



empower mobility, without uncertainty

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

65mm² 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)	Feature			Interface					
			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						