



Specification

SPECIFICATION

Model No. : **SGP.12A**

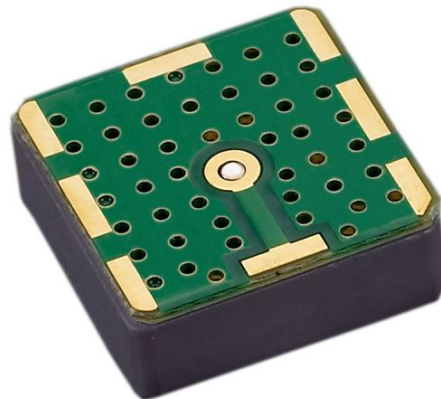
Part No. : **SGP-1575-12-4-A-02**

Specification No : **SP03AB15752-0040**

Product Name : **GPS SMT Patch Antenna**

Features : 12*12*4.5mm
1575MHz Centre Frequency
Patent Pending

RoHS ✓



REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	17 th July 2008	All	New release	TW Product Centre	Ronan Quinlan

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1.0 Introduction

This miniaturized ceramic GPS patch antenna is based on smart **XtremeGain™** technology. It is mounted via SMT process and has been selected as optimal solution for the 35*35mm ground plane.

2.0 Key Antenna Performance Indicators

Original Patch Specification tested on 35mm ground plane

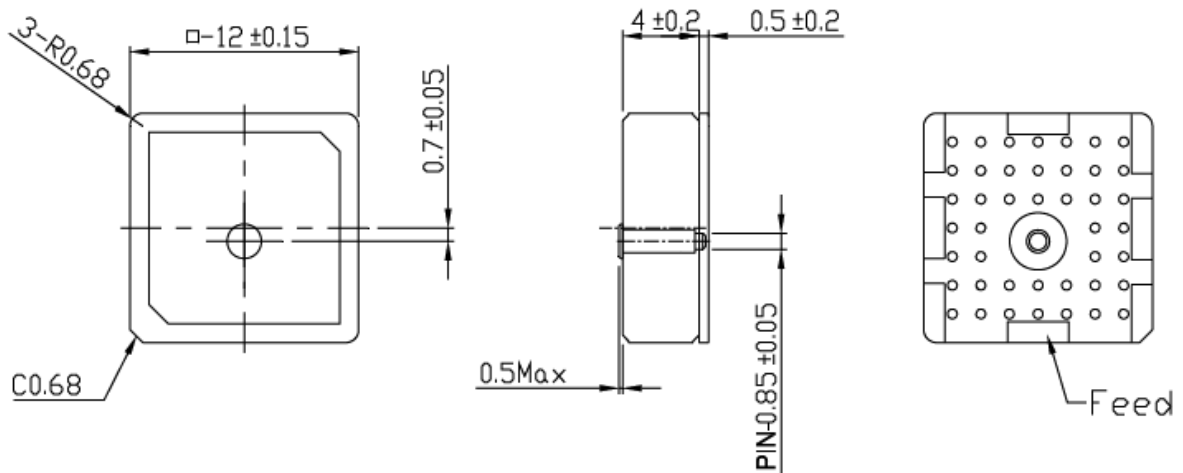
No	Parameter	Specification	Notes
1	Range of Receiving Frequency	1575.42 MHz \pm 1.023 MHz	
2	Center Frequency	1575.42 \pm 3MHz	With 35mm ² ground plane
3	Bandwidth	6MHz min	Return Loss \leq -10 dB
4	VSWR	1.5 max	
5	Gain at Zenith	-2.0 dBic typ.	
6	Gain at 10°elevation	-	
7	Axial Ratio	4.0 dB max	
8	Polarization	RHCP	
9	Impedance	50 Ohms	
10	Frequency Temperature Coefficient (Tf)	0 \pm 20ppm / °C	-40°C to +85°C
11	Operating Temperature	-40°C to +85°C	

****Changes in user groundplane and environment will offset centre frequency**

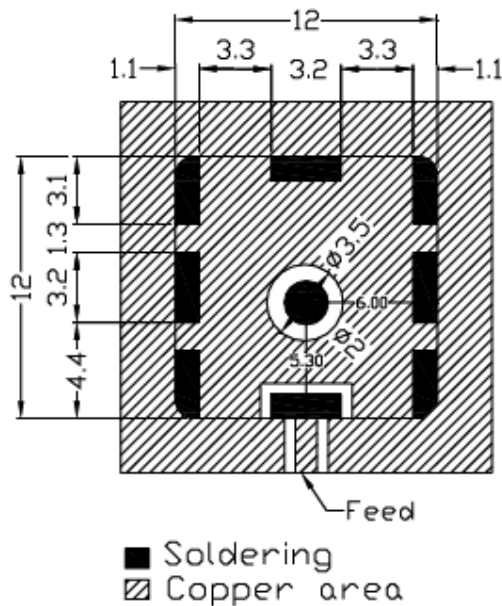


3.0 Mechanical Specifications

3.1 Dimensions and Drawing



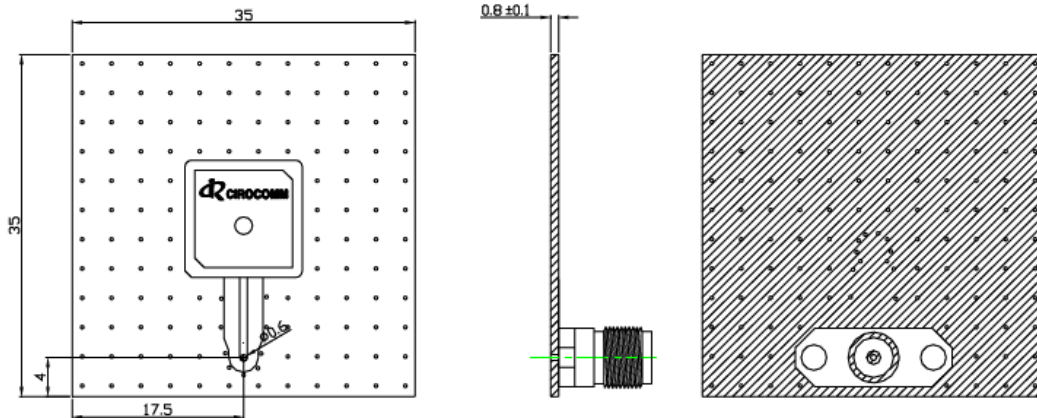
3.2 Antenna Foot Print



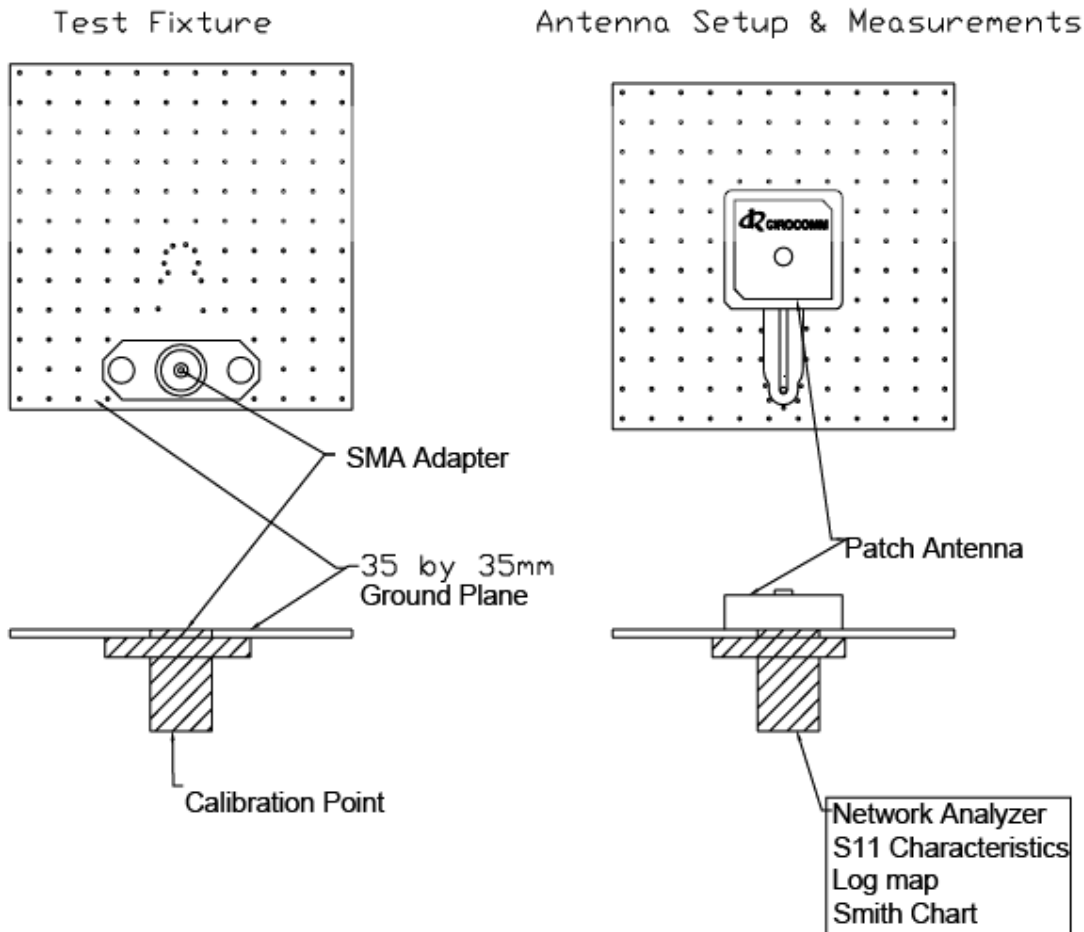


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3.3 Test Jig and Dimension

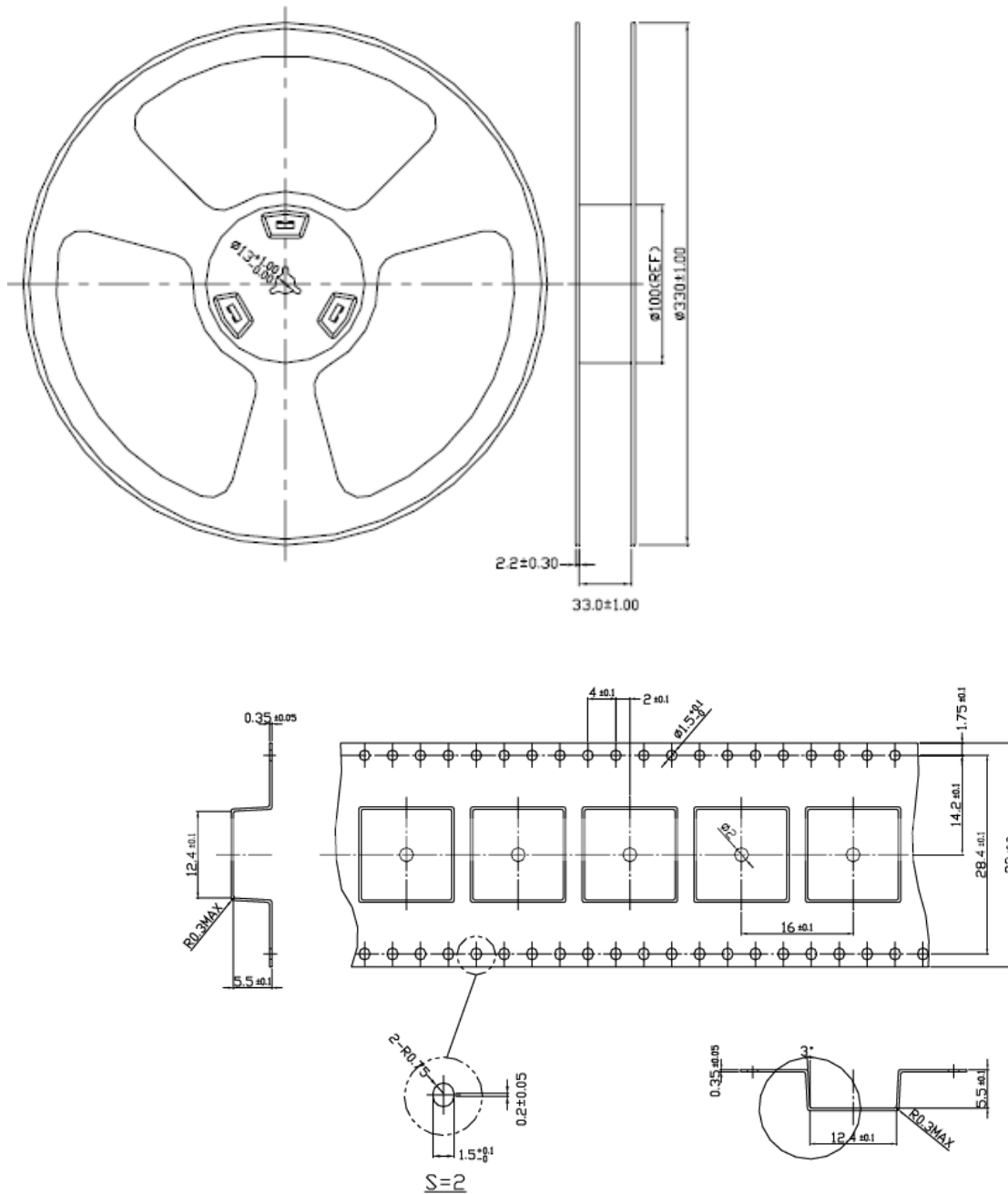


3.4 Test Fixture set up and measurements





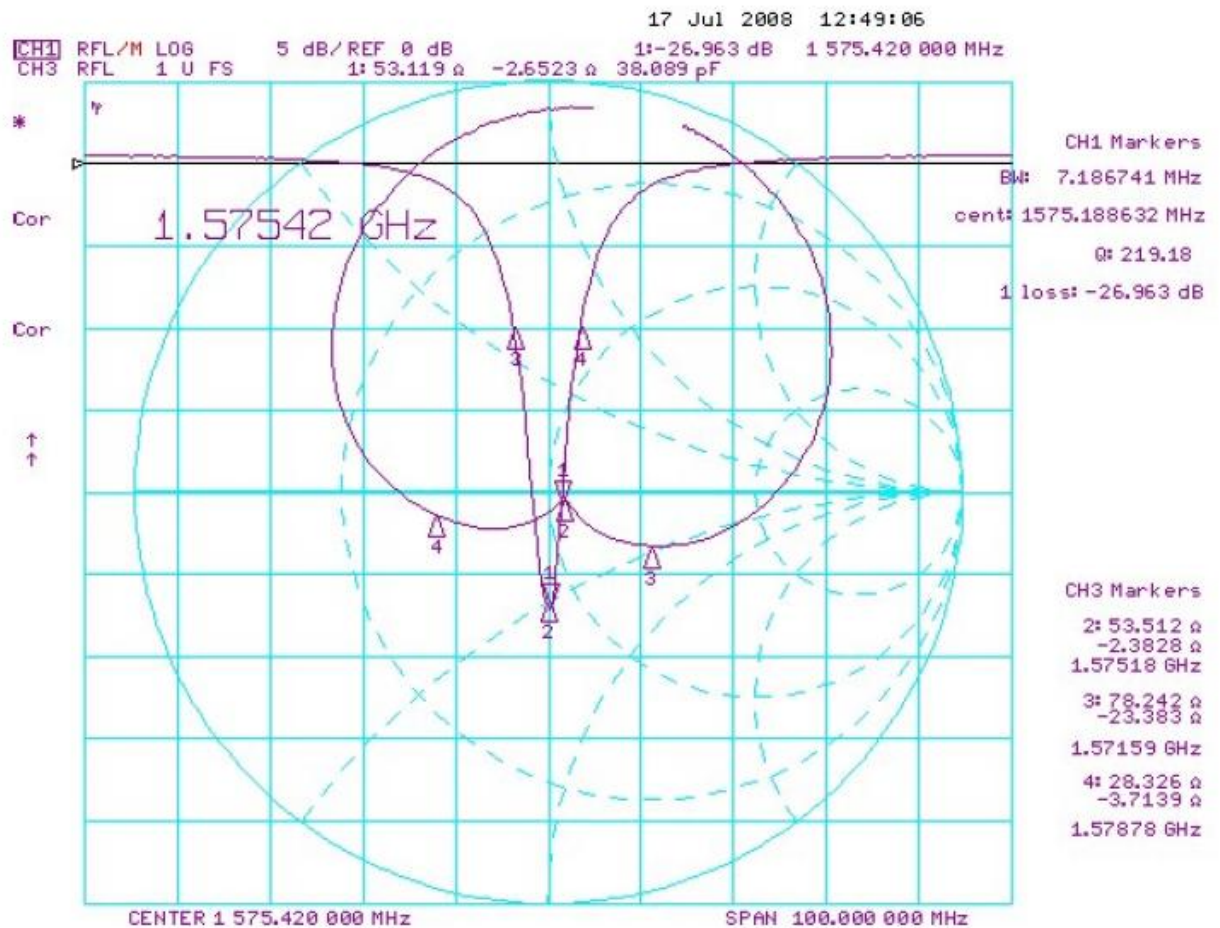
3.5 Delivery Mode





4.0 Electrical Specifications

4.1 Smith Chart



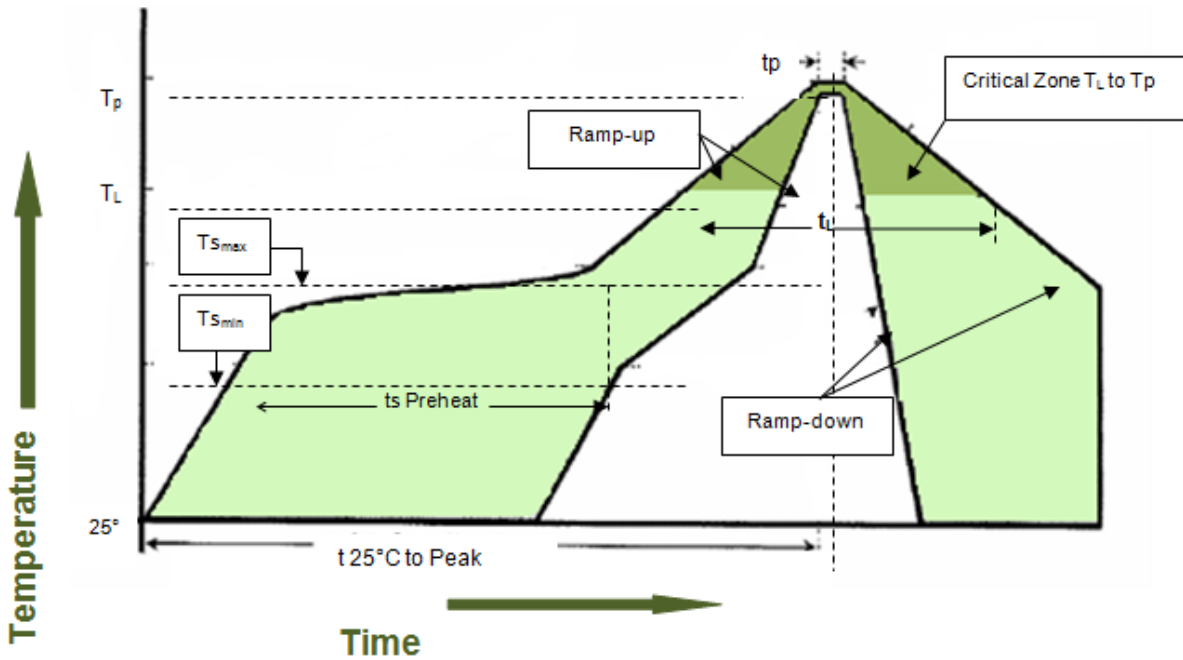


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5.0 Recommended Reflow Temperature Profile

The SGP.12a can be assembled following either Sn-Pb or Pb-Free assembly processes. The recommended soldering temperatures are as follows:

Phase	Profile Features	Sn-Pb Assembly	Pb-Free Assembly (SnAgCu)
Ramp-Up	Avg Ramp-Up Rate (T _{smax} to T _p)	3°C/second (max)	3°C/second (max)
Preheat	Temperature Min (T _{smin})	100°	100°
	Temperature Max (T _{smax})	150°	150°
	Time (t _{smin} to t _{smax})	60-120 seconds	60-120 seconds
Reflow	Temperature (T _L)	183°C	217°C
	Total Time Above T _L b(t _L)	60-150 seconds	60-150 seconds
Peak	Temperature (T _p)	235°C	260°C
	Time (t _p)	10-30 seconds	20-40 seconds
Ramp-Down	Rate	6°C/second (max)	6°C/second (max)
Time from 25°C to peak Temperature		6 minutes max	8 minutes max



Temperature profile – (green area) for the assembly process in reflow ovens