- **26-150 GHz**
- **High output power up to 50 mW**
- **Frequency accuracy +/- 10 MHz**
- **Frequency stability – $5*10^{-6}$ 1/deg C**
- **Low phase noises**
- **Compact package**
- **Low cost**

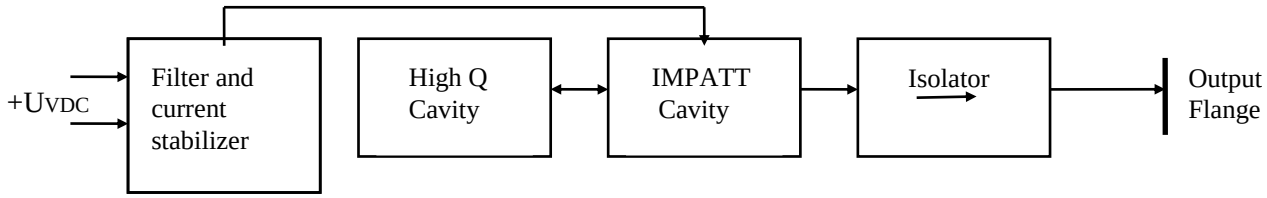

## Applications

- Laboratory measurement and test equipment
- Source for Plasma diagnostics and spectrometry
- LO for mm-wave mixers
- Stable LO with fixed frequency
- Communication systems

## Description

ELVA-1 presents mm-wave oscillators of CIDO-XX family operating at fixed frequency. The CIDO-XX are cavity-stabilized IMPATT diode oscillators. They provide high frequency stability and low phase noise capability. They combine the extended frequency range and high output power of IMPATT oscillators with stability and phase nose capabilities provided by cavity-stabilized Gunn oscillators. The CIDO-XX sources are available in 8 waveguide bands covering 26 to 150 GHz. The CIDO-XX source consist of a waveguide cavity IMPATT oscillator which is coupled to a high Q, high order mode cylindrical cavity. The cylindrical cavity is made of Invar to improve the frequency stability over a broad temperature range. Operating temperature range is -50 to +80 °C. Low pass EMI filter and current stabilizer included for reliable, trouble-free operation. The device supplied with an integral isolator.

Standard CIDO-XX models are supplied mounted on a finned heat sink. These oscillators can maintain their operating frequency within few megahertz over the normal operating temperature range without a temperature controller or heater. An optional built-in temperature controlled heater can be supplied to maintain the oscillator within a narrow operating temperature range. The frequency can be held in a much narrower range. Custom configurations and performance characteristics different from standard models are available.



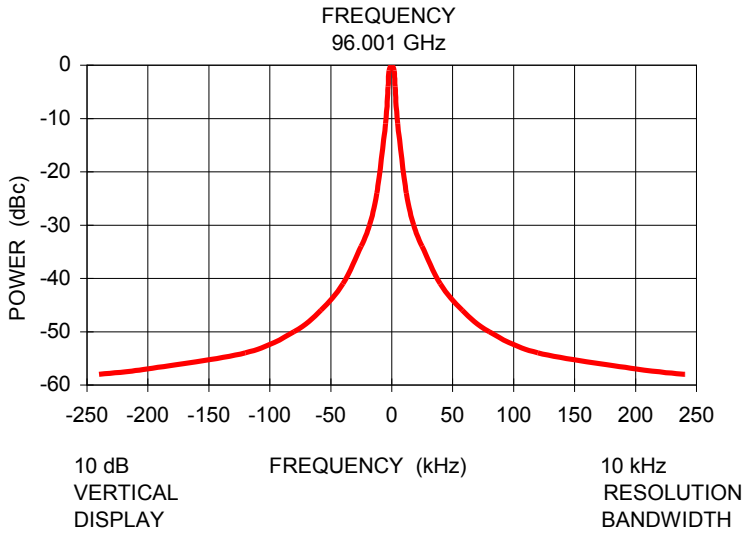

**Scheme of CIDO-XX oscillator**

## Specifications

| Model Number | CIDO - 28 | CIDO - 22 | CIDO - 19 | CIDO - 15 | CIDO - 12 | CIDO - 10 | CIDO -8 | CIDO -6 |
|---|---|---|---|---|---|---|---|---|
| **Frequency Band and Range, GHz** | Ka 26.5-40 | Q 33-50 | U 40-60 | V 50-75 | E 60-90 | W 75-110 | F 90-140 | D 110-150 |
| **Output Power (typ.), mW** | 50 | 40 | 30 | 30 | 30 | 30 | 20 | 10 |
| **Frequency Stability, 1/°C (typ.)** | $10^{-5}$ | $8 \cdot 10^{-6}$ | $8 \cdot 10^{-6}$ | $6 \cdot 10^{-6}$ | $5 \cdot 10^{-6}$ | $5 \cdot 10^{-6}$ | $5 \cdot 10^{-6}$ | $5 \cdot 10^{-6}$ |
| **Amplitude Stability., dB/°C (typ.)** | 0.01 | 0.01 | 0.015 | 0.015 | 0.015 | 0.02 | 0.02 | 0.02 |
| **DC Power (IMPATT Bias), V/A (max)** | +50/ 0.15 | +45/ 0.15 | +45/ 0.15 | +35/ 0.15 | +35/ 0.2 | +27/ 0.2 | +24/ 0.25 | +24/ 0.25 |

Accuracy of frequency adjustment is about few MHz. The adjustment is provided in the factory according to customer requirements.

## Typical performance




Optionally the following items would be supplied to meet customer requirements:
1. IMPATT Injection-Locked Amplifiers **IILA** series to increase the output power;
2. Phase or amplitude modulator on the base of fast P-I-N switch **SPST** series;
3. Amplitude regulator on the base of Voltage Controlled Attenuator **VCVA** series;
4. Power supply for AC Input Voltages 110 V, 60Hz; 220 V, 50 Hz

## How to Order

Specify Model Number CIDO-XX/F/P, where
- **XX –** number of waveguide standard (Ex. 10 for WR-10 and 06 for WR-06)
- **F –** operating frequency in GHz
- **P** – output power (nom)

## Example

CIDO oscillator with the following specification: operation frequency 94.0 GHz, output power 20 mW, output waveguide WR-10 has p/n **CIDO-10/94/20.**