



# PLETRONICS GT11

## GPS Synchronized TCXO Module



- The Pletronics GT11 Series is a high precision GPS-disciplined reference oscillator.
- The GT11 utilizes a high precision TCXO oscillator, synchronized to the GPS atomic clock.
- The GT11 offers unmatched price and performance over traditional GPS-OCXO reference solutions.
- The GT11 has a standard LVCMOS output.
- Input Voltage is 3.3V
- The GT11 has very low power consumption due to its high performance TCXO.
- An ideal solution for low power applications.
- Very low phase noise.
- Available in 10 MHz standard reference oscillator frequency. Contact Pletronics for additional frequencies.

Module Specification:	
1 PPS Accuracy	±75ns to UTS RMS (1-Sigma) GPS Locked
1 PPS Output	3.3VDC CMOS
Serial Control	GPS NMEA Output
GNSS Frequency	GPS: L1, C/A 1575.42MHz; GLONASS: L1OF 1602MHz+k*0.5625MHz BeiDou: B1I 1561.098MHz; Galileo: E1-B/C on L1 band
GNSS Antenna	Active - GPS, GLONASS, BeiDou Bands
GNSS Receiver	72 Channel u-blox M8 Engine GPS/QZSS L1C/A GLONASS L1OF, BeiDou B1I, Galileo E1B/C, SBAS L1C/A: WAAS, EGNOS, MSAS GAGAN Factory default GPS & GLONASS, SBAS, QZSS, Galileo Optional: GPS & BeiDou, SBAS, QZSS, Galileo
Sensitivity	Acquisition: -148 dBm
	Tracking: -164 dBm
GNSS TTFF	Cold Start: <45 sec
	Hot Start: 1 sec
ADEV	10Ks < 5E-12 (TCXO, GPS Locked, 25°C, no motion)
TTL Alarm Output	GPS LOCK indicator, GPS Lock output
Warm Up Time / Stabilization Time	< 3 min at + 25° C to 1E-08 Accuracy
Supply Voltage (Vdd)	3.3V Single-Supply only (5V internally generated and filtered)
Power Consumption	< 0.6W
Operating Temperature	0°C to +60°C
Storage Temperature	-45°C to +85°C
Additional Features	External 1PPS input, status LEDs, full NMEA



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### Oscillator Specification (TCXO):

Frequency Output	10MHz CMOS																
10MHz Retrace	$\pm 2E-08$ After 1 Hour @ +25°C																
Frequency Stability Over Temperature (Unlock Condition)	$\pm 7.5E-08$ (TCXO)																
Output Amplitude	3.3Vpp CMOS																
Phase Noise (typ)	<table><tr><td>1 Hz</td><td>-74 dBc/Hz</td></tr><tr><td>10 Hz</td><td>-104 dBc/Hz</td></tr><tr><td>100 Hz</td><td>-126 dBc/Hz</td></tr><tr><td>1 kHz</td><td>-143 dBc/Hz</td></tr><tr><td>10 kHz</td><td>-155 dBc/Hz</td></tr><tr><td>100 kHz</td><td>-157 dBc/Hz</td></tr><tr><td>1 MHz</td><td>-158 dBc/Hz</td></tr><tr><td>5 MHz</td><td>-164 dBc/Hz</td></tr></table>	1 Hz	-74 dBc/Hz	10 Hz	-104 dBc/Hz	100 Hz	-126 dBc/Hz	1 kHz	-143 dBc/Hz	10 kHz	-155 dBc/Hz	100 kHz	-157 dBc/Hz	1 MHz	-158 dBc/Hz	5 MHz	-164 dBc/Hz
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1 MHz	-158 dBc/Hz																
5 MHz	-164 dBc/Hz																
rms Phase Jitter (12kHz~5MHz)	0.6ps max																
Connections:	Connector Type:																
1PPS Output, 10MHz Output, power, system status, NMEA, 1PPS in, antenna input	100 mil pin spacing, can be soldered, or plugged into a socket, gold-plated pins																

### Connections:

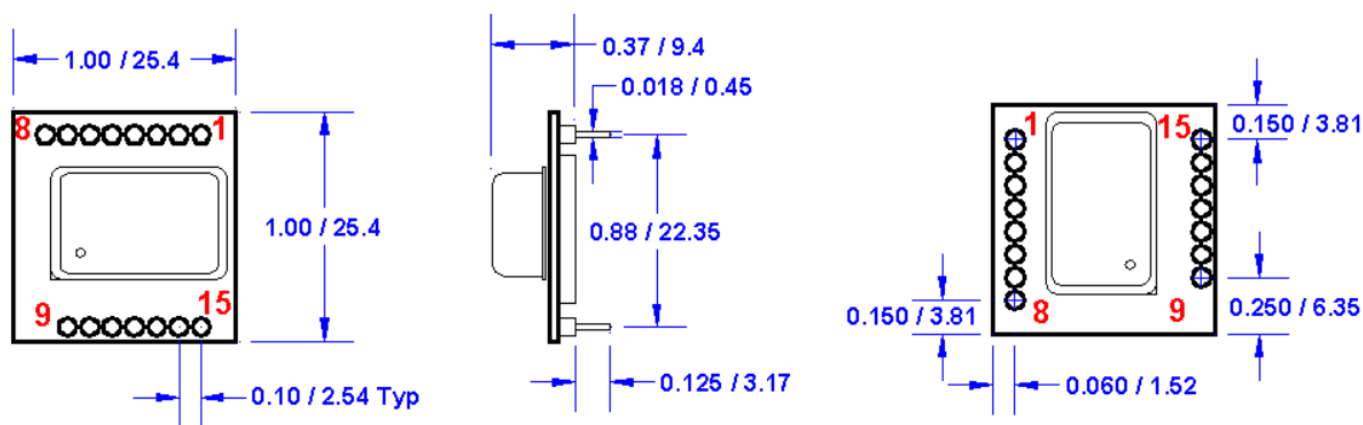
1PPS Output, 10MHz Output, power, system status, NMEA, 1PPS in, antenna input	100 mil (2.54mm) pin spacing, can be soldered, or plugged into a socket, gold-plated pins
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Pad	Function	Note
1	Ground	
2	10 MHz Out	10 MHz CMOS Output
3	Lock OK	3.3V CMOS Output
4	1 PPS Output	3.3V CMOS Output
5	1 PPS Input	3.3V to 5.0V CMOS (Rising Edge)
6	+ 5V Output	< 100 mA
7	Ground	
8	+3.3V VDO In	
9	Ground	
10	Antenna Input	Module provides +5.0V Power Supply for Active Antenna
11	Ground	
12	NMEA Transmit	NEMA-0183 GGA format GPS data output
13	1PPS Input Enable	High: Internal PPS, Low: External PPS
14	N/C	No external Connection Allowed
15	N/C	No external Connection Allowed



Dimensions are in inches / mm



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### Device Marking

PLE  
GT11xxx-FF.FM

- YMDzzz

PLE = Pletronics  
GT11xxx-FF.FM = Model number/Part number\*; FF.FM = Frequency  
YMD = Date code (Year-Month-Day: See Table below)  
zzz = Internal Factory Code

\* A unique number is assigned for your exact specifications.

Specifications such as part number, frequency stability, supply voltage and operating temperature range, etc. are not identified from marking. External packaging labels and packing list will correctly identify the ordered Pletronics part number.

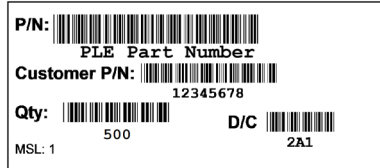
Codes for Date Code YMD (Year Month Day)

Code	3	4	5	6	7	Code	A	B	C	D	E	F	G	H	J	K	L	M
Year	2023	2024	2025	2026	2027	Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Code	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	U	V	W	X	Y	Z
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

### Package Labeling

P/N Label is 1" x 2.6" (25.4mm x 66.7mm)  
Font is Courier New  
Bar code is 39-Full ASCII



**Pletronics Inc. certifies this device is in accordance with the RoHS (exemptions 6c, 7a, 7c-i) and REACH directives.**

Pletronics Inc. guarantees the device does not contain the following: Cadmium, Hexavalent Chromium, Mercury, PBB's, PBDE's

### Environmental / ESD Ratings

Parameter	Ref Standard	Condition
Solderability	MIL-STD-202, Method 208	
Mechanical Shock	MIL-STD-202, Method 213 Test Cond J	30g, 11ms, half-sine
Vibration	MIL-STD-202, Method 201	0.06" Total p-p, 10 to 55 Hz
Thermal Shock	MIL-STD=202, Method 107 Test Cond B	5 cycles -65 to +125 Deg C

Model	Min Voltage
Human Body Model	2000V
Machine Model	200V



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