Venus 6 GPS Chipset/Module

SkyTraq
empower mobility, without uncertainty

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The Venus 6 is a high performance GPS/AGPS architecture targeting mobile consumer and cellular handset applications. It offers very low power consumption, high sensitivity, and best in class signal acquisition and time-to-first-fix speed.

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 positioning in harsh environments such as urban canyons and under deep foliage.

With exceptional signal acquisition speed, it has very low average power consumption for locate on demand type of applications.

The Venus 6 architecture features advanced multi-path mitigation algorithm that avoids large error caused by reflected signal from buildings in urban environments.

The Venus 6 series consists of Venus 6T tailored for low-cost PVT application, Venus 6D tailored for low-cost data logging application, Venus 6S tailored for tiny footprint application, and Flash memory based Venus 6F tailored for flexibility and customizable software.

The highly integrated Venus 6 chipset solutions require low number of external component count and small PCB footprint.

Reference design and demo kits to facilitate performance evaluation of Venus 6 architecture are available.

FEATURES

High Sensitivity	-161dBm tracking
	-157dBm re-acquisition
	-148dBm cold starting
Fast Time to First Fix	65 channels
	8,000,000 time-frequency hypothesis testing per second
	1 second hot start
	29 second cold start
Low Power	~50mA acquisition
	~23mA continuous tracking
High Accuracy	Position 2.5m CEP
	Velocity 0.1m/sec
Ease of Use	Stand-alone solution no host needed
	Interface with application via serial port
Cost Optimized	Highly integrated self-contained
	Low cost QFN packaging
	Low external BOM count
Flexible Choice	ROM type for lower cost standard application
	Flash type for customization
Miniature Size	65mm^2 footprint
Single Power Source	Built in regulator supporting single power supply
AGPS Support	Average 4 second TTFF

VENUS 6 ARCHITECTURE SPECIFICATIONS

Receiver Type	L1, C/A code 51-channel acquisition 14-channel tracking
Maximum Update Rate	10Hz
Accuracy	Position 2.5m CEP Velocity 0.1m/sec Time 250ns
Time To First Fix	Hot-Start < 1 second Warm-Start 25 second average Cold-Start 29 second average
Sensitivity	-161dBm tracking -157dBm re-acquisition -148dBm cold-start
Protocol	NMEA-0183 v3.01 SkyTraq Binary
Assistance	Message-based via NMEA serial port
Digital I/O	3.3V interface
Supply Voltage	1.2V, 3.3V
Current Consumption	Acquisition ~50mA Tracking ~23mA
Operating Temperature	-40°C ~ +85°C

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CHIPSET/MODULE SELECTION TABLE

Part Number	Package	Size (mm)	AGPS	Logging	Others	UART	GPIO	SPI	I2C	1PPS	CPU Bus
Venus 634FLPx SiP Module	LGA44	10 x 10	V	V	Complete Receiver, Flash-based, Programmable	V	V	V		V	
Venus 634LPx SiP Module	LGA44	10 x 10	V	V	Complete Receiver, ROM-based, Low Cost	V		V		V	
Venus 624LP Baseband	QFN48	7 x 7	V		ROM-based, Standard Application, Low Cost	V				V	
Venus 625LP Baseband	QFN48	7 x 7	V	V	ROM-based, Standard + Geo-Tagging Appl,Low Cost	V		V			
Venus 621LP Baseband	TFBGA100	8 x 8	V	V	Flash-based, Programmable	V	V	V	V	V	V
Venus 121 RFIC	QFN24	4 x 4			Low Current						