

# LC XO

## OCXO Low Cost Ultra Small GPSDO Module - Gen 3

### Typical Electrical Specifications

| Module Specifications                      |                                                                                                                                            |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 1 PPS Accuracy                             | ±35 ns to UTC RMS (1-Sigma) GPS Locked                                                                                                     |
| Holdover Stability after 72 hours with GPS | <±20 us over 3 Hour Period @+25°C (No Motion, no airflow)                                                                                  |
| 1 PPS Output                               | 3.3 VDC CMOS                                                                                                                               |
| Serial Control                             | SCPI-99 TTL Level, GPS NMEA Output                                                                                                         |
| GPS Frequency                              | L1, C/A 1574 MHz                                                                                                                           |
| GPS Antenna                                | Active or Passive                                                                                                                          |
| GPS Receiver                               | 70 Channels, GPS, Glonass, Galileo, BeiDout, QZSS, SBAS capable                                                                            |
| Sensitivity                                |                                                                                                                                            |
| Acquisition                                | -148 dBm                                                                                                                                   |
| Tracking                                   | -167 dBm (GPS and Glonass)                                                                                                                 |
| GNSS TTFF                                  |                                                                                                                                            |
| Cold Start                                 | <30 sec                                                                                                                                    |
| Warm Start                                 | 2 sec                                                                                                                                      |
| Hot Start                                  | 2 sec                                                                                                                                      |
| ADEV                                       | 10 Ks <5E-012 (OCXO, GPS Locked, 25°C, no motion, no airflow)                                                                              |
| TTL Alarm Output                           | GPS LOCK indicator                                                                                                                         |
| Warm Up Time/<br>Stabilization Time        | <5 min at +25°C to 1E-08 Accuracy                                                                                                          |
| Supply Voltage (Vdd)                       | 3.3 V Single-Supply only (5 V internally generated and filtered)                                                                           |
| Power Consumption                          | 0.7 W steady state                                                                                                                         |
| Operating Temperature                      | 0°C to +60°C                                                                                                                               |
| Storage Temperature                        | -45°C to +85°C                                                                                                                             |
| Additional Features                        | Firmware field-upgradable, external 1 PPS input, status LEDs, compatible to GPSCon, SNTP, GPSD, and Z38xx software applications, full NMEA |

Oscillator Specification (OCX0)

|                                                              |                                           |              |
|--------------------------------------------------------------|-------------------------------------------|--------------|
| Frequency Output                                             | 10 MHz CMOS 5 Vpp (3.3 Vpp optional)      |              |
| 10 MHz Retrace                                               | $\pm 2 \text{ E-08}$ After 1 Hour @ +25°C |              |
| Frequency Stability Over Temperature (GPS Unlock Condition)  | $\pm 2.5 \text{ E-08}$                    |              |
| Output Amplitude                                             | 5 Vpp CMOS                                |              |
| OCX0 Warm Up Time                                            | < 1 min @ +25°C                           |              |
| Phase Noise<br>(with 33 uF or larger cap on 5V Output pin 6) | 1 Hz                                      | -75 dBc/Hz   |
|                                                              | 10 Hz                                     | -110 dBc/Hz  |
|                                                              | 100 Hz                                    | -132 dBc/Hz  |
|                                                              | 1 kHz                                     | -142 dBc/Hz  |
|                                                              | 10 kHz                                    | -145 dBc/Hz  |
|                                                              | 100 kHz                                   | <-150 dBc/Hz |

Connectors

| Connector Type                                                                                                          | Description                                                                          |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1 PPS Output, 10 MHz Output, power, serial communication, system status, NMEA, 1 PPS in, ISP mode enable, antenna input | 100 mil spacing on pins, can be soldered, or plugged into a socket, gold-plated pins |
| 1 PPS Output                                                                                                            | Power, serial communication, system status, NMEA, ISP mode enable, antenna input     |
| 10 MHz Output                                                                                                           | Power, serial communication, system status, NMEA, ISP mode enable, antenna input     |
| 1 PPS Input                                                                                                             | Power, serial communication, system status, NMEA, ISP mode enable, antenna input     |



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