

O-ESQXXYY-E-F-X 100/10 MHz Reference OCXO Module in Machined Aluminum Case

Product Data Sheet

Features

- Extraordinary Low Phase Noise Featuring -171 dBc/Hz at 1 KHz offset TYP
- Internally Locked to Precision 10 MHz OCXO with Excellent Temperature Stability and Aging
- External Reference is Optional

Applications

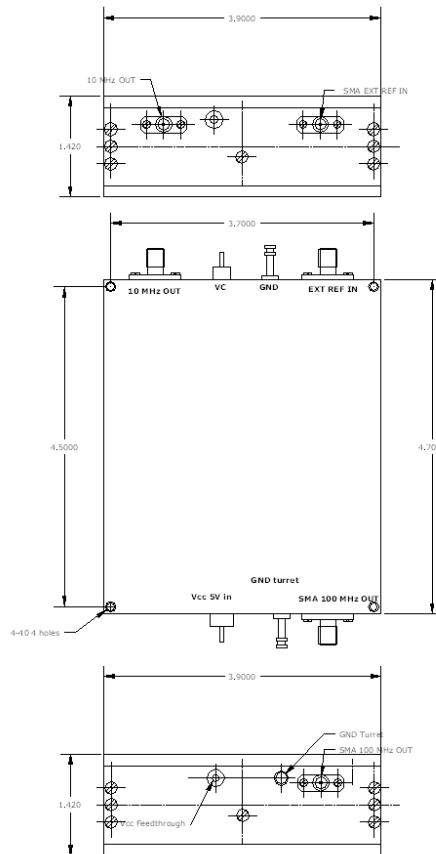
- Radar
- Test and measurement
- Instrumentation
- COTS/Dual use

Inputs

External 10 MHz IN - SMA Female
Vcc – Feedthrough
Vc – Feedthrough

Outputs

100 MHz OUT - SMA Female
10 MHz OUT - SMA Female



Mechanical Dimensions, TYP

Extraordinary Low Phase Noise OCXO Reference Module

Data Sheet 1942A

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note	
Absolute Maximum Ratings								
Input Break Down Voltage	V _{cc}		-0.5		6.5	V		
Storage temper.	T _s		-55		85	°C		
Control Voltage	V _c		-1		10	V		
Electrical (1)								
Frequency	F100 F10			100 10		MHz		
Frequency stability	ΔF/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 100 MHz OUT	£(Δf)	10 Hz		-115		dBc/Hz		
		100 Hz		-145				
		1 KHz		-171				
		10 KHz		-185				
		≥100 KHz		-190				
SSB Phase Noise 10 MHz OUT	£(Δf)	1 Hz		-120		dBc/Hz	Internal Reference Only	
		10 Hz		-148				
		100 Hz		-160				
		1 KHz		-168				
		10 KHz		-170				
≥100 KHz		-172						
Retrace		After 30 minutes		±10		ppb		
G-sensitivity		worst direction			±0.5 ±1.0	ppb/G	100 MHz OUT 10 MHz OUT	
Input Voltage	V _{cc}		4.9	5.0	5.5	V		
Power consumption	P	steady state, 25°C start-up		6.0 18	7.5 20	W	Still air	
Spectral Purity		Output power		18 10		dBm dBm	100 MHz 10 MHz	
		Subharmonics			-80	dBc	100 MHz	
		Spurious			-80			Non-supply related
		Harmonics			-35	-30		
Load		50 Ohm (Internally AC-coupled)					Both outputs	
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						
Control voltage	V _c		0		4.5	V	Slope option "P"	
Setability			2.0	2.25	2.5	V	Slope option "P"	
Pull range		from nominal F	±0.4			ppm		
V _c Rate of Change					0.1	V/s		
Modulation Bandwidth	MBW				0.1	Hz	Due to internal PLL loop bandwidth about 1 Hz	
Absolute Pull Range	APR	Over all conditions	±0.1			ppm		
External Reference		Sine Wave	+10			dBm		
Reference Select			Automatically switches to External Reference once present					



**FREQUENCY
CONTROLS, INC.**

357 Beloit Street, Burlington, WI 53105 U.S.A. Phone 262/763-3591 FAX 262/763-2881

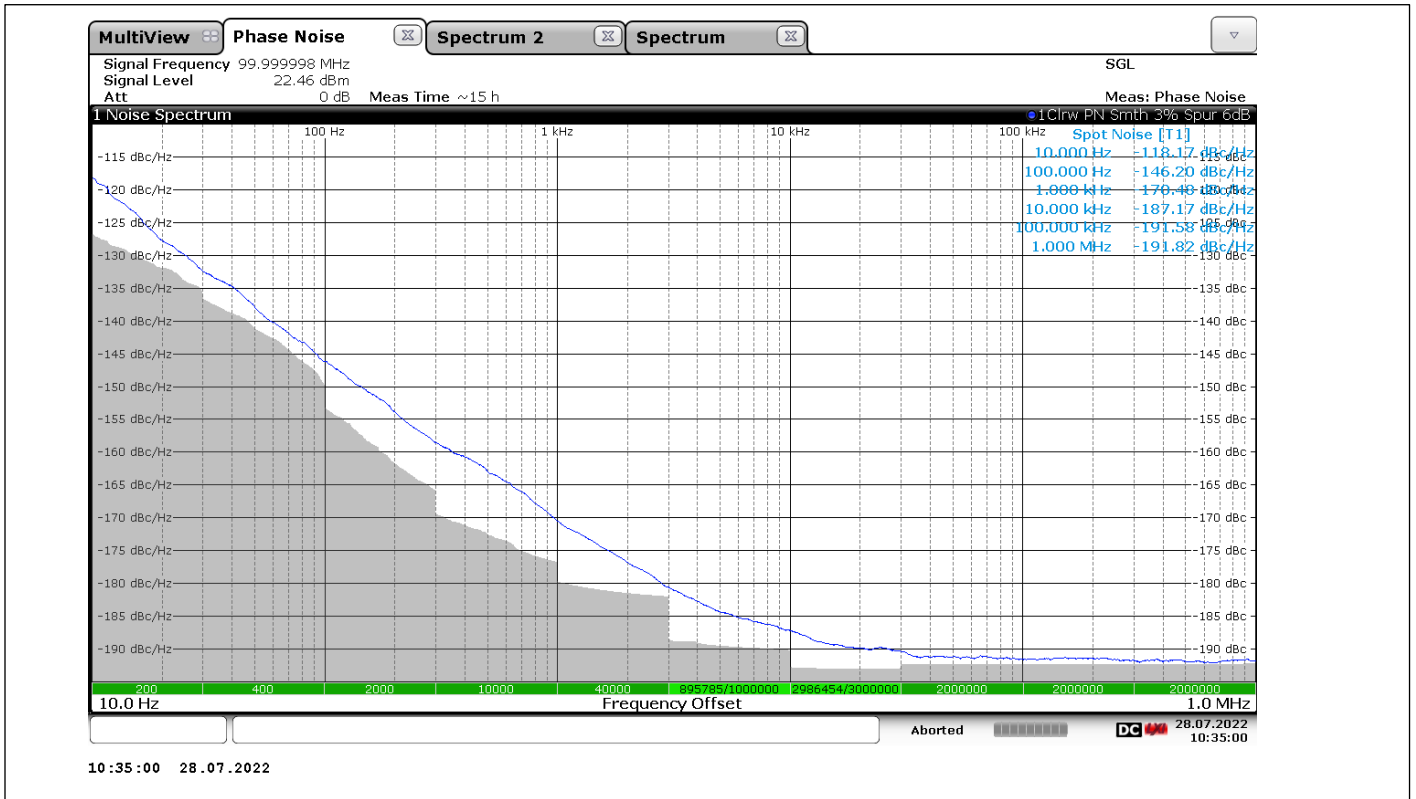
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Data Sheet 1942A

Environmental and Mechanical

Operating temp. range	0 to 70°C Standard, Other options TBD
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 leads only



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Creating a Part Number

O - ESQ
 100.000/10.000 MHz
 OCXO
 ELPN Module

XX

YY -

E -

A -

X -

Temperature Stability

Code	Specification
18	$\pm 1 \times 10^{-8}$
59	$\pm 5 \times 10^{-9}$
YZ	$\pm Y \times 10^{-Z}$

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

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		



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