



When precision matters...™

TW1010/TW1012 Embedded GPS L1 Antenna

The TW1010/TW1012 by Tallysman Wireless is low cost, high gain, high performance, embedded GPS L1 antenna, specially designed for OEM industrial, military, precision positioning and timing applications.

The TW1010/TW1012 features a precisely tuned single feed ceramic patch element. It has a two stage Low Noise Amplifier (LNA) with a mid-section SAW. An optional tight pre-filter is available with part number TW1012 to protect against saturation by high level sub-harmonics and L-Band signals.

The TW1010/TW1012 covers the GPS L1 and SBAS (WAAS /EGNOS/MSAS) frequency band (1572.5 to 1578 MHz), and it offers great circular polarized signal reception, multipath rejection and out of band signal rejection.

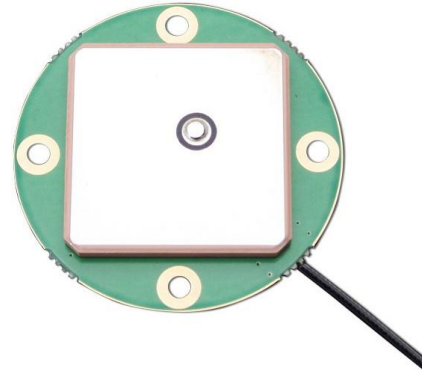
The TW1010/TW1012 has a built-in 35mm circular ground plane that can be augmented with host system ground surfaces. Patch Elements are susceptible to detuning by the local environment. Tallysman offers custom services to assist with integration of OEM modules into an end user solution.

Applications

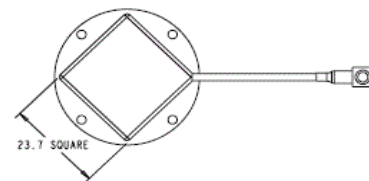
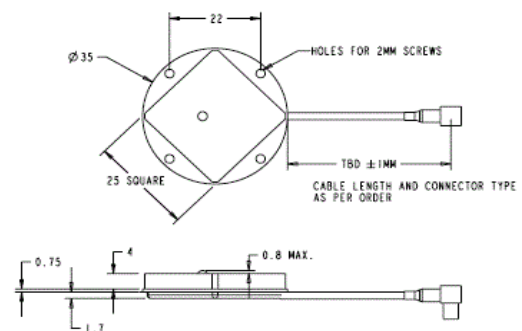
- High Accuracy & Mission Critical GPS
- Precision Agriculture, Mining & Construction
- Military & Security
- Avionics
- Law Enforcement & Public Safety
- Fleet Management & Asset Tracking

Features

- Very low noise LNA: 1 dB (TW1010).
- Great axial ratio: <4dB at Zenith
- High rejection SAW filter
- LNA gain: 28 dB typ (TW1010).
- Low current: 10 mA typ.
- ESD circuit protection: 15 KV
- Wide Supply voltage: fixed 2.5V to 16V



TW1010/TW1012 Dimensions (mm)



Benefits

- Low Profile: 7.25mm
- Great multipath rejection
- Increase system accuracy
- Excellent signal to noise ratio
- Great out of band signal rejection
- Compact form factor
- RoHS compliant



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Specifications At; Vcc = 3V, over full bandwidth, T=25°C

Antenna

Architecture	Custom single-feed ceramic patch
Polarization	RHCP
Antenna Gain (70mm ground plane)	4 dBic at 90°
Axial Ratio	4 dB at 90°, 6dB at 20°
Frequency/Bandwidth (-10dB Return Loss)	1575.42MHz +/- 10MHz

Electrical

Architecture	TW1010 TW1012	LNA stage 1 -> SAW filter-> LNA stage 2 SAW Prefilter ->LNA stage 1 -> SAW filter-> LNA stage 2
Gain (1575.42 to 1606 MHz)		27dB min., TW1010; 25dB min, TW1012,
Filtered LNA Frequency Bandwidth (3dB)		1575.42MHz +/- 10MHz
Out-of-Band Rejection		TW1010: <1500MHz >35dB. TW1012: >70dB. TW1010: <1550MHz >25dB. TW1012: >45dB. TW1010: >1650MHz >35dB. TW1012: >70dB. <1.5:1
VSWR (at LNA output)		TW1010:1 dB typ. TW1012: 3.5dB typ.
Noise Figure		+2.5VDC to 16VDC nominal
Supply Voltage Range (over coaxial cable)		10mA typ, 15mA max @ . 85°C
Supply Current		15KV air discharge
ESD Circuit protection		

Mechanicals & Environmental

Mechanical Size	35mm dia. x 7.5mm
Cable	1.48mm OD,
Operating Temp. Range	-40°C to +85°C
Weight	30 g
Attachment Method	Adhesive or screw mount
Environmental	RoHS compliant
Shock	Vertical axis: 50G, other axes: 30G
Vibration	3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3G
Warranty	One year – parts and labour

Ordering Information

Legacy:

TW1010 – GPS L1 antenna,	32-1010-xx-yyy-zz
TW1012 – Pre-filtered OEM GPS L1 antenna,	32-1012-xx-yyy-zz
Connector:	xx = 00 SMA male , 01 = TNC male 02 = MCX male 03 = MMCX male 04 = SMB male
	05 = MCX right angle male 06 = MMCX right angle male 07 = SMA female 08 = H.FL** 09 = U.FL
	10 = SMA R/A** 11 = Reverse polarity SMA** ** Premiums apply. Please contact your Distributor
Cable length: yyyy = cable length in mm	Custom Tuning: zz = Assigned by Tallysman

* As a result of a growing product portfolio, Tallysman has rationalized its part number system. No changes have been made to the mechanical or electrical properties of these products. Where administratively possible, please use the following Part Numbers.

TW1010 – GPS L1 antenna, 33-1010-xx-yy-zz TW1012 – 33-1012-xx-yy-zz

Please refer to the Ordering Guide (<http://www.tallysman.com/orderingguide.php>) for the current and complete list of available connectors.

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