

# Low Cost GPSDO Single Oven Oscillator Module Spec

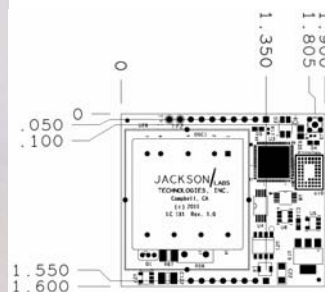


- **1.9" X 1.6" X 0.63" Module**
- **SC-cut Oscillator, RTC Support**
- **50 Channel WAAS GPS Receiver**
- **LVDS or CMOS outputs**
- **PRELIMINARY SPECIFICATION**

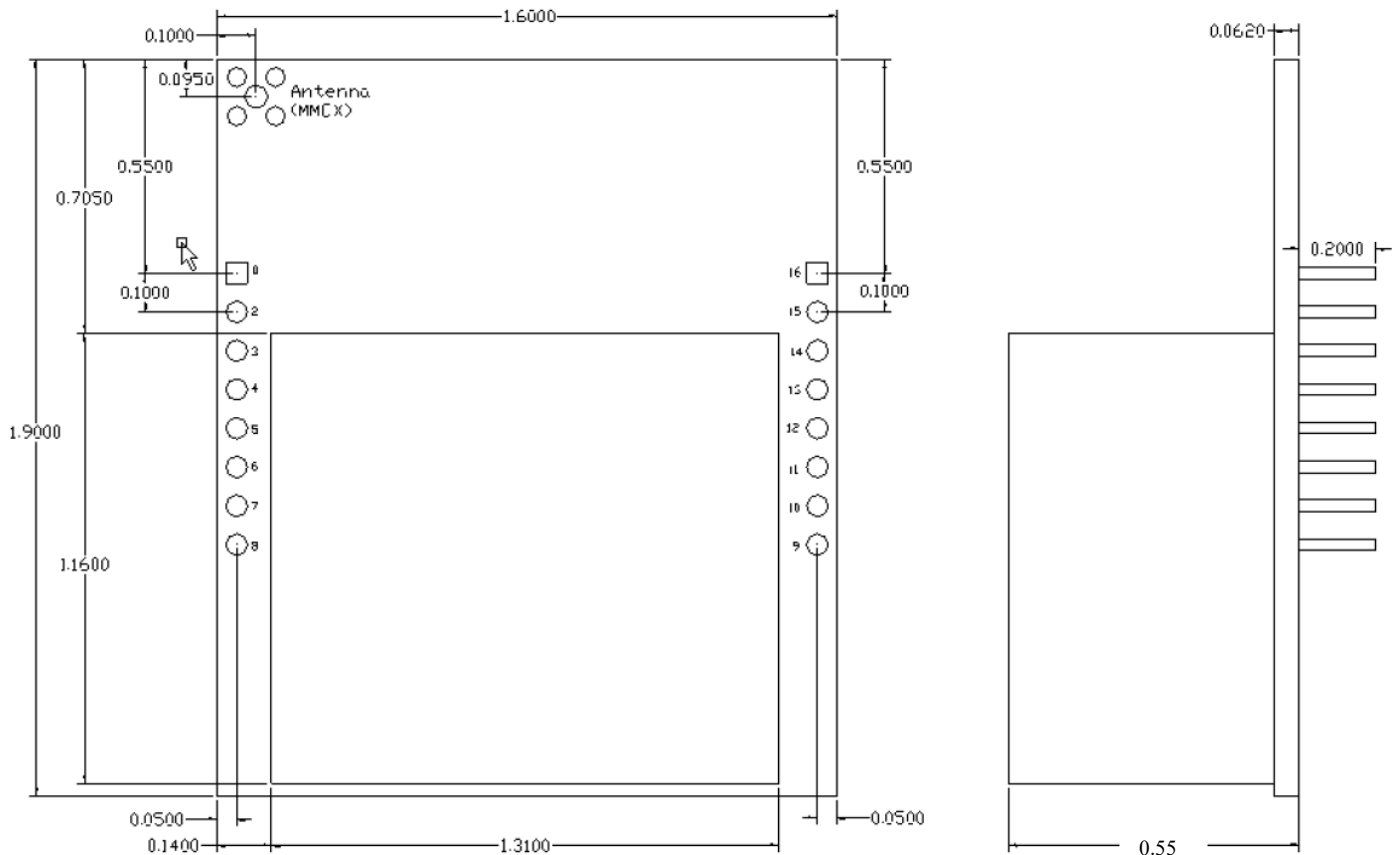
## TYP. ELECTRICAL SPECIFICATIONS:

<b>Module Specification:</b>													
1 PPS Accuracy	LVDS level, ±35ns to UTC RMS (1-Sigma) GPS Locked												
Holdover Stability	<±15us over 24hrs @+25.0°C (No Motion or Airflow, 5+ days with GPS)												
Oscillator Options	DOCXO with SC-cut Crystal option												
Serial Control	RS-232 level GPS NMEA output and SCPI control												
GPS Frequency	L1, C/A 1574MHz												
GPS Antenna	Active or Passive												
GPS Receiver	50 Channels, Mobile, SBAS WAAS, EGNOS, MSAS capable												
Sensitivity	Acquisition -142 dBm, Tracking -158 dBm												
GPS TTFF	Cold Start - <45 sec, Warm Start - 1 sec, Hot Start - 1 sec												
ADEV	1Ks <1E-010, 10Ks <8E-012 (GPS Locked, 25°C, no motion)												
TTL Alarm Output	GPS LOCK and Event indicator												
Warm Up Time / Stabilization Time	<9 min at +25°C to 5E-09 Accuracy no airflow												
Supply Voltage (Vdd)	12V ±5%, <0.21A steady state												
Power Consumption	<2.4W steady state, <8W warmup												
Operating Temperature	-40°C to +85°C												
Storage Temperature	-45°C to +85°C												
Output Signal Levels	10MHz LVDS, 1PPS LVDS, CMOS option, secondary 10MHz output option												
<b>Oscillator Specification (OCXO):</b>													
Frequency Output	10MHz CMOS/LVDS												
10MHz Retrace	±2E-08 After 1 Hour @ +25°C (no GPS)												
Frequency Stability over Temperature, and over 24hrs	<±5E-09 (no GPS), <1E-012 over 24hrs (with GPS, no airflow)												
Output Amplitude	LVDS, or CMOS option												
OCXO Warm Up Time	< 3 min @ +25°C												
Phase Noise	<table border="1"> <tbody> <tr> <td>1Hz</td> <td>-90dBc/Hz</td> </tr> <tr> <td>10Hz</td> <td>-120dBc/Hz</td> </tr> <tr> <td>100Hz</td> <td>-140dBc/Hz</td> </tr> <tr> <td>1kHz</td> <td>-150dBc/Hz</td> </tr> <tr> <td>10kHz</td> <td>-155dBc/Hz</td> </tr> <tr> <td>100KHz</td> <td>&lt;-155dBc/Hz</td> </tr> </tbody> </table>	1Hz	-90dBc/Hz	10Hz	-120dBc/Hz	100Hz	-140dBc/Hz	1kHz	-150dBc/Hz	10kHz	-155dBc/Hz	100KHz	<-155dBc/Hz
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## LC\_1x1 GPSDO Module:



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All dimensions in inches

Pin #	Function	Description
1	LOCK OK	3.3V CMOS Event Indicator (no event == 3.3V)
2	VBATT	2V to 3.6V (3.3V nominal) backup battery input for RTC and GPS Almanac
3	-1PPS LVDS	LVDS level 1PPS output – negative trace, terminate via 100Ohms to +1PPS LVDS
4	+1PPS LVDS	LVDS level 1PPS output – positive trace or CMOS 1PPS output option
5	GND	GND
6	-10MHz LVDS	LVDS 10MHz output – negative trace, terminate via 100Ohms to +10MHz LVDS
7	+10MHz LVDS	LVDS level 10MHz output – positive trace or CMOS 10MHz output option
8	GND	GND
9	GND	GND
10	TX RS-232	RS-232 level command and control interface transmit trace
11	RX RS-232	RS-232 level command and control interface receive trace
12	ENTER_ISP#	Pull to GND during power-on to enter software update mode. Internally pulled up to 3.3V via 4.7K Ohm resistor. Use open collector to drive this pin
13	1PPS_IN	TTL or CMOS level external 1PPS reference input rising edge aligned. Internally pulled down to GND via 4.7K Ohm resistor
14	GND	GND
15	+12V	+12V Power, +/-5%, <0.6A max during warmup
16	+12V	+12V Power, +/-5%, <0.6A max during warmup