



AT-PDRO-13.5GHz-IR

Phased Locked Dielectric Resonator Oscillator

PRDO, 13.5GHz, Low Phase Noise 100MHz Internal Referenced

2023-11-3



Product Overview

AT Microwave provides Phased Locked Dielectric Resonator Oscillator (PLDRO) with state of art performance with high stable, reliable and efficient from 1GHz to 44GHz.

The PLDRO is with external or internal referenced option. The standard internal OCXO is with 100MHz, -157dBc/Hz 1kHz and $\pm 0.1\text{ppm}$. The internal reference can also be locked to a 10MHz external reference according to the application.

More information, please visit www.atmicrowave.com

Advantages

- ✓ Low Phase Noise
- ✓ Low Harmonics
- ✓ Low Spurs
- ✓ Internal Referenced

Application

- ✓ 5G Communication
- ✓ Test Equipment
- ✓ ROF (RF Over Fiber)
- ✓ Radar System

Key Features

| Parameter | Min | Typical | Max |
|-----------------------------|--|----------------|-------|
| RF OUT Frequency | | 13.5GHz | |
| Output Power | +10 | +13dBm | |
| Internal Referenced | 100MHz, -157dBc/Hz @1kHz, $\pm 0.1\text{ppm}$ | | |
| Harmonics | | -20dBc | |
| Spurs | | -70dBc | |
| Phase Noise | See table | | |
| Power Supply | | +12V/0.45A | |
| Phase Lock Indicator | | Lock, TTL High | |
| External Reference (Option) | | 10MHz | |
| External Reference Power | 0dBm | +3dBm | +5dBm |
| Spec Temp | | 25C | |





AT-PDRO-13.5GHz-IR

Phased Locked Dielectric Resonator Oscillator

Mechanical Information

| Item | Description |
|------------------------|---------------|
| RF Output Port | SMA Female |
| Reference Input | SMA Female |
| Vdd Power Supply | PIN |
| Phase Locked Indicator | PIN |
| Case Material | Aluminum |
| Finish | Nickel Plated |
| Weight | 150g |
| Size: | See outline |

Absolute Maximum Ratings Table

| Parameter | Value |
|--------------------------------|--------------|
| Drain Supply | +15V |
| 10MHz External Reference Power | +10dBm |
| Operating Temperature | -40 to + 70C |
| Storage Temperature | -55 to +85C |

Caution:

Please pay attention to the case temperature. If case temperature exceed higher than +50C, heat sink and fan are required, or the amplifier may be damaged.

Notes:

1. Datasheet may be changed according to update of MMIC, Raw materials , process, and so on.
2. This data is only for reference, not for guaranteed specifications.
3. Please contact AT Microwave team to make sure you have the most current data.





AT-PDRO-13.5GHz-IR

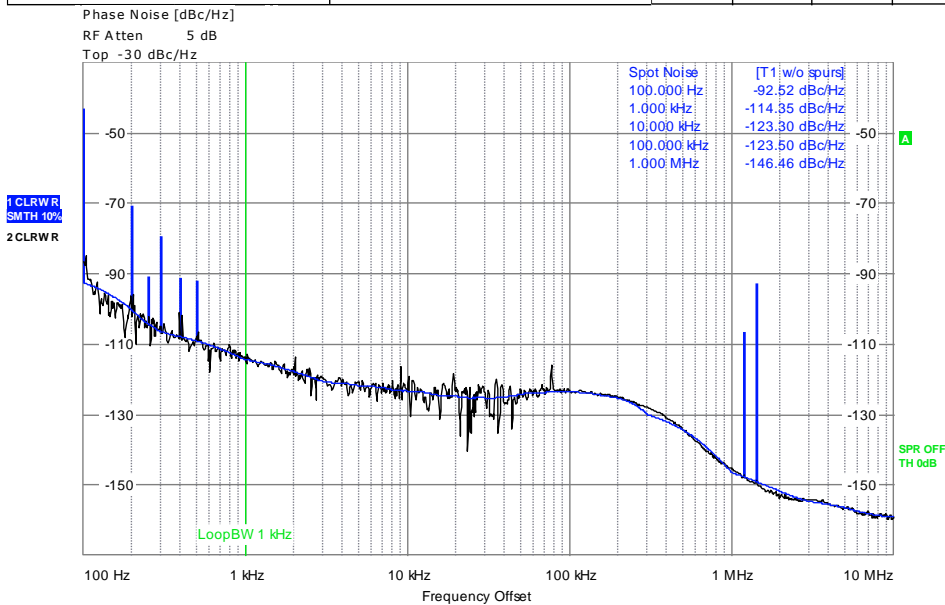
Phased Locked Dielectric Resonator Oscillator

Typical Phase Noise vs Frequency

| Frequency | 1 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
|---------------|------|------|------|------|------|------|------|------|------|
| dBc/Hz@100Hz | 108 | 102 | -96 | -92 | -92 | -88 | -88 | -86 | -83 |
| dBc/Hz@1KHz | -133 | -126 | -120 | -116 | -115 | -113 | -110 | -108 | -102 |
| dBc/Hz@10KHz | -135 | -131 | -126 | -120 | -120 | -120 | -118 | -118 | -105 |
| dBc/Hz@100KHz | -135 | -131 | -126 | -120 | -120 | -120 | -120 | -118 | -110 |
| dBc/Hz@1MHz | -140 | -140 | -140 | -140 | -140 | -140 | -140 | -140 | -140 |
| Frequency | 18 | 20 | 24 | 26 | 28 | 32 | 36 | 40 | 44 |
| dBc/Hz@100Hz | -83 | -80 | -80 | -80 | -78 | -78 | -76 | -73 | -72 |
| dBc/Hz@1KHz | -108 | -104 | -104 | -102 | -102 | -96 | -95 | -94 | -93 |
| dBc/Hz@10KHz | -114 | -113 | -112 | -110 | -110 | -99 | -97 | -94 | -93 |
| dBc/Hz@100KHz | -114 | -113 | -112 | -110 | -110 | -104 | -103 | -102 | -102 |
| dBc/Hz@1MHz | -136 | -134 | -133 | -131 | -131 | -130 | -130 | -130 | -130 |

★ Note: Frequency 16-44GHz, Sub-harmonics: -60dBc

| R&S FSUP 50 Signal Source Analyzer | | LOCKED | |
|---------------------------------------|-------------------------------------|-----------------------|--|
| Settings | Residual Noise [T1 w/o spurs] | Phase Detector +20 dB | |
| Signal Frequency: 11.000000 GHz | Int PHN (100.0 .. 10.0 M) -68.0 dBc | | |
| Signal Level: 15.53 dBm | Residual PM 32.314 m° | | |
| Cross Corr Mode Harmonic 1 | Residual FM 354.128 Hz | | |
| Internal Ref Tuned Internal Phase Det | RMS Jitter 0.0082 ps | | |



Measurement A aborted

Date: 19. JUN. 2021 02:39:46



Dimension: (unit in mm)

