

# 2LPL SERIES



0.010 GHz to 15 GHz (IN BANDS)



## FEATURES

- Low cost
- Phase locked to external standard or internal crystal reference
- Built-in reference Cleanup
- Low phase noise
- Small package
- 100% burn-in and temperature testing
- Three-year warranty

The 2LPL Series phase-locked source offers excellent phase noise and spurious performance in a miniature 2.0" width x 2.0" length x 0.61" height housing and is available in fixed frequencies from 10 MHz to 15 GHz in a single form factor configuration. Units can operate from either external reference, or internal TCXO with stability as low as 500 PPB. Flexible internal DC regulators allow operating DC from +6.5 VDC to +28 VDC.



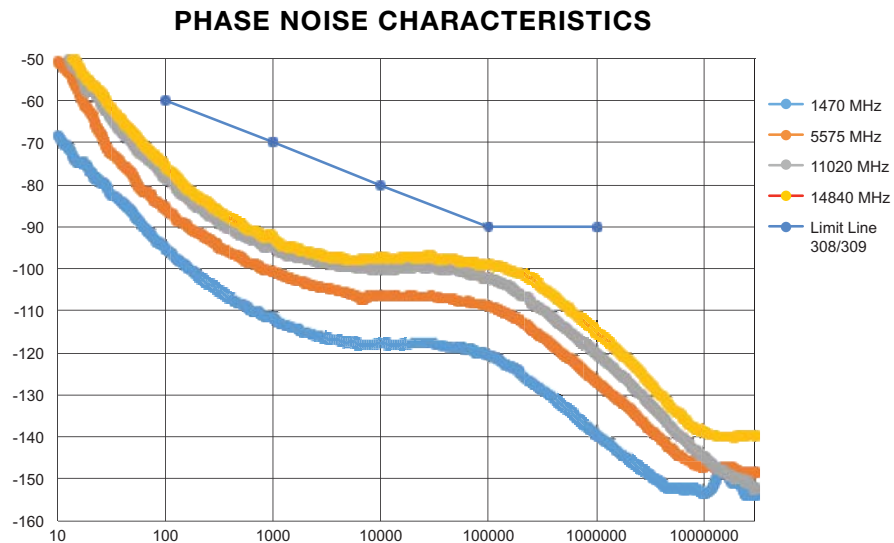
# 2LPL SERIES

## SPECIFICATIONS

|                              |   |
|------------------------------|---|
| Output frequency range       | 0.010 GHz to 15 GHz                             |
| Output power                 | +13 dBm minimum                                 |
| Output harmonic              | -25 dBc maximum                                 |
| Output spurious              | -60 dBc maximum                                 |
| Phase noise                  | See graph                                       |
| Input reference frequency    | 1 MHz to 200 MHz (or 10MHz output available)    |
| *Input reference power level | 0±3 dBm*  |
| Input impedance              | 50 ohms   |
| Load VSWR                    | 1.5:1 nominal                                   |
| DC power requirements        | +6.5 volts to +28 volts at 3.5 W to 4 W maximum |
| Phase lock alarm             | TTL High in lock, low out of lock               |
| *Internal/reference          | 0.5 ppm at 0° C to 60° C output made available  |

| PHASE NOISE SPECIFICATIONS (dBc/Hz), typical | OFFSET (Hz) |     |      |      |      |      |      |
|--|-------------|-----|------|------|------|------|------|
|  | 10          | 100 | 1K   | 10K  | 100K | 300K | 1M   |
| 1470 MHz                                     | -68         | -95 | -111 | -117 | -120 | -148 | -139 |
| 5575 MHz                                     | -50         | -85 | -100 | -106 | -108 | -137 | -126 |
| 11020 MHz                                    | -45         | -78 | -94  | -99  | -102 | -131 | -120 |
| 14840 MHz                                    | -45         | -75 | -92  | -97  | -98  | -126 | -115 |

## PHASE NOISE SPECIFICATIONS





## GENERAL SPECIFICATIONS

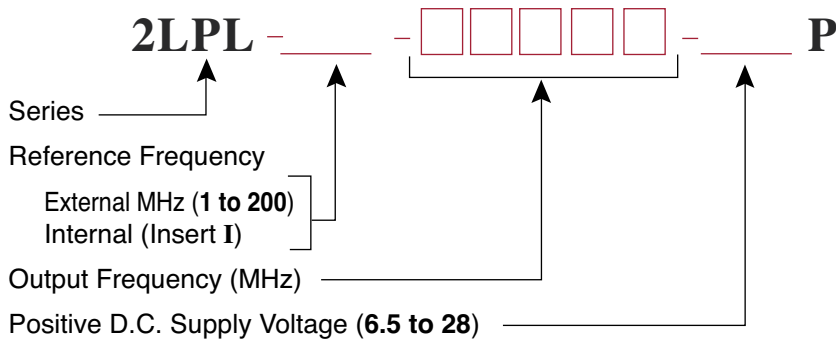
### MECHANICAL SPECIFICATIONS

|                       |   |
|-----------------------|---|
| Outline drawing ..... | 218213 and 219069                                 |
| Size .....            | 2.0" x 2.0" x 0.61"                               |
| Weight .....          | ≤ 100 grams                                       |
| RF connectors .....   | SMA female  |
| DC connectors.....    | 9-pin JST™ (mating connector PHR-9 or equivalent) |

### ENVIRONMENTAL SPECIFICATIONS

|                            |   |
|----------------------------|---|
| Temperature                |   |
| Operating.....             | -40 °C to +80 °C                        |
| Storage .....              | -50 °C to +100 °C                       |
| Humidity .....             | 95% at 40 °C noncondensing              |
| Shock (survival) .....     | 30 g's, 10 ms pulse                     |
| Vibration (survival) ..... | 20 Hz to 2000 Hz<br>random to 4 g's rms |

## ORDERING INFORMATION



**EXAMPLE:** Part Number 2LPL-10-13050-15P 2LPL Series phase-locked oscillator with 13.05 GHz output locked to 10 MHz reference and +15 volts D.C. supply voltage.

# 2LPL SERIES

## OUTLINE DRAWING

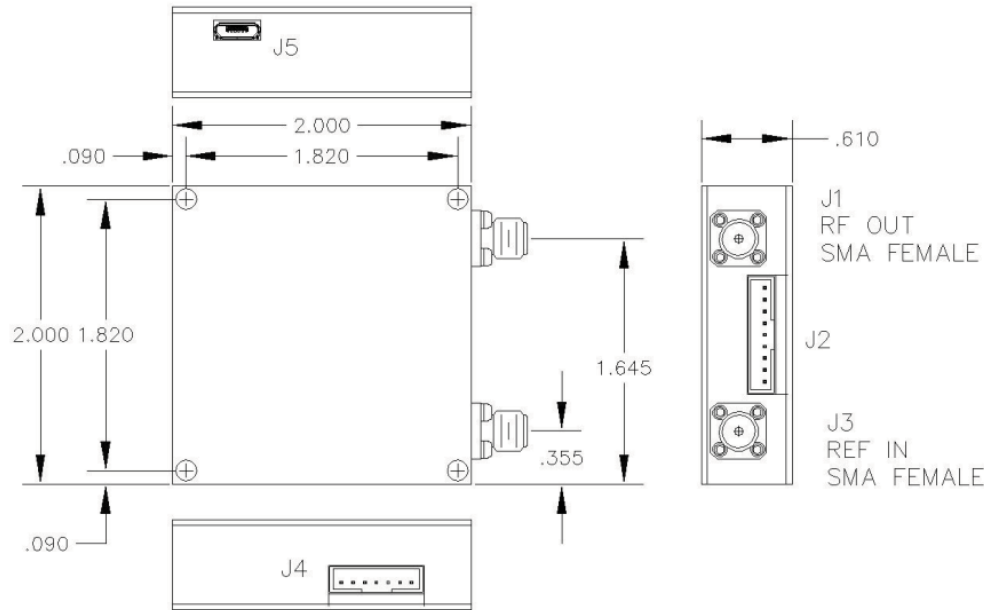
218213

J2 DC PWR/CONTROLS  
9 PIN JST

| PIN # | SIGNAL     |
|-------|------------|
| 1     | +15V_IN    |
| 2     | GND        |
| 3     | TTL_ALARM  |
| 4     | PHASE_VOLT |
| 5     | GND        |
| 6     | RS422_RX+  |
| 7     | RS422_RX-  |
| 8     | RS422_TX-  |
| 9     | RS422_TX+  |

J5 USB  
MICRO-USB CONNECTOR

| PIN # | SIGNAL  |
|-------|---------|
| 1     | +5V_USB |
| 2     | USB_D-  |
| 3     | USB_D+  |
| 4     | NC      |
| 5     | GND     |



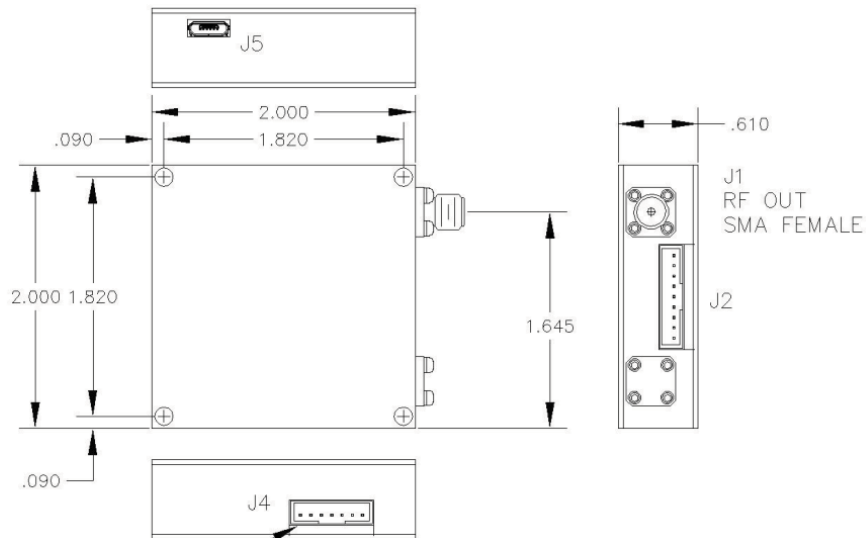
## 219069 (WITH INTERNAL REFERENCE)

J2 DC PWR/CONTROLS  
9 PIN JST

| PIN # | SIGNAL     |
|-------|------------|
| 1     | +15V_IN    |
| 2     | GND        |
| 3     | TTL_ALARM  |
| 4     | PHASE_VOLT |
| 5     | GND        |
| 6     | RS422_RX+  |
| 7     | RS422_RX-  |
| 8     | RS422_TX-  |
| 9     | RS422_TX+  |

J5 USB  
MICRO-USB CONNECTOR

| PIN # | SIGNAL  |
|-------|---------|
| 1     | +5V_USB |
| 2     | USB_D-  |
| 3     | USB_D+  |
| 4     | NC      |
| 5     | GND     |



J4 FOR L-3 NARDA-MITEQ USE ONLY

**narda**  **MITEQ**

Note: Dimensions shown are in inches and those shown in brackets [ ] are in millimeters.

The material presented in this datasheet was current at the time of publication. L3 Narda-MITEQ's continuing product improvement program makes it necessary to reserve the right to change our mechanical and electrical specifications without notice. If either of these parameters is critical, please contact the factory to verify that the information is current.

This material consists of L3 Narda-MITEQ general capabilities information and does not contain controlled technical data as defined within the International Traffic in Arms (ITAR) Part 120.10 or Export Administration Regulations (EAR) Part 734.7-11.  
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