

GPS26 Antenna Amplifier



General Description

The GPS26 is an inline GPS antenna amplifier for both the L1 and L2 frequencies (1575.42 MHz and 1227.6 MHz). It is simply connected between the GPS receiver and the active antenna. Power from the GPS receiver, that normally powers the active antenna, now powers both the active antenna and the GPS26. Thus no extra power supply is needed for the GPS26.

The GPS26 provides a minimum gain of 30 dB at 1227.6 MHz and 1575.42 MHz. With the GPS26 installed, extra lengths of cable can now be used between the antenna and the GPS receiver itself. If low loss cable is used, cable lengths over 300 metres (1000 feet) can be used without any degradation to the GPS signal.

Adding amplifiers however, can cause more problems than they solve. Extra noise can be introduced by the amplifier and nearby transmitters, e.g. cellular or mobile telephone transmitters, can cause overloading of the GPS receivers input, which could cause loss of satellite signals.

The GPS26 has been specially designed to overcome these problems. Ultra low noise amplifiers have been used; together with a stripline band pass filter. The noise figure of the GPS26 is less than 7 dB (see GPS35 for lower noise figure) and signals in the cellular or mobile frequency bands are rejected by more than 35 dB (see plots below).

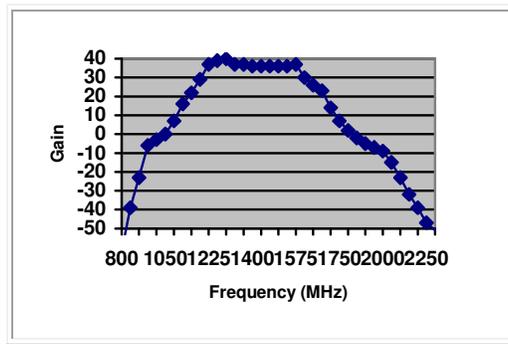
Various Options and Configurations Available

The GPS26 can be configured to suit your exact requirements. The different configurations and options are explained below:

- DC voltage is normally received from the GPS receiver and passed through the GPS26 amplifier to the antenna. However, by removing an internal jumper, this DC voltage is not passed to the external antenna. This is useful when a passive antenna is used.
- Option 1 adds an external DC power connector. This allows the GPS26 to be powered from an external power supply source of 3.3 to 5 volts at 40 mA (useable from 3.0 volts). This is used if the GPS receiver does not supply its own voltage.
- Option 2, 3 and 5 allow different connectors to be used on the GPS26. Note for large quantity orders (>50), the GPS26 can be manufactured with different connectors as standard, so adapter don't have to be used.
- Option 4 replaces the input SMA connector with an OCX connector. This allows antennas with OCX connectors to be connected to the GPS26 directly. The GPS26 output connector, that connects to the GPS receiver, remains an SMA type.

Filter Responses

A typical gain versus frequency plot is shown overleaf. The plot shows the gain of the GPS26 and filter rejection.



High Quality of Construction

The GPS26 is made to the highest standards. The RF circuits are housed in an aluminium enclosure which has been milled out of a solid piece of aluminium.

Other Models Available

The GPS25 is also available. This is similar to the GPS26 but covers the L1 frequency only.

GPS26 SPECIFICATIONS

Specification Parameter	Specification	Comments
Usable Frequency Range	1226 to 1600 MHz	
Input and Output Impedance	50 Ω nominal	
Gain	> 39 dB @ 1227.6 MHz and 1575.42 MHz	Typically 41 dB gain
Noise Figure	< 7 dB	Typical
Stopband Rejection	35 dB min from 0 to 960 MHz and 2 GHz upwards	Typically > 40 dB rejection
Reverse Isolation	> 50 dB	
1 dB Compression	-48 dBm	
DC Voltage Required	3.3 V to 5.5 V	Usable from 3.0 volts
DC Current	23 mA	
Connectors	Antenna Input:- SMA Female (standard) or MCX Socket (option 04). Output:- SMA Female	Adapters to other connector types optionally available
Size	144 mm x 38.5 mm x 15 mm	
Weight	125 grams	
Environmental	-20 °C to +60 °C	
Option 01	External DC power connection	+3.3 to +5 V @ 40 mA
Option 02	SMA to BNC Female adapter	
Option 03	SMA to N type female adapter	
Option 04	MCX Socket as antenna input	
Option 05	SMA to TNC adapter (specify male or female)	

Specifications subject to change without notice (030408)

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