VIDA products, inc.

engineering
the perfect wave

Product Guide

VIDA Oscillator Series

High Performance
YIG Oscillator

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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 5 to 14 GHz.

* Broad tuning range of up to 2 GHz 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.

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Technical Specifications

Performance Specifications

Metric	Units	Specification
Output Frequencies Available	GHz	5.8 -13.4
Tuning Range	GHz	Up t 2
Quiescent Frequency	GHz	Customer Specified
Quiescent Frequency Tolerance	MHz	+/- 450
Nominal Output Power (Model Dependant)	dBm	11
Power Output Variation	dBm	+/- 3
Main Coil Sensitivity, Nominal	MHz/mA	24
FM Coil Sensitivity, Nominal	MHz/mA	0.82
SSB Phase Noise, I kHz Offset	dBc/Hz	<-65
SSB Phase Noise, 10 kHz Offset	dBc/Hz	<-88
SSB Phase Noise, 100 kHz Offset	dBc/Hz	<-116
SSB Phase Noise, 1 MHz Offset	dBc/Hz	<-135
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/v	<1
Harmonics	dBc	<-12
Spurious	dBc	<-68

Nominal Input Specifications

Metric	Units	Specification
DC Bias Voltage	V	3.6
DC Bias Current	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	+/- 100
FM Coil Current, Maximum	mA	+/- 125

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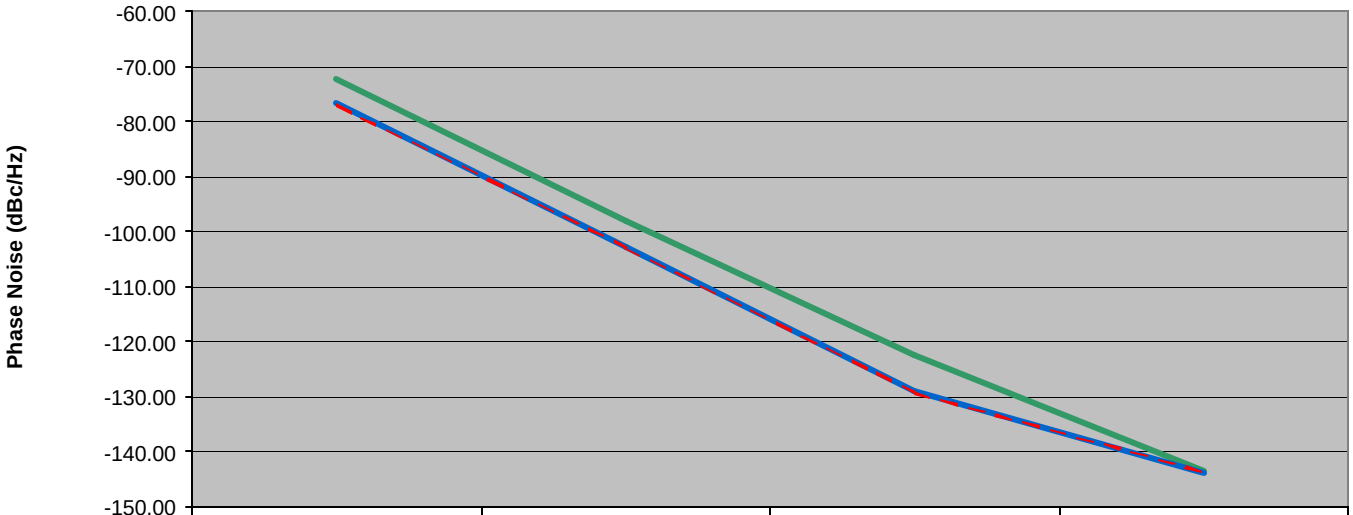
Typical Phase Noise Performance

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)

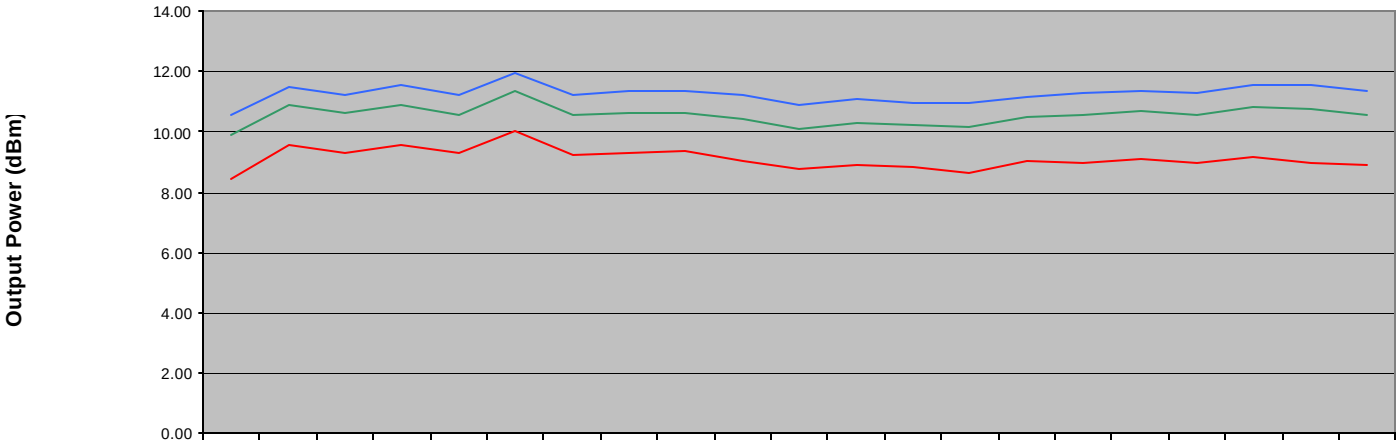


	1 kHz	10 kHz	100 kHz	1 MHz
-35°C	-72.16	-98.16	-122.30	-143.64
+25°C	-76.80	-102.80	-129.01	-143.76
+75°C	-76.94	-102.94	-129.35	-143.76

Typical Output Power Performance

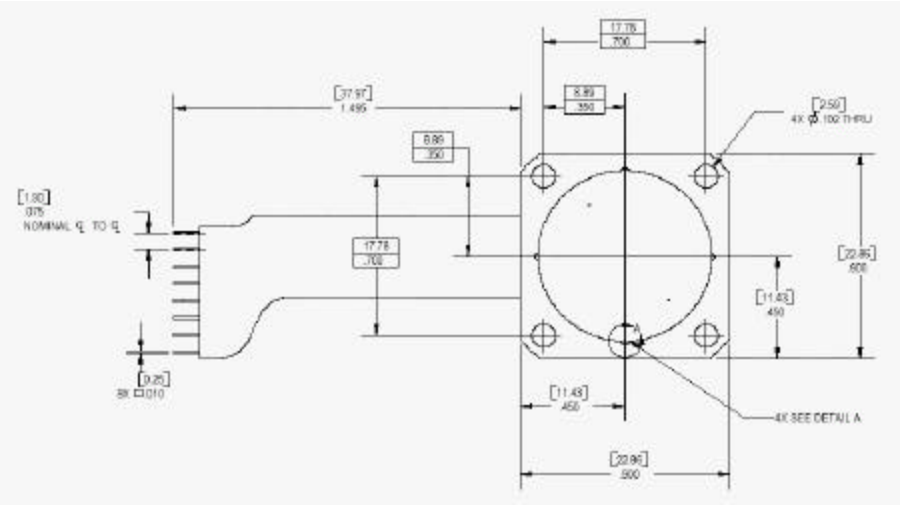
Typical output power performance as measured by our production test equipment is plotted below for an oscillator operating from 6.3 TO 7.3 GHz. Nominal output power varies somewhat with the model and operating frequency. Contact VIDA Products, Inc. for specific output power information for your application.

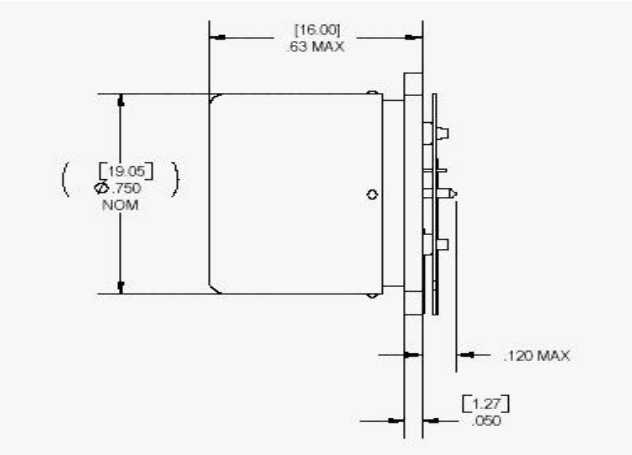
Typical Output Power
(Average of 30 Units)



	6300	6350	6400	6450	6500	6550	6600	6650	6700	6750	6800	6850	6900	6950	7000	7050	7100	7150	7200	7250	7300
+70 degrees C	8.40	9.54	9.32	9.54	9.28	10.05	9.26	9.32	9.35	9.02	8.76	8.89	8.86	8.67	9.04	9.00	9.10	8.98	9.15	8.93	8.89
+25 degrees C	9.91	10.92	10.62	10.91	10.58	11.34	10.53	10.66	10.63	10.43	10.08	10.32	10.22	10.17	10.47	10.54	10.66	10.59	10.82	10.74	10.59
-35 degrees C	10.54	11.48	11.20	11.57	11.24	11.98	11.22	11.38	11.34	11.23	10.87	11.12	10.99	10.93	11.18	11.27	11.39	11.31	11.56	11.52	11.38

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.