



Specification

SPECIFICATION

Model No. : **SGP.15a**

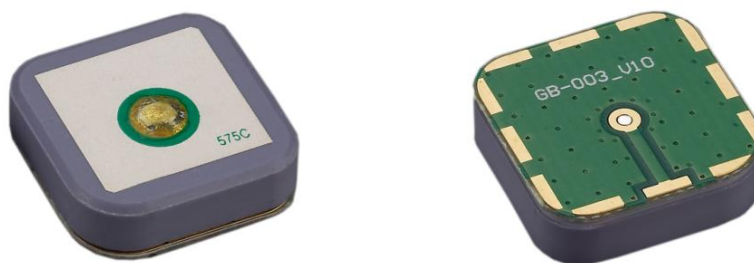
Part No. : **SGP.1575.15.4.A.02**

Specification No : **SP03AB15756-0030**

Product Name : **GPS SMT Patch Antenna**

Features : 15mm*15mm*4.5mm
1575MHz Centre Frequency
Patent Pending

RoHS ✓



REVISION STATUS

Version	Date	Page	Revision Description	Prepared	Approved
01	17 th July 2008	All	New format	TW Product Centre	Ronan Quinlan
02	09 June 2009	All	New Ground Plane	Ireland HQ	Aine Doyle

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1.0 Introduction

This 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 45x45mm ground plane.

2.0 Key Antenna Performance Indicators

Original Patch Specification tested on 45mm 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 45mm ² ground plane
3	Bandwidth	6MHz min	Return Loss \leq -10 dB
4	VSWR	1.5 max	
5	Gain at Zenith	+1.0 dBic typ.	
6	Gain at 10°elevation	-	
7	Axial Ratio	3.0 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	

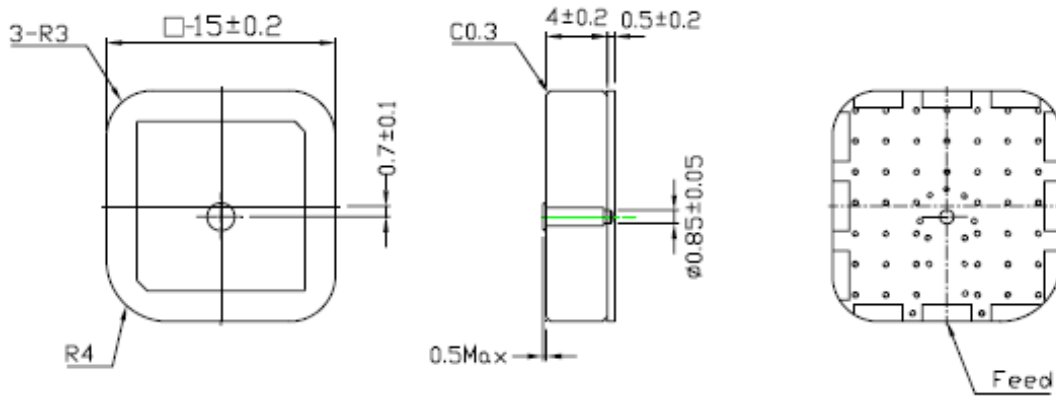
****Changes in user groundplane and environment will offset centre frequency**



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3.0 Mechanical Specifications

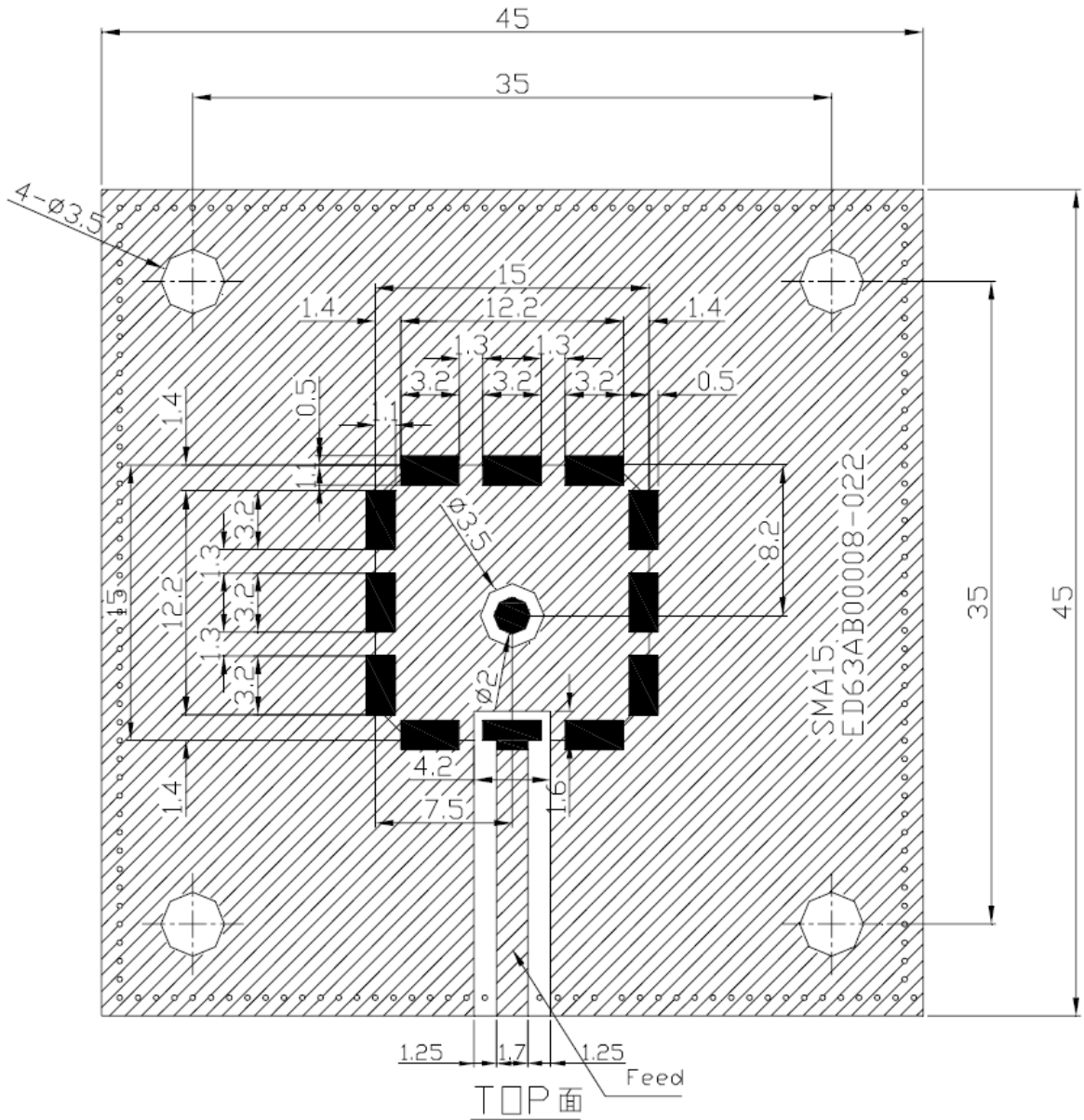
3.1 Dimensions and Drawing







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3.2 Antenna footprint

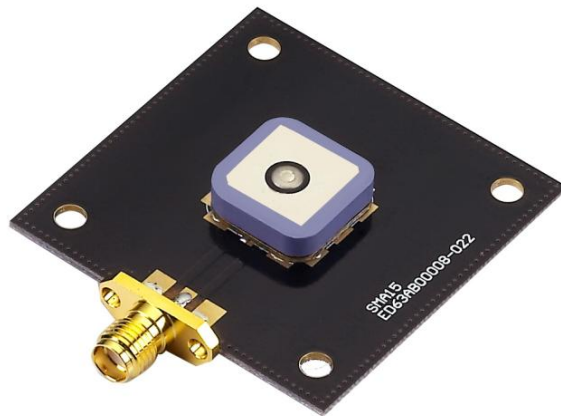
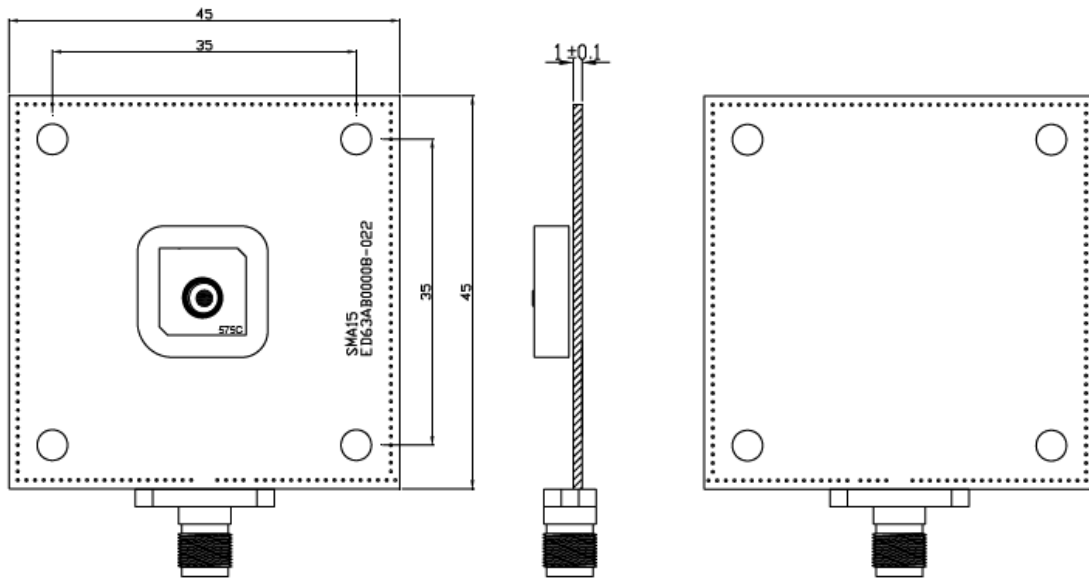


-  Soldering Pads
-  Copper area



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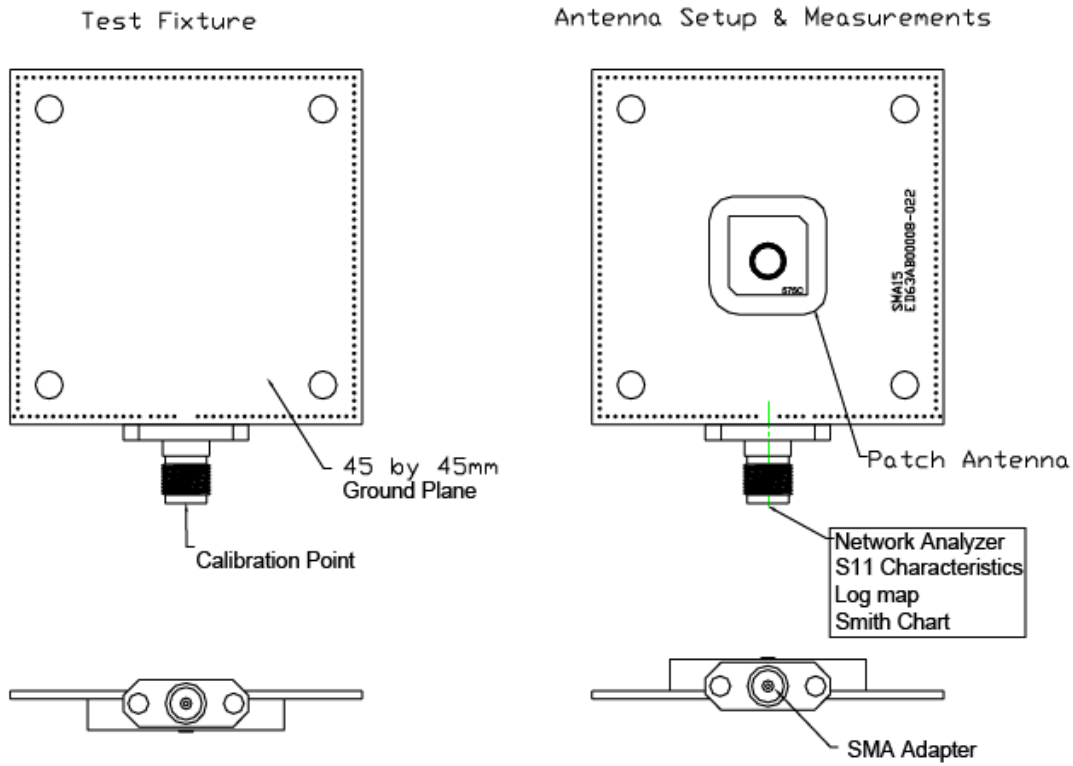
3.3 Test Jig and Dimension





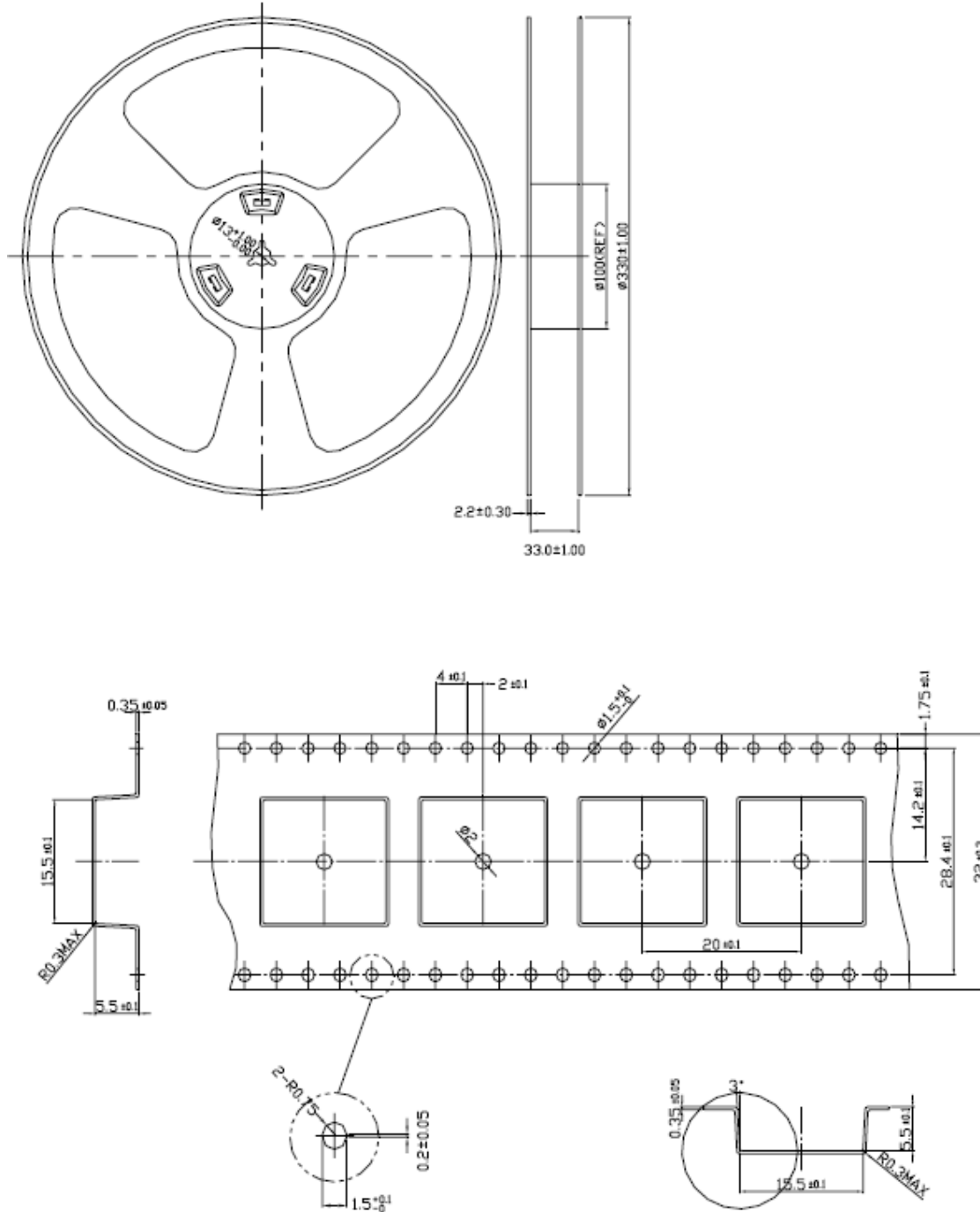
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3.4 Test Fixture set up and measurements





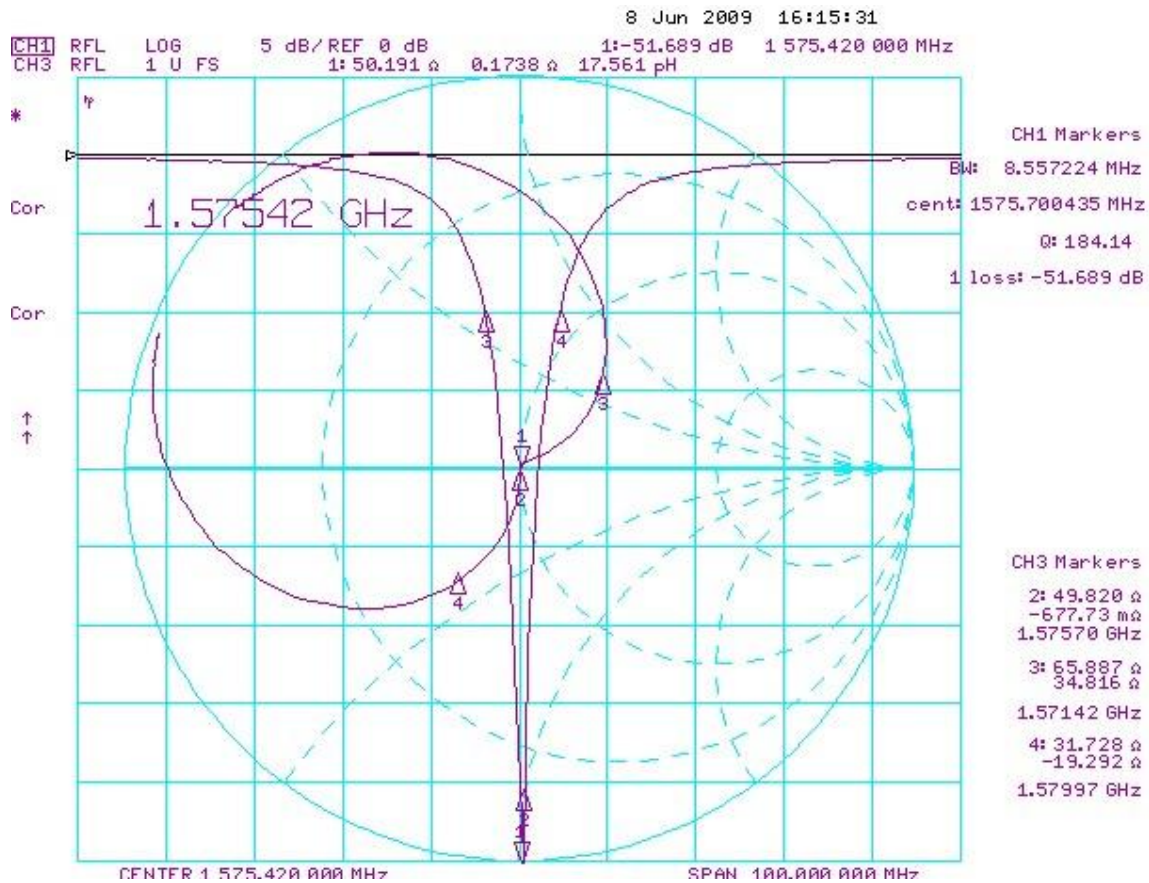
3.5 Delivery Mode





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4. Smith Chart

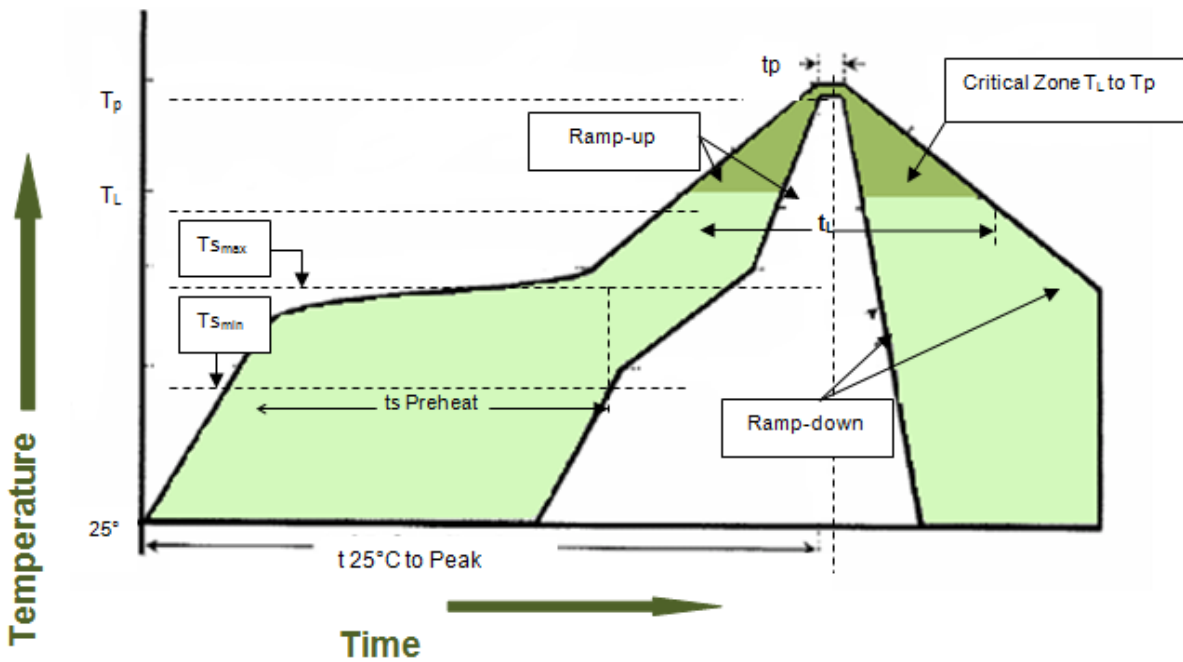




5.0 Recommended Reflow Temperature Profile

The SGP.15a 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