

**VIDA** products, inc.

engineering  
the perfect wave

# Product Guide

## VIDA Oscillator Series



## High Performance YIG Oscillator

3553 Westwind Blvd., Santa Rosa, CA 95403  
Phone 707-541-7000, FAX 707-541-7030

VIDA OSCILLATOR SERIES  
REV 1

VIDA Products, Inc.  
Sheet 1 of 8

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## Table of Contents

<b>GENERAL DESCRIPTION</b> .....	<b>3</b>
KEY FEATURES.....	3
<b>TECHNICAL SPECIFICATIONS</b> .....	<b>4</b>
PERFORMANCE SPECIFICATIONS.....	4
NOMINAL INPUT SPECIFICATIONS.....	5
MAXIMUM INPUT SPECIFICATIONS.....	5
TYPICAL PHASE NOISE PERFORMANCE.....	6
Typical Output Power Performance.....	7
<b>MECHANICAL ENVELOPE DRAWINGS</b> .....	<b>8</b>
<b>ORDERING INFORMATION</b> .....	<b>8</b>

## General Description

The VIDA family of YIG Oscillators is the foundation of many high data rate digital radios, satellite communications systems, and military/defense equipment. VIDA's patented technologies offer designers the broad tuning bandwidth, spectral purity, extended temperature performance, and microphonic/phase hit resistance required for today's high capacity communications systems.

### ***Key Features***

- Frequency Coverage from 4 to 20 GHz.
- Broad tuning range in excess of an octave for maximum application flexibility.
- Outstanding spectral purity with typical phase noise performance of -125 dBc/Hz at 100 kHz offsets facilitating high data rate modulation schemes.
- Industry-leading microphonic and phase hit performance "designed in" with VIDA's patented and proprietary breakthrough technology.
- Board mountable packaging in the industry's smallest size (0.9x0.9x0.63 inches) packaging for ease of implementation.
- No heater is required to achieve optimum temperature and noise characteristics, resulting in extremely low overall power consumption.
- Extended operating temperature range of -35 Degrees C to +70 Degrees C for demanding field applications.

## Technical Specifications

### *Performance Specifications*

Metric	Units	Specification
Output Frequencies Available	GHz	4.0 -20
Tuning Range	GHz	Up to.5
Quiescent Frequency	GHz	Customer Specified
Quiescent Frequency Tolerance	MHz	+/- 250
Nominal Output Power (Model Dependant)	dBm	8
Power Output Variation (Octave+ Tuning)	dBm	+/- 5
Main Coil Sensitivity, Nominal	MHz/mA	20
FM Coil Sensitivity, Nominal	MHz/mA	0.82
SSB Phase Noise, 1 kHz Offset	dBc/Hz	<-55
SSB Phase Noise, 10 kHz Offset	dBc/Hz	<-95
SSB Phase Noise, 100 kHz Offset	dBc/Hz	<-125
SSB Phase Noise, 1 MHz Offset	dBc/Hz	<-145
Phase Hit Peak Deviation after 20 kHz first order HPF	Degrees	<5
Vibration Sensitivity (typical) -10 Hz to 5 kHz sinusoidal vibration rates	kHz/g	0.5
Vibration Sensitivity (maximum) -10 Hz to 5 kHz sinusoidal vibration rates	kHz/g	<3
Load Pull with 9 dB load Return Loss	MHz	<0.5
Bias Pushing	MHz/ma	< .1
Harmonics	dBc	< -12
Spurious	dBc	< -75

### ***Nominal Input Specifications***

Metric	Units	Specification
DC Bias Voltage, Maximum	V	3.8
DC Bias Current, Nominal	mA	80
Environmental		
Operating Temperature (Ambient) Heat sinking and air flow limit case temperature to 5 degrees above ambient.	°C	-35 to +75

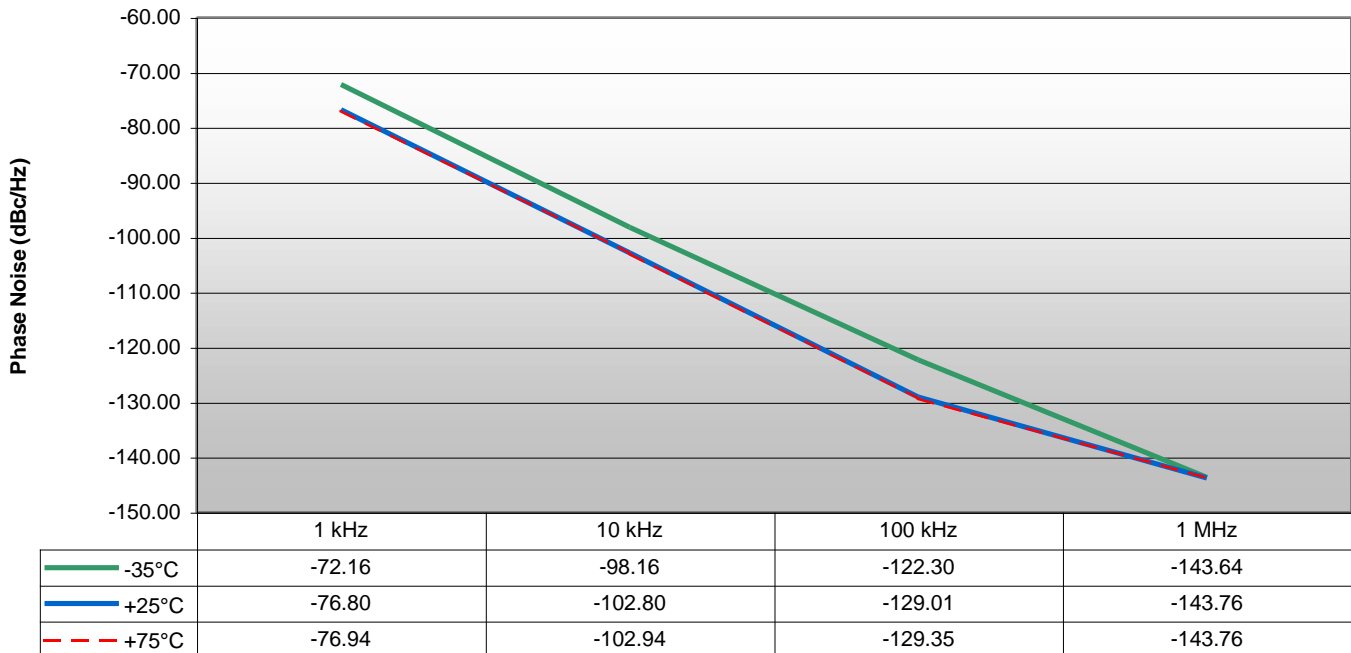
### ***Maximum Input Specifications***

Metric	Units	Specification
Main Coil Current, Maximum	mA	+/- 175
FM Coil Current, Maximum	mA	+/- 125

## Typical Phase Noise Performance

Typical phase noise performance as measured on our production test equipment is plotted below for an oscillator operating at 6.7 GHz. The effect of temperature is also included. The noise floor of the downconverter used in the measurement system limits measurements at the 1 MHz offset. Actual YIG oscillator performance is better than the -143 dBc/Hz measurement noise floor.

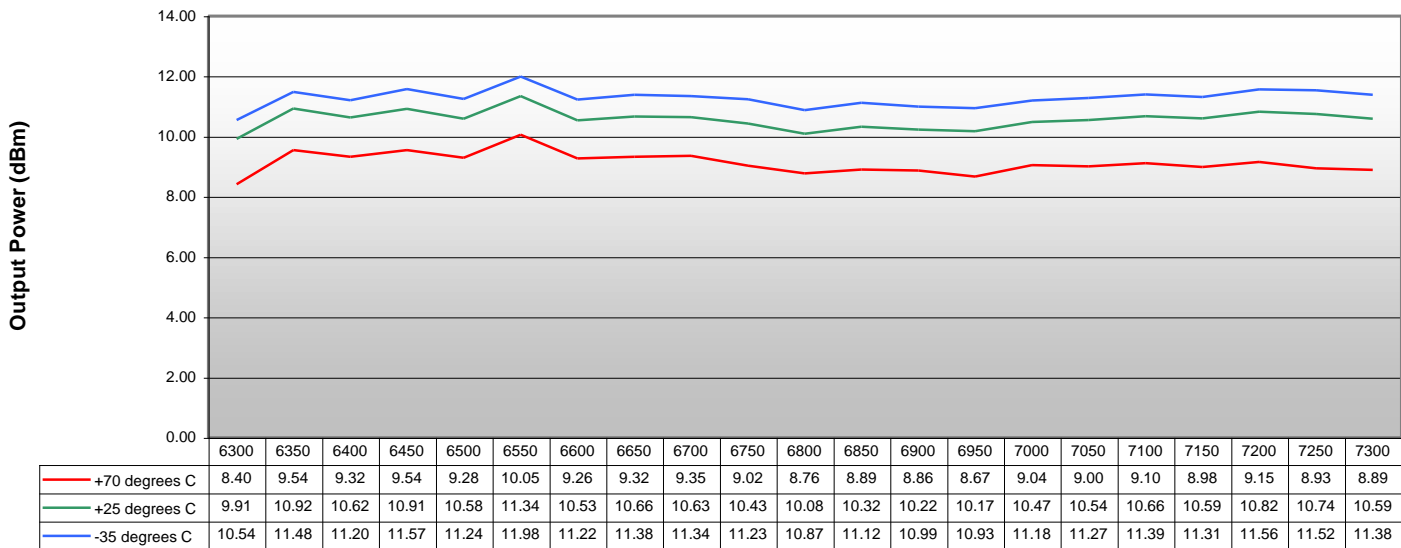
**Typical Phase Noise Results  
(Oscillator at 6.7 GHz)**



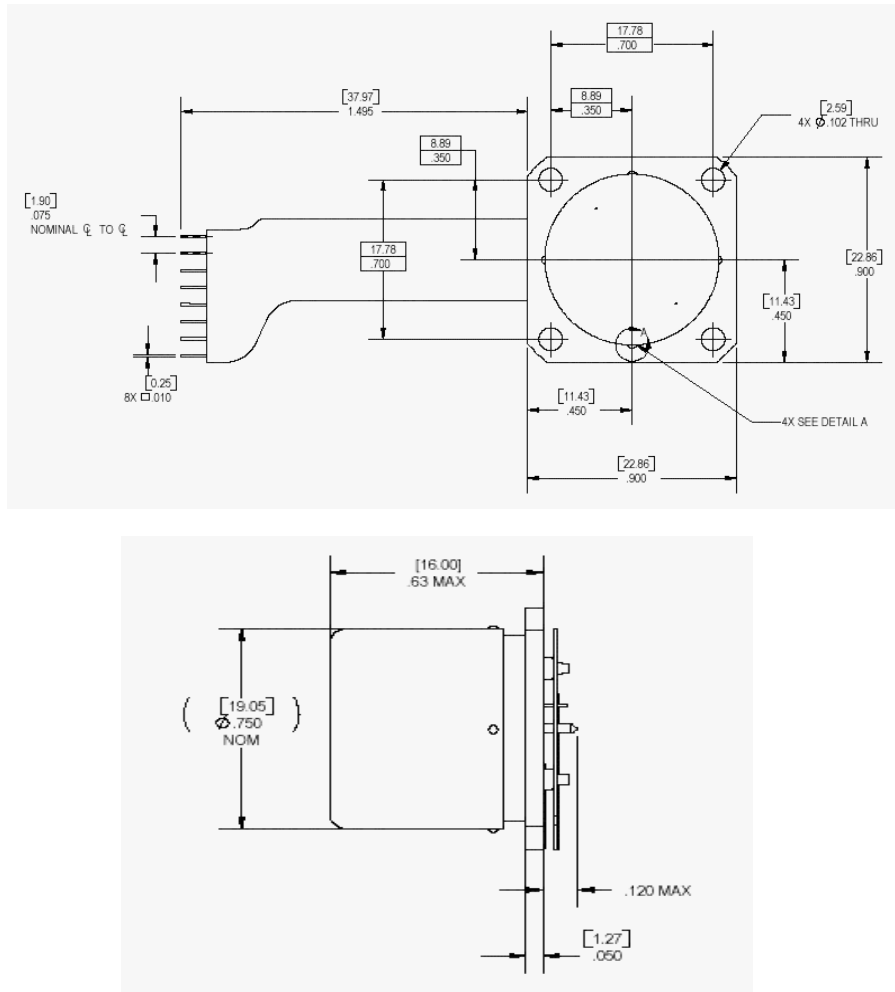
## Typical Output Power Performance

Typical output power performance as measured by our production test equipment is plotted below for an oscillator operating from 6.3 TO 7.3 GHz. Nominal output power varies somewhat with the model and operating frequency. Contact VIDA Products, Inc. for specific output power information for your application.

**Typical Output Power  
(Average of 30 Units)**



## Mechanical Envelope Drawings



## Ordering Information

VIDA offers a combination of off-the-shelf oscillator configurations as well as custom specifications tailored to meet a customer's individual requirements.

Evaluation kits are also available to simplify the product qualification process. These kits have the oscillator pre-mounted on an evaluation board providing an SMA connector RF output, the current driver circuitry required for biasing the oscillator, and solderable pins for the other connections.

To discuss your application requirements and specifications or to place an order for an evaluation kit, contact the VIDA Products, Inc. Sales Department at; 707-541-7000.