

SPECIFICATION

Part No.	:	AP.10H.01
Product Name	:	10mm SMT 25dB Active GPS Patch Antenna With Front End Saw Filter
Features	:	Unique SMT GPS active patch Wide Input Voltage 1.8V to 3.3V Ultra low power consumption RoHS compliant
Photo :		







1.0 Introduction

The AP.10H.01 two stage 25dB active GPS patch antenna is the smallest SMT GPS high performance embedded antenna currently available in the world. Using extremely sensitive high dielectric constant powder formulation and tight process control the 10mm x 10mm x 4mm patch antenna is accurately tuned to have its frequency band right at 1575.42MHz for GPS systems.

A patented SMT structure gives high reliability in integration. With an ultra low power consumption two stage LNA with Saw Filter, this small active patch has the performance of an ordinary active patch, but at only a quarter of the size. This product is suited to small form factor mobile devices such as GPS Smartphones, Personal Location, Medical devices, Telematic devices and Automotive navigation and tracking. Custom gain, connector and cable versions are available.

The AP.10H consists of 2 functional blocks – the LNA and also the patch antenna.





2.0 Specification

2.1 Patch Antenna

Parameter	Specification				
Frequency	1575.42 ± 1.023MHz				
Gain	Typ10dBic @ Zenith				
Impedance	50 Ω				
Polarization	RHCP				
Axial Ratio	Max 4.0dB @ Zenith				
Dimension	10mm x 10mm x 4mm (add 7.3mm depth for vertical PCB)				

2.2 LNA

Parameter	Specification						
Frequency	1575.42 ± 1.023MHz						
	F0=1575.42MHz						
Outer Dand Attenuation	F0±30MHz 5dB min.						
Outer Band Attenuation		F0±50MHz 20dB min.					
		F0±100MHz 25dB min.					
Output Impedance	50Ω						
Output VSWR	2.0 Max						
Pout at 1dB Gain	Min. 8dBm						
Compression point	Typ. 11dBm						
LNA Gain, Power Consumption and Noise Figure							
	LNA Gain(Typ)	Power Consumption(mA)Typ	Noise Figure(Typ)				
Minimum 1.8V	20dB	5mA	2.7dB				
Typical 3.0V	25dB	10mA	2.5dB				
Maximum 3.3V	25dB	23mA	1.8dB				
Input Voltage	Min. 1.8V	Тур. 3.0V	Max. 3.3V				

2.3 Connection

Connection	SMT via solder pads
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3.0 LNA Gain and Out Band Rejection @3.0V





4.0 LNA Noise Figure @3.0V



5.0 Total Specification

(through Antenna, LNA)

Parameter	Specification				
Frequency	1575.42 ± 1.023MHz				
Gain@3.0V	15 ± 4dBic @ 90°				
Output Impedance	50 Ω				
Polarization	RHCP				
Output VSWR	Max 2.0				
Operation Temperature	-40°C to + 85°C				
Storage Temperature	-40°C to + 85°C				
Relative Humidity	40% to 95%				
Input Voltage	Min. 1.8V, Typ. 3.0V, Max. 5.5V				
ESD Capability	Direct Discharge: 4KV Min.				



6.0 Radiation Patterns

6.1 XZ Plane





6.2 YZ Plane





6.3 XY Plane





7.0 Technical Drawing



	Name	P/N	Material	Finish	QTY	Note:
1	Patch (10mmx10mmx4.2mm)	AP.10H	Ceramic	Clear	1	1.Soldered Area 2.Solder Mask Area(Green)
2	Shielding Case		Tin (SPTE)	Tin Plated	1	3.Clearance Area
3	PCB		FR4 0.6t	Green	1	5.Area to be solder (Pad)



7.1 PCB Footprint



	Name	P/N	Material	Finish	QTY	Note:
1	Patch (10mmx10mmx4.2mm)	AP.10H	Ceramic	Clear	1	1.Soldered Area 2.Solder Mask Area(Green)
2	Shielding Case		Tin (SPTE)	Tin Plated	1	3.Clearance Area
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8.0 Packaging

Packaged on Tape and Reel – 250 pieces per reel Each Reel is packaged – Inner Carton Outer Carton contains 5 Reels – 1250 pieces per Carton

