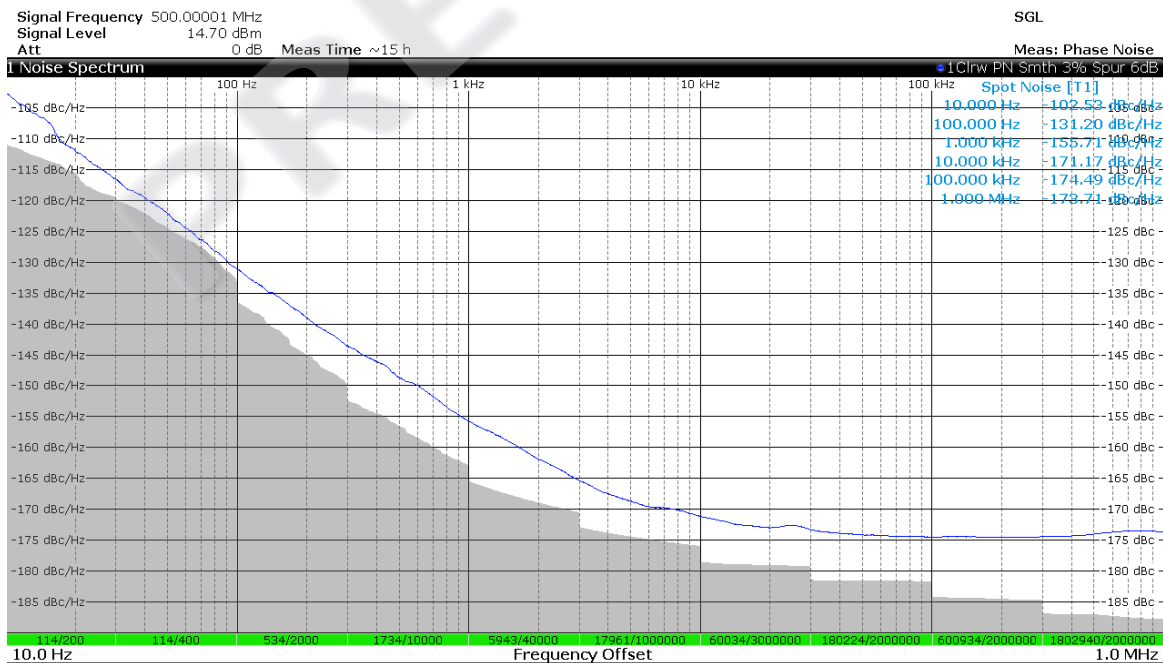
Operating temp. range	0 to 50°C Standard, Other options see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms survival
Thermal Shock	Per MIL-STD_883, Method 1011, Condition A survival
Vibration	Per MIL-STD-202, 5G to 2000 Hz survival
Soldering Conditions	260°C for 10s Max Feedthroughs and GND

E2 Grade Phase Noise Example



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E4 Grade Phase Noise Example



Q - **ESQ** **X**
OCXO
ELPN Module

Vcc2 Option

Code	Specification
G	N/A
F	10V± 5%

Temperature Stability

Code	Specification
18	±1x10 ⁻⁸
59	±5x10 ⁻⁹
YZ	±Yx10 ^{-Z}

XX

YY -

EX -

X -

X - 500.000 MHz

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,

Ref Select Option

Code	Specification
A	Automatic
F	Feedthrough

Phase Noise Option

Code	Specification
E2	Per Table
E4	Per Table

Temperature Range

Code	In 5°C steps
First letter	Lowest temperature from G = -10°C
Second letter	Highest temperature to W = 70°C
Examples	
HR	-5°C to 45°C
GU	-10°C to 60°C

Temperature Code Table

Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C
A	-40	F	-15	K	10	P	35	U	60	Z	85
B	-35	G	-10	L	15	Q	40	V	65		
C	-30	H	-5	M	20	R	45	W	70		
D	-25	I	0	N	25	S	50	X	75		
E	-20	J	5	O	30	T	55	Y	80		