EDRO – 1000

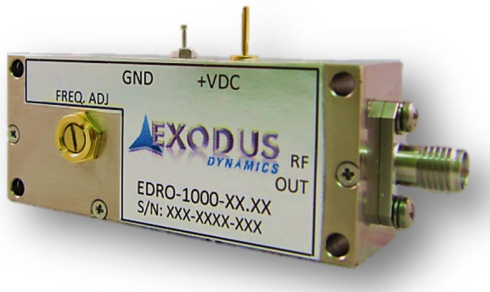
FREE RUNNING DIELECTRIC RESONATOR OSCILLATOR

ULTRA LOW NOISE MICROWAVE SIGNAL SOURCES

APPLICATION

- Commercial
- Military
- Airborne
- Space
- Missile Guidance
- Cable TV Links (CATV)
- Satellite Communications
- Local Area Networks (LAN)
- Global Positioning Systems (GPS)
- Transmitters & Receivers
- Up / Down Converters
- Test Equipment
- Digital Radios
- Point to Point Relays
- LMDS

ISO 9001:2008 REGISTERED FIRM



FEATURES

- Dielectric Resonator Technology
- Internal Voltage Regulator
- 100 MHz Bandwidth
- Ultra Low Phase Noise
- MIC Fabrication
- Ultra Low Microphonics
- Low Power Consumption
- Up To +25dBm Output Power
- Available From 1 – 40 GHz
- Operating Range -55° to +105°C
- Vibration/Shock Upgrade
- RoHS Compliant

DESCRIPTION

EDRO-1000 series Dielectric Resonator Oscillator (DRO) utilizes advanced MIC and MMIC technology to generate precise, reliable and ultra-low noise frequency at microwave and mm-wave bands up to 40GHz. The uni-package is designed to mechanically withstand harsh environmental conditions due to Shock/ Vibration, Temperature and Humidity.

EDRO-1000 series oscillator is designed using an ultra-low noise amplifier with series feedback at source and Dielectric Resonator at the gate. High gain, low-noise devices are biased and matched precisely to ensure minimum phase noise. The devices are carefully matched for maximum power, minimum phase-noise and Voltage Standing Wave Ratio (VSWR). The oscillator is compensated for maximum temperature stability, optimum negative resistance and lowest phase noise possible.

EDRO-1000 series oscillator is buffered by cascaded low-noise driver and power amplifiers for minimum load pulling, maximum isolation and power. Transister devices, and all chip components, are directly attached to gold plated Kovar carriers to minimize shear effect and maximize device heat transfer. Kovar carriers are mounted to the chassis to provide an efficient thermal junction and a stable structure for reduction of microphonics. To ensure oscillator stability over the full temperature range, high-Q low dielectric constant resonators are selected with proper temperature coefficient to compensate for frequency drift.

EDRO-1000 series is internally voltage regulated to avoid reverse bias, frequency pushing, bias modulation and voltage transients. Mechanical frequency adjustments are provided for desired frequency setting within the bandwidth.

EDRO-1000 series provide several advantages over other microwave signal source, such as Gunn Gravity

CHARACTERISTC	CRYSTAL MULIPLIER CHAIN	GUNN CAVITY OSCILLATOR	EDRO-1000 SERIES
Reliability	GOOD	FAIR	EXCELLENT
Efficiency	LOW	LOW	HIGH
Temperature Range	GOOD	POOR	EXCELLENT
Power Variation	HIGH	HIGH	LOW
FM Noise	VERRY GOOD	EXCELLENT	EXCELLENT
Frequency Stability	EXCELLENT	GOOD	VERY GOOD
Environmental Stability	FAIR	FAIR	EXCELLENT
Size	LARGE	MEDIUM	SMALL

Table 1

"Engineering the Dynamics of Technology"

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SPECIFICATIONS

Model Number	EDRO-1000-XX.XX (Where XX.XX is freq. in GHz)
Single Frequency	1 to 40 GHz
Mechanical Tuning Range	100 MHz
Electrical Tuning	Optional
Power Output	+13 dBm, up to +25 dBm Optional
Load VSWR, Maximum	2.0 : 1.0
Power Requirements	+15, +12, +10 VDC, 90-110 mA
Power Variation	+/- 0.5 dBm
Pushing	1 ppm Max. @ ±1V
Pulling (12dB Return Loss)	+/- 90ppm Max.
Frequency Stability	3 ppm/ °C
Phase Noise	See Phase Noise Envelope (Fig. A)
Spurious	-85 dBc
Harmonics	-25 dBc
Operating Temperature	-55° to +105°C Optional; 0° to 70° Standard
Storage Temperature	-55° to +125°C
Connectors	SMA Female, 2.40 mm, 2.92 mm
Size	2.25" x .92" x .67"
Finish	Nickel

TYPICAL PHASE NOISE AT 12 GHz

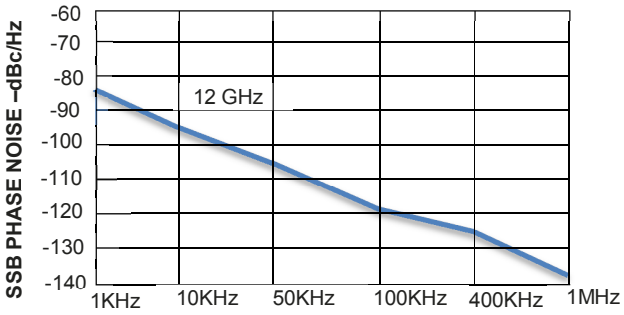
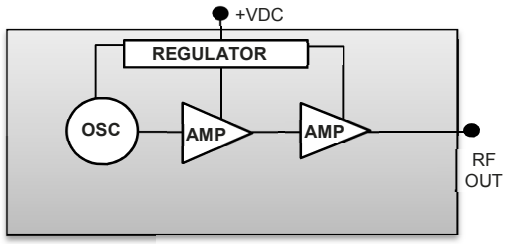
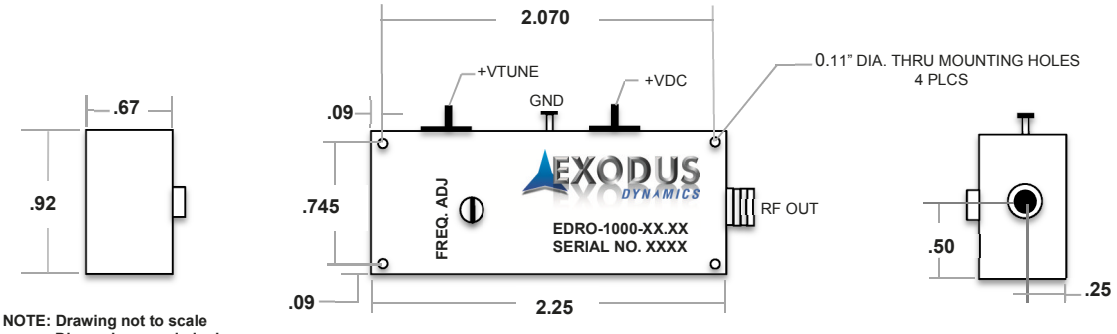


FIGURE A



BLOCK DIAGRAM

OUTLINE DRAWING



NOTE: Drawing not to scale
Dimensions are in inches