SkyTraq

empower mobility, without uncertainty

Venus638LPx-T Low Cost Precision Timing GPS Module

FEATURES

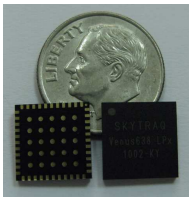
- -148dBm cold start sensitivity
- -165dBm tracking sensitivity
- 29 second cold start TTFF
- 3.5 second TTFF with AGPS
- 1 second hot start
- 2.5m accuracy
- 30nsec (1-sigma) timing accuracy
- Position hold mode for GPS timing operation
- 1PPS generation with 1 satellite in view
- Multipath detection and suppression
- Jamming detection and mitigation
- SBAS (WAAS / EGNOS) support
- 7-day extended ephemeris AGPS
- Works directly with active or passive antenna
- Complete module in 10mm x 10mm x 1.3mm size
- Contains LNA, SAW Filter, TCXO, RTC Xtal, LDO
- Requires only antenna and power to function
- Pb-free RoHS compliant

The Venus638LPx-T is a high performance GPS module in a single-chip design targeting precision timing GPS applications. It offers low power consumption, high sensitivity, and best in class signal acquisition and time to first fix performance.

The Venus638LPx-T contains all the necessary components of a complete GPS receiver module, includes GPS RF front-end, GPS baseband signal processor, 0.5ppm TCXO, 32.768kHz RTC crystal, RTC LDO regulator, and passive components. It requires very low external component count and takes up only 100mm^2 PCB footprint.

Dedicated massive-correlator signal parameter search engine within the baseband enables rapid search of all the available satellites and acquisition of very weak signal. An advanced track engine allows weak signal tracking and continuous reliable precision timing generation in harsh environments such as urban canyons and under deep foliage.

Venus638LPx-T is very easy to use, minimizes RF layout design issues and offers very fast time to market.



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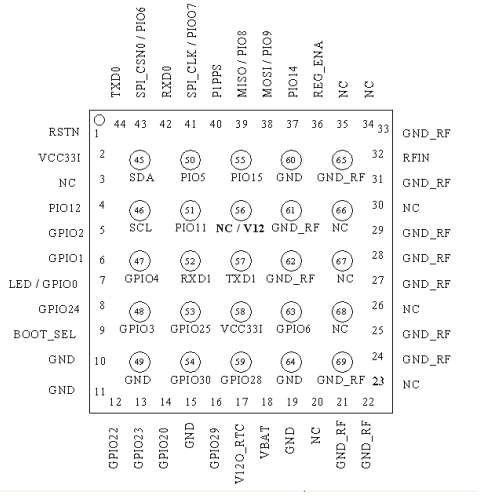
TECHNICAL SPECIFICATIONS

Receiver Type	L1 frequency GPS C/A code, SBAS capable 65-channel architecture 8-million time-freq search / sec	
Accuracy	Position Velocity Timing	2.5m CEP 0.1m/sec 30nsec (1-sigma) < 60nsec (99%)
Open Sky TTFF	29 second cold start 3.5 second with AGPS 1 second hot start	
Reacquisition	< 1s	
Sensitivity	-165dBm tracking -158dBm reacquisition -148dBm cold start	
AGPS	7-day extended ephemeris	
Update Rate	1 / 2 / 4 / 5 / 8 / 10 / 20 Hz Default 1Hz	
Dynamics	4G	
Operational Limits	Altitude < 18,000m[*1] or Velocity < 515m/s[*1]	
Serial Interface	LVTTL level	
Protocol	NMEA-0183 V3.01 SkyTraq Binary	
Power Consumption	70mW full power tracking 100mW low power acquisition 120mW max perf. acquisition	
Package	LGA69 10 x 10 x1.3 mm	
Compliance	RoHS	
Weight	0.3g	

*1: COCOM limit

Venus638LPx-T-L / Venus638LPx-T-D Top View



ORDERING INFORMATION

Part Number	Description
Venus638LPx-T-D	timing mode GPS receiver module 3.3V + 1.2V input
Venus638LPx-T-L	timing mode GPS receiver module 3.3V input (internal 1.2V LDO)

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Receiver Architecture