

GPS-L1 Antenna

Frequency Coverage: GPS L1

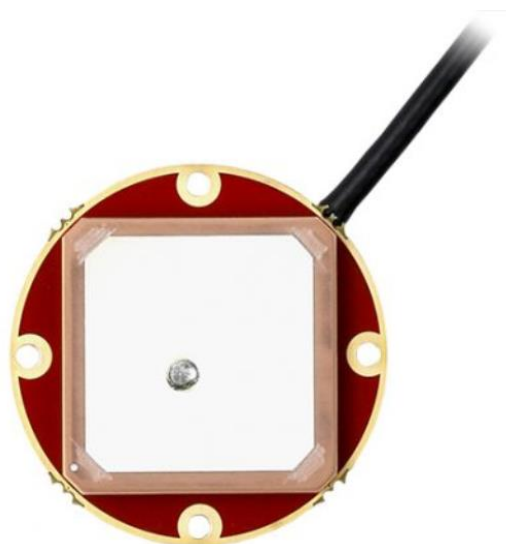
Overview

The TW1027 is a very low power, compact GNSS antenna covering the GPS-L1, frequency band. This antenna features an LNA with a nominal current consumption of just 1.8 mA, with constant performance from 2.5V to 16V supply voltage, and includes protection against close proximity L-Band transmitting antennas such as Iridium® and Globalstar™.

The TW1027 has amongst the lowest power consumption available, yet still provides 24 dB nominal gain and an excellent noise figure. The TW1027 patch has 40% wider bandwidth for better axial ratio and has 15 kV ESD circuit protection. The LNA has a +/- 10 MHz bandwidth that covers the full GPS-L1 signal plus the SBAS (WAAS /EGNOS/MSAS) frequency band (1572.5 to 1578 MHz).

The TW1027 is available with a variety of connectors and custom cable lengths.

It is highly recommended to take advantage of Calian's custom tuning service to ensure optimal performance of this antenna in your housing and with your ground plane.



Applications

- Battery operated monitoring
- Covert Surveillance
- Fleet management and asset tracking
- Satcom based AVL solutions

Features

- Very low current, 1.8 mA typ.
- Invariant response, 2.5 to 16 VDC Supply
- Low noise figure, 1.0 dB typ.
- Axial ratio: 4 dB max.
- High-gain: 24 dB typ.

Benefits

- Longer battery life
- Excellent signal-to-noise ratio
- RoHS compliant
- Excellent out-of-band signal rejection

About Calian: With global headquarters and manufacturing in Ottawa, Canada, Calian is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Calian's mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at www.calian.com

Revision:

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Antenna - Measured with a 100 mm ground plane

Technology Single-feed RHCP ceramic patch

		Gain dBic typ. at Zenith	Axial Ratio dB at Zenith
GNSS			
GPS / QZSS	L1	4.5	≤ 4
	L2	-	-
	L5	-	-
GLONASS	G1	-	-
	G2	-	-
	G3	-	-
Galileo	E1	-	-
	E5A	-	-
	E5B	-	-
	E6	-	-
BeiDou	B1	-	-
	B2	-	-
	B2a	-	-
	B3	-	-
IRNSS / NavIC	L5	-	-
QZSS	L6	-	-
L-Band Services (1525 MHz - 1559 MHz)		-	-
Satellite Communications			
Iridium		-	-
Globalstar		-	-
Other			
Axial Ratio at 10°	-	Efficiency	-
PC Variation	-		

Mechanicals

Size	35 mm (dia.) x 7.7 mm
Weight	13 g
Radome	-
Mount	Adhesive 4 · M2 screws
Available Connectors	Refer to Ordering Guide

Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +95 °C
Vibration	MIL-STD-810D
Shock	Vertical axis: 50 G, other axes: 30 G
Salt Fog	-
IP Rating	-
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

Warranty

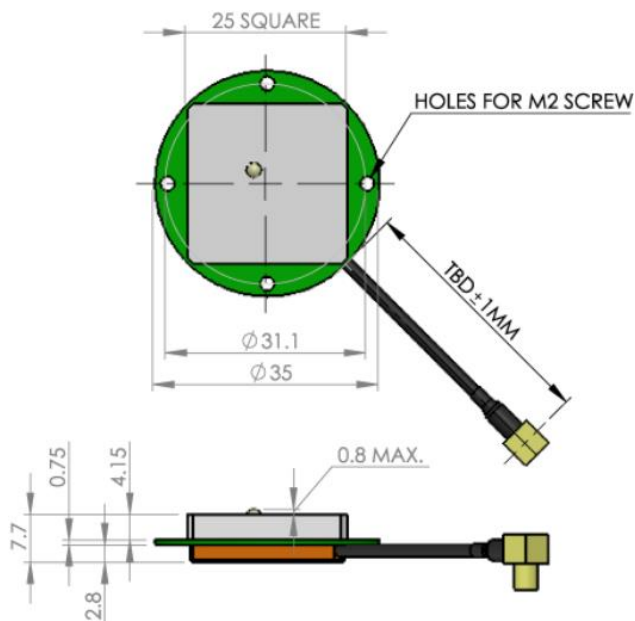
Parts and Labour	1-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3 V and 25°C

Upper Band	Lower Band
Frequency Bandwidth	
1575.42 MHz ± 10 MHz	-
Out-of-band Rejection	
> 32 dB @ < 1500 MHz > 25 dB @ < 1550 MHz > 35 dB @ > 1640 MHz	-

Architecture	Non pre-filtered
Gain	24 dB typ., 21 dB min.
Noise Figure	1 dB typ.
VSWR	< 1.5:1 typ., 1.8:1 max.
Supply Voltage Range	2.5 to 16 VDC nominal, up to 50mV p-p ripple
Supply Current	1.8 mA typ., 2.2 mA max.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	-
Group Delay	-
PCO	-

Mechanical Diagram



Ordering Information

Part Number 33-1027-xx-yyyy

Where xx = connector type yyyy = cable length (in mm) and zz = reserved for Calian's use

Please refer to our **Ordering Guide** to review available radomes and connectors at:
<https://www.tallysman.com/resource/tallysman-ordering-guide/>