

LTE-Lite Low Cost Ultra Small 20MHz SMT GPSDO Module Spec



- 0.7 X 1.18 x 0.09 inch SMT Module
- Excellent ADEV performance
- 60+ Channel WAAS, QZSS GPS
- 20MHz, and Synthesized output:
80MHz/40MHz/26.66/16/13.33/10MHz

TYP. PRELIMINARY ELECTRICAL SPECIFICATIONS:

Module Specification:															
1 PPS Timing Accuracy from GPS receiver	<8ns to UTC RMS (1-Sigma) GPS Locked														
Holdover Stability (1 week with GPS)	<±50us over 3 Hour Period @+25°C (No Motion, No Airflow)														
1 PPS Output	3.3VDC CMOS														
Serial Port	TTL Level, GPS NMEA Output with 1Hz or 5Hz update rate														
GPS Frequency	L1, C/A 1574MHz														
GPS Antenna	Active or Passive (0dB to +30dB gain)														
GPS Receiver	65 Channels, QZSS, SBAS WAAS, EGNOS, MSAS capable Supports Position and Hold over-determined clock mode														
Sensitivity	Acquisition -148 dBm, Tracking -165 dBm														
GPS TTFF	Cold Start - <32 sec, Warm Start - 1 sec, Hot Start - 1 sec														
ADEV	10s: <7E-011, 10Ks: <2E-012 (GPS Locked, 25°C, no motion, no airflow)														
TTL Alarm Output	GPS LOCK indicator, ALARM output, Survey status, Warmup status														
Warm Up Time / Stabilization Time	<10 min at +25°C to better than 1E-09 Accuracy														
Supply Voltage (Vdd)	3.3V Single-Supply, +0.2V/-0.15V														
Power Consumption	<0.16W														
Operating Temperature	-10°C to +70°C, -40°C to +85°C optional														
Additional Features	Firmware field-upgradable, status LED, external oscillator option														
Oscillator Specification (internal):															
Frequency Output of low Phase Noise crystal	20MHz CMOS 3Vpp														
Secondary Synthesized CMOS output (Phase-Locked to 20MHz)	TTL selectable: 80MHz/40MHz/26.666MHz/16MHz/13.333MHz/10MHz/5MHz														
20MHz Retrace	±2E-08 After 1 Hour @ +25°C without GPS														
Frequency Stability Over Temperature (0°C to +60°C)	±0.1ppm (internal TCXO without GPS)														
RF Output Amplitude	3Vpp CMOS														
20MHz Phase Jitter (100Hz to 10MHz)	<0.135ps rms														
Phase Noise at 20MHz	<table border="1"> <thead> <tr> <th colspan="2">at 20MHz</th> </tr> </thead> <tbody> <tr> <td>1Hz</td> <td>-65dBc/Hz</td> </tr> <tr> <td>10Hz</td> <td>-92dBc/Hz</td> </tr> <tr> <td>100Hz</td> <td>-116dBc/Hz</td> </tr> <tr> <td>1kHz</td> <td>-136dBc/Hz</td> </tr> <tr> <td>10kHz</td> <td>-148dBc/Hz</td> </tr> <tr> <td>100KHz</td> <td><-155dBc/Hz</td> </tr> </tbody> </table>	at 20MHz		1Hz	-65dBc/Hz	10Hz	-92dBc/Hz	100Hz	-116dBc/Hz	1kHz	-136dBc/Hz	10kHz	-148dBc/Hz	100KHz	<-155dBc/Hz
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Connections:															
1PPS Outputs (2x), 20MHz Output, power, system status, NMEA, ISP mode enable, antenna input, Synthesized reference frequency output	Connector Type: SMT module with 50 mils (1.27mm) pin spacing, U.FL RF antenna														

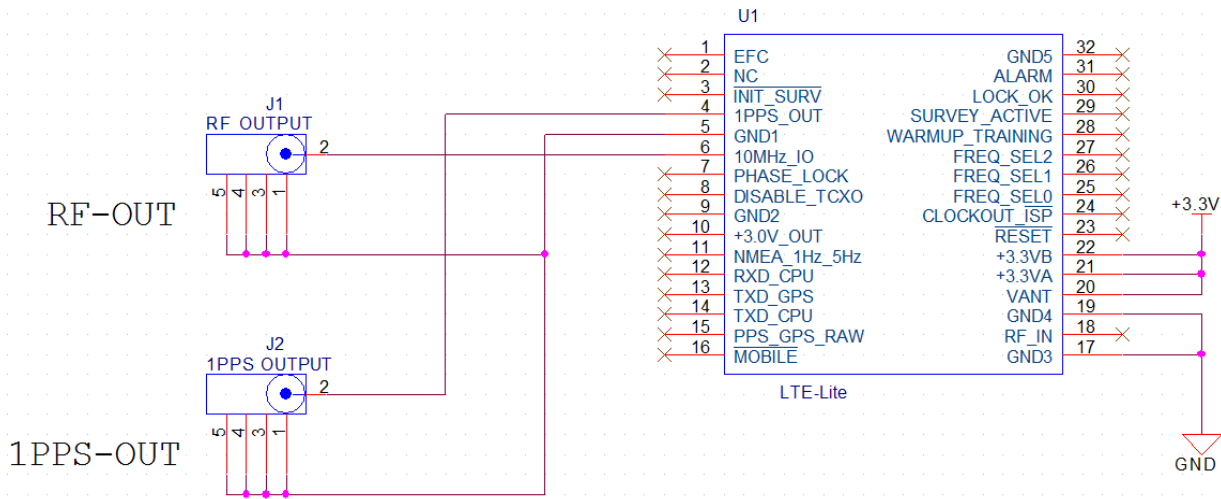


Jackson Labs Technologies, Inc., 1635 Village Ctr. Cir., Suite 150, Las Vegas, NV 89134
 Phone: (702) 233-1334, Fax: (702) 233-1073, www.jackson-labs.com
sales@jackson-labs.com

Table 1. Available Crystal options and PLL synthesized output frequencies:

FREQ_SEL	10 MHz TCXO	15.36 MHz TCXO	19.2 MHz TCXO	20 MHz TCXO
111	disabled	disabled	disabled	disabled
110	5MHz	4.608MHz	4.8MHz	5MHz
101	13.33333333MHz	10.24MHz	9.6MHz	10MHz
100	16MHz	15.36MHz	12.8MHz	13.33333333MHz
011	20MHz	23.04MHz	15.36MHz	16MHz
010	26.66666667MHz	30.72MHz	25.6MHz	26.66666667MHz
001	40MHz	46.08MHz	38.4MHz	40MHz
000	80MHz	92.16MHz	76.8MHz	80MHz

EXAMPLE 1: MINIMUM OPERATING SETUP



EXAMPLE 2: CONNECTING AN EXTERNAL TCXO

