

# The 26-150 GHz Cavity Stabilised IMPATT Millimeter Wave Oscillators



- Very high frequency stability
- High output power
- Low phase noise
- Fine spectrum
- Precision frequency adjustment
- Weak temperature dependence
- Compact, low cost

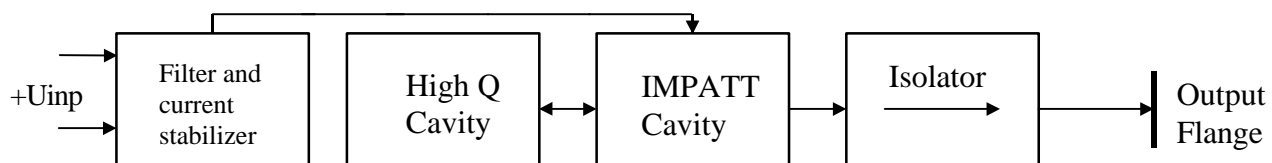
## Applications

- Stable fixed frequency LO
- Communication systems
- Instruments and test equipment
- Space and Hi-Rel systems

## Description

ELVA-1 series **CIDO-XX** cavity-stabilized IMPATT diode oscillators provide high frequency stability and low phase noise capabilities. They combine the extended frequency range and high output power of IMPATT oscillators with stability and phase noise capabilities provided by cavity-stabilized Gunn oscillators. These sources are available in 8 waveguide bands covering 26 to 150 GHz. The source consists 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 is supplied with an integral isolator.

Standard **CIDO-XX** models are supplied mounted on a finned heatsink. 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 oscillator

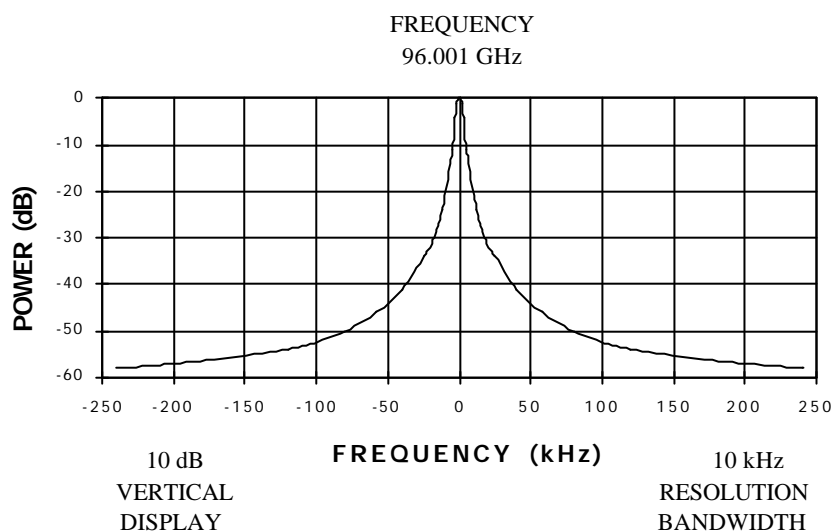
## Specifications

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
Maximum Power Output*	150	150	120	120	120	100	60	40
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 Stabil., 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/ 0.26	+24/ 0.26

\*Values are presented for the middle frequency of the frequency band.

Accuracy of frequency adjustment is about few MHz. The adjustment is provided on 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 **FPS** 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