

# FireFly-1C GPSTCXO with USB, 10MHz, and 100MHz Sine Out Spec



- 2.5 x 2.8 x 0.55 inches Module
- Integrated USB, 10MHz Ref-In
- 50 Channel WAAS GPS Receiver
- 10MHz and 100MHz outputs
- PRELIMINARY SPECIFICATION

## TYP. ELECTRICAL SPECIFICATIONS:

<b>Module Specification:</b>				
1 PPS Accuracy	±75ns to UTC RMS (1-Sigma) GPS Locked (<20ns typical)			
Serial Control	GPS NMEA and Status Output, SCPI-99 control, USB Port			
GPS Frequency	L1, C/A 1574MHz			
GPS Receiver	50 Channels, Mobile, SBAS WAAS, EGNOS, MSAS capable			
Sensitivity	Acquisition -142 dBm, Tracking -158 dBm			
GPS TTF	Cold Start - <45 sec, Warm Start - 1 sec, Hot Start - 1 sec			
ADEV (10MHz outputs)	1Ks <1E-010, 10Ks <2E-011 (GPS Locked, 25°C, no motion/airflow)			
TTL Alarm Output	GPS LOCK, EXT REF LOCK, and Event indicator			
Stabilization Time	<5 min at +25°C to 1E-08 Accuracy to GPS, <2s to external 10MHz Ref			
Supply Voltage (Vdd)	5V ±5%, <220mA			
Power Consumption	1.1W			
Operating Temperature	-20°C to +70°C			
10MHz External Reference Input	10MHz TCXO locked to external 10MHz reference with 5Hz loop BW Auto-switchover to EXT IN, EXT REFLOCK LED output 0dBm to +15dBm (+20dBm max level)			
10MHz/100MHz outputs	2x 10MHz at +13dBm, 1x 100MHz at +7dBm, ±3dB			
100MHz PLL	100MHz VCXO Locked to 10MHz TCXO, 8Hz loop BW			
<b>Oscillator Specification (TCXO):</b>				
Frequency Output	10MHz with ±80Hz range from 10MHz nominal adjust range			
10MHz Retrace	±2E-08 After 1 Hour @ +25°C (no GPS)			
Frequency Stability over Temperature, and over 24hrs	±1.5E-07 (no GPS), <5E-012 over 24hrs (with GPS)			
Output Amplitude	+13dBm ±3dBm Sine Wave			
TCXO aging (fully compensated by GPS)	<±1ppm per year without GPS			
Phase Noise (10MHz TCXO, 100MHz VCXO)		<b>10MHz</b>	<b>100MHz</b>	
		1Hz	-70dBc/Hz	-77dBc/Hz
		10Hz	-100dBc/Hz	-77dBc/Hz
		100Hz	-128dBc/Hz	-108dBc/Hz
		1kHz	-145dBc/Hz	-142dBc/Hz
		10kHz	-152dBc/Hz	-153dBc/Hz
		100kHz	<-155dBc/Hz	-160dBc/Hz
<b>Connections:</b>				
2x 10MHz Sine Wave Out, 10MHz Sine Wave REF Input, 1x 100MHz Sine Wave Out, 1PPS Output	<b>Connector Type:</b> SMA			
+5V Power, GPS Lock/Event Status, 100MHz PLL lock LED, 10MHz EXT REF lock Status	Molex PN 22-11-2032			
USB Power and Communication	Mini USB			

## FireFly-1C GPSDO Module:



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