

LTE-Lite 20 MHz

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

Typical Electrical Specifications

Module Specifications	
1 PPS Timing Accuracy from GPS receiver	<8 ns to UTC RMS (1-Sigma) GPS Locked
Holdover Stability (1 week with GPS)	< ± 50 μ s over 3-hour period @+25°C (No Motion, No Airflow)
1 PPS Output	3.3 V DC CMOS
Serial Port	TTL Level, GPS NMEA Output with 1 Hz or 5 Hz update rate
GPS Frequency	L1, C/A 1574 MHz
GPS Antenna	Active or Passive (0 dB to +30 dB 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	
10 s	<7E-011
10 Ks	<2E-012 (GPS Locked, 25°C, no motion, no airflow)
TTL Alarm Output	GPS LOCK indicator, ALARM output, Survey status, Warmup status



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Typical Electrical Specifications continued

Warm Up Time / Stabilization Time	<10 min at +25°C to better than 1E-09 Accuracy	
Supply Voltage (Vdd)	3.3 V Single-Supply, +0.2 V/-0.15 V	
Power Consumption	<0.16 W	
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	20 MHz CMOS 3 Vpp	
Secondary Synthesized CMOS Output	TTL selectable: 80 MHz/40 MHz/26.666 MHz/16 MHz/13.333 MHz/10 MHz/5 MHz (Phase-Locked to 20 MHz)	
20 MHz Retrace	±2E-08 After 1 Hour @ +25°C without GPS	
Frequency Stability Over Temperature	±0.1 ppm (internal TCXO without GPS), (0°C to +60°C)	
RF Output Amplitude	3 Vpp CMOS	
20 MHz Phase Jitter	<0.135 ps rms (100 Hz to 10 MHz)	
Phase Noise (at 20 MHz)	1 Hz	-65 dBc/Hz
	10 Hz	-92 dBc/Hz
	100 Hz	-116 dBc/Hz
	1 kHz	-136 dBc/Hz
	10 kHz	-148 dBc/Hz
	100 kHz	<-155 dBc/Hz
Connections		
Connector Type		
1 PPS Outputs (2x), 20 MHz Output, power, system status, NMEA, ISP mode enable, antenna input, Synthesized reference frequency output	SMT module with 50 mils (1.27 mm) pin spacing, U.FL RF antenna	

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



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