



## 5012D-CE Embedded High Sensitivity Tracking & Timing GPS Receiver + Antenna

The 5012D-CE Embedded GPS Receiver + Antenna incorporates a highly sensitive 16-channel, very quick time to fix GPS Receiver as well as a high performance active/filtered GPS antenna. It features the STMicroelectronics STA8058 Teseo™ high performance GPS Engine with embedded flash memory, an LNA, SAW filter, as well as a precisely tuned ceramic patch element for maximum GPS signal reception. The 5012D-CE High Sensitivity GPS Receiver + Antenna is ideal for embedded applications and comes with CMOS flying leads.

### Features

- Integrated GPS receiver + antenna (active)
- Very High Sensitivity: -159dBm tracking
- Quick Time to Fix: 39 sec cold start
- 16 channel ST Teseo™ GPS Engine
- Flash memory: upload embedded GPS Firmware, settings & history
- Standard NMEA 0183; GPS output
- 1PPS output: 50n second accuracy
- WAAS and EGNOS supported
- Low current: 80 mA typ., 3.3V operation
- Compact form factor: 25.76 mm square
- Ideal for embedded applications
- RoHS compliant

### GPS Receiver Performance

Frequency: L1, 1575.42 MHz
Channels: 16 channels parallel
Sensitivity: Acquisition: -146dBm Tracking: -159dBm
Accuracy: 2m (autonomous) <1 metre (SBAS)
Time to First Fix: Cold start: 39 sec Warm start: 34sec Hot start: 2.5 sec Reacquisition <1 sec
Serial Protocol: Output: NMEA 0183 Baud Rate: 4800 bps (default), user configurable up to 115kbps Update Rate: 1Hz NMEA Message: GGA, VTG, GSA, GSV, RMC
Wiring Information: Red: VCC Black: Ground White: Tx Green: Rx

### Antenna Response Specifications

Center Frequency	Nominal Gain	Polarization	Out-of-Band Rejection
1575.42 MHz ± 10 MHz	3 dBic @ 90° -2.0 dBic @ 20°	Right Hand Circular	+15 MHz: 10 dB/- 15 MHz: 30dB +20 MHz: 20 dB/- 20 MHz: 30dB +40 MHz: 40 dB/- 40 MHz: 40dB

### Antenna Electrical Specifications

Voltage	Current Draw
3.3V ±10% (CMOS version)	85 mA max (CMOS version)

### Mechanical/Environmental Specifications

Antenna Dimensions	Weight	Mounting	Shock
1.0" x 1.0" x .33" (25.76 x 25.76 x 8.4 mm)	14 g (0.49 oz)	Adhesive (not included)	Vertical axis 50G, other axes 30G

  

Vibration	Interface	Temperature Range	Humidity
3 axis, sweep = 15 min; 10-200 Hz log sweep: 3G	CMOS, 10cm 4 x 26AWG	-40°C to +85°C operating (-45°C to +85°C storage)	95% max (non-condensing)