The Phase-Locked DRO (PLDRO) is designed for ultra-low phase noise applications. It is a dual-loop design with a reference input anywhere from 5 to 200 MHz. There is also an option for an internal reference for the same ultra-low noise performance. It is packaged in a small 2.25”W x 2.25”L x 0.8”H housing.

FEATURES
- Ultra-low phase noise
- Reference from 5 to 200 MHz
- Internal reference available
- Small package
- Low power consumption
SPECIFICATIONS

**ENVIRONMENTAL CONDITIONS**

- **Temperature**
  - Operating: -30 to +80°C
  - Storage: -50 to +100°C
- **Humidity**: 95% at 40°C noncondensing
- **Shock (survival)**: 30 g’s, 10 ms pulse
- **Vibration (survival)**: 20 to 200 Hz random to 4 g’s rms
- **Weight**: 125 grams

**ELECTRICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output frequency range</strong></td>
<td>Subharmonic: 1.75 – 7 GHz</td>
</tr>
<tr>
<td></td>
<td>Fundamental: 7 – 13 GHz</td>
</tr>
<tr>
<td></td>
<td>Doubled: 13 – 26 GHz</td>
</tr>
<tr>
<td><strong>DC voltage</strong></td>
<td>+5 VDC @ 300 mA</td>
</tr>
<tr>
<td><strong>Output power</strong></td>
<td>+13 dBm minimum</td>
</tr>
<tr>
<td><strong>Output spurious</strong></td>
<td>&lt; -80 dBc typical</td>
</tr>
<tr>
<td><strong>Output harmonics</strong></td>
<td>≤ -20 dBc typical</td>
</tr>
<tr>
<td><strong>Reference frequency</strong></td>
<td>5 – 200 MHz (customer specified)*</td>
</tr>
<tr>
<td><strong>Reference input power</strong></td>
<td>0 ±3 dBm</td>
</tr>
<tr>
<td><strong>Load VSWR</strong></td>
<td>2:1</td>
</tr>
<tr>
<td><strong>Connectors</strong></td>
<td>REF IN: SMA female</td>
</tr>
<tr>
<td></td>
<td>RF OUT: SMA female</td>
</tr>
<tr>
<td></td>
<td>DC power: Solder pin feedthru</td>
</tr>
<tr>
<td><strong>Phase alarm</strong></td>
<td>TTL “high” in-lock, “low” out-of-lock</td>
</tr>
<tr>
<td><strong>Phase noise</strong></td>
<td>See graphs</td>
</tr>
</tbody>
</table>

* Internal reference available.

**ORDERING INFORMATION**

- **PLDRO**
  - External Reference Frequency (MHz)
  - Output Frequency (MHz)
  - D.C. Supply (+volts)
  - 

- **PLDRO**
  - Output Frequency (MHz)
  - I
  - D.C. Supply (+volts)
TYPICAL TEST DATA

**PLDRO-10-7000-5P**
7 GHz WITH 10 MHz INPUT REFERENCE

**PLDRO-10-18400**
18.4 GHz WITH 10 MHz INPUT REFERENCE

**PLDRO-10-13.05**
13.05 GHz WITH 10 MHz INPUT REFERENCE

**PLDRO-10-10800-5P**
10.8 GHz WITH 10 MHz INPUT REFERENCE

OUTLINE DRAWING

NOTE: Dimensions shown in brackets [ ] are in millimeters.
ULTRA-LOW NOISE
PHASE-LOCKED DIELECTRIC
RESONATOR OSCILLATOR

ADDITIONAL FREQUENCY GENERATION PRODUCTS

FREE-RUNNING AND PHASE-LOCKED VOLTAGE-CONTROLLED
OSCILLATORS
- Cavity and Coaxial Resonator Designs
  Fundamental to 3.2 GHz
  Multiplied to 40 GHz
- Crystal Oscillators to 195 MHz, Single or Multiple Crystal, Moderate to High Stability
- Cavity-Tuned to 6 GHz
- Coaxial Resonator to 3.2 GHz
- Octave Band L-C VCOs

FREE-RUNNING AND PHASE-LOCKED DIELECTRIC RESONATOR
OSCILLATORS
- Fundamental Bipolar Based Designs to 13 GHz
- FET Designs to 25 GHz
- Coaxial and Microstrip Packages
- Multiple Versions Available

FREQUENCY SYNTHESIZERS
- Phase-Locked Loop, Communication Band Synthesizers
- Single-Loop Fast Acquisition Synthesizers

FREQUENCY MULTIPLIERS
- Broadband Active and Passive Multipliers
- Doublers, Triplers and Higher-Order Custom Designs to 50 GHz