TAOGLAS

Datasheet

Terrablast – Lightweight 35mm Patch Antenna

Part No:
GGBTP.35.3.A.40

Description:
GPS/GLONASS/Galileo/BeiDou 35mm Patch Antenna

Features:

- GPS L1 / GLONASS L1 / Galileo E1 / BeiDou B1
- Low Profile – 3.5mm Height
- Pin Type Terrablast Patch Antenna
- 10g Ultra-Lightweight Patch
- Peak Gain: 4dBi
- Efficiency: 70%
- Ultra-Impact Resistant
- Low Axial Ratio
- Dimensions: 35x35x3.72mm
- Patent Pending Design
- RoHS & REACH compliant

1. Introduction

The Terrablast GGBTP.35.3.A.40 is a revolutionary new antenna developed to meet the unique needs of the UAV and automotive industries. It uses a patent pending antenna technology which results in much lighter weight and withstands impacts. The GGBTP.35.3.A.40 weights just 10g, compared with 15.5g for an equivalent ceramic patch antenna. Its impact-resistant characteristics make it ideal for applications such as automotive e-call systems or UAVs, where the antenna's mechanical and electrical integrity should survive after a crash.

The GGBTP.35.3.A.40 is mounted via a pin and double-sided adhesive. This antenna works well without modifications in most environments but can be tuned and further optimized to different ground-planes and enclosures if required. Custom antenna modifications are subject to possible NRE and minimum order quantity.

Terrablast antennas are not suitable for SMD reflow. The correct method is manual soldering at a soldering temperature of 380°C +/- 20°C for a duration of 3 to 5 seconds. All Terrablast antennas undergo rigorous temperature, vibration and impact tests and exceed the highest ISO16750 standards.

For further information, or support to test and integrate Taoglas Terrablast technology please contact your regional Taoglas facility.

2. Specifications

Electrical			
Application Bands	**BeiDou B1**	**GPS L1**	**GLONASS L1**
Operation Frequency (MHz)	**1561**	**1575.42**	**1602**
Efficiency (%)	72.58	69.81	70.27
Peak Gain (dBi)	4.12	4.03	4.33
Average Gain (dBi)	-1.39	-1.56	-1.53
Impedance	50 ohms		
Return Loss (dB)	<- 10 across operating bands		
Polarization	RHCP		

Mechanical	
Patch Dimension (mm)	35 x 35 x 3.5
Pin Diameter (mm)	0.9
Pin Length (mm)	2.4
Weight (g)	9.7

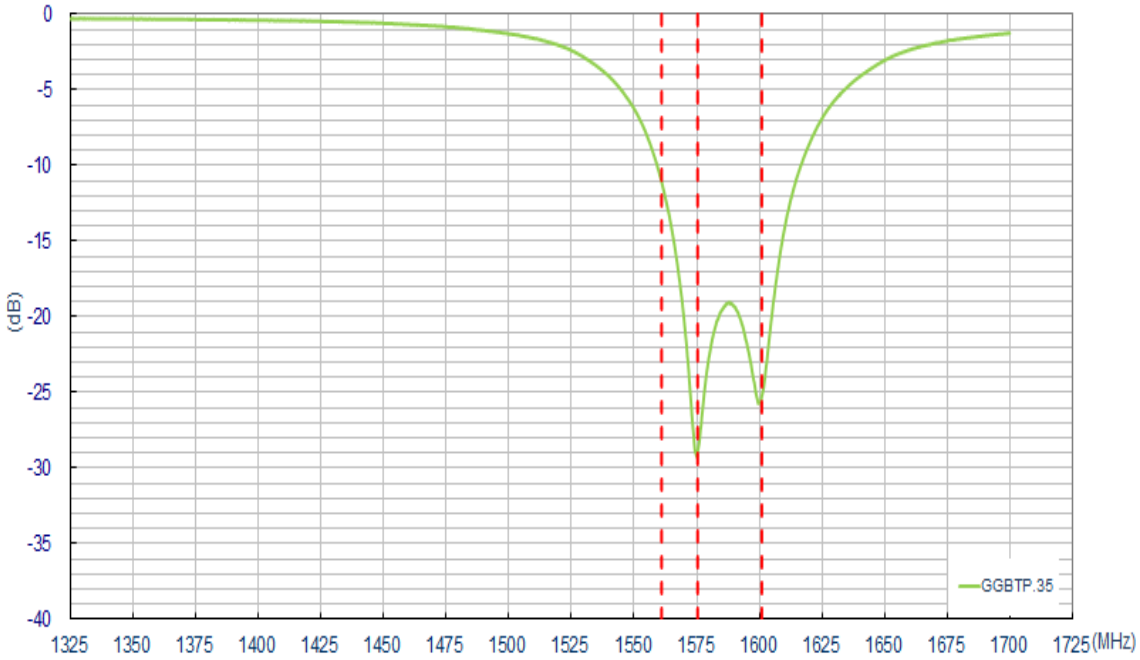
Environmental	
Storage Temperature	-40°C to 85°C
Operation Temperature	-40°C to 85°C
Humidity	Non-Condensing 65°C 95% RH

Reliability Testing	
Low Temperature	-40°C, 24hrs
High Temperature	+85°C, 48hrs
Temperature Cycling	ISO16750 standard, total 240hrs
Temperature Step	ISO16750 standard, total 300mins
Free fall	12m
Shock	10 shocks per axis on 6 faces
Vibration	ISO16750 standard, 8 hours / axis
Pin pull force	>5kg-f
Production life testing (+105°C)	AECQ200 standard, total 1000hrs

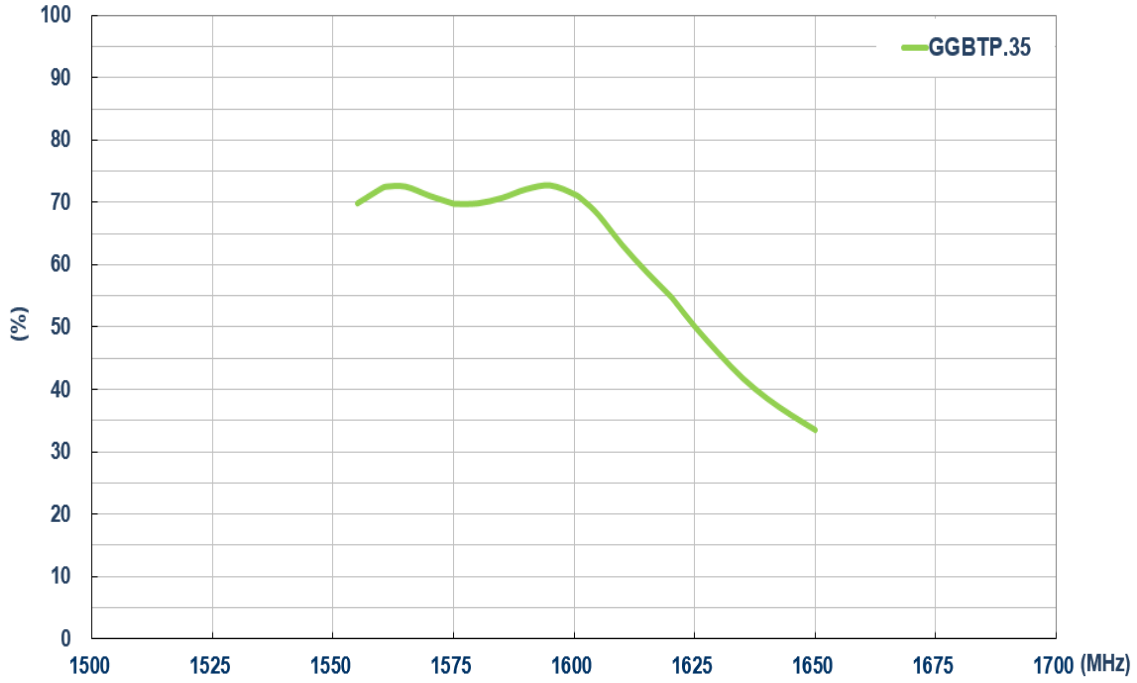
* Antenna properties were measured with the antenna mounted on 70*70mm Ground Plane.

3. Antenna Characteristics

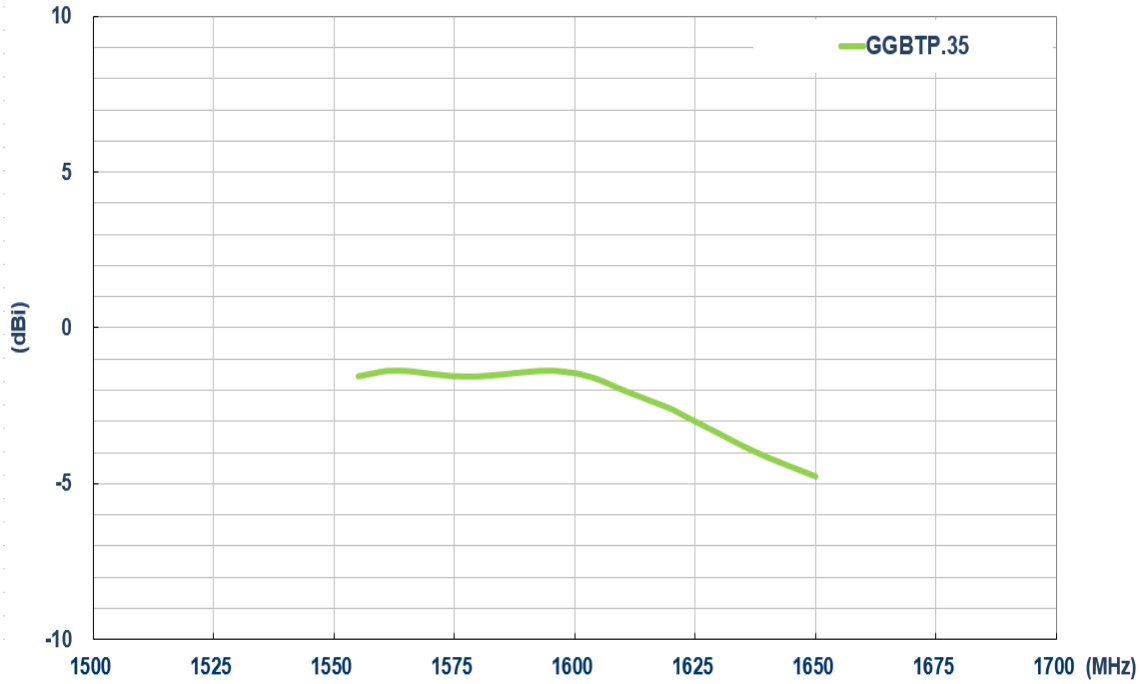
3.1 Return Loss



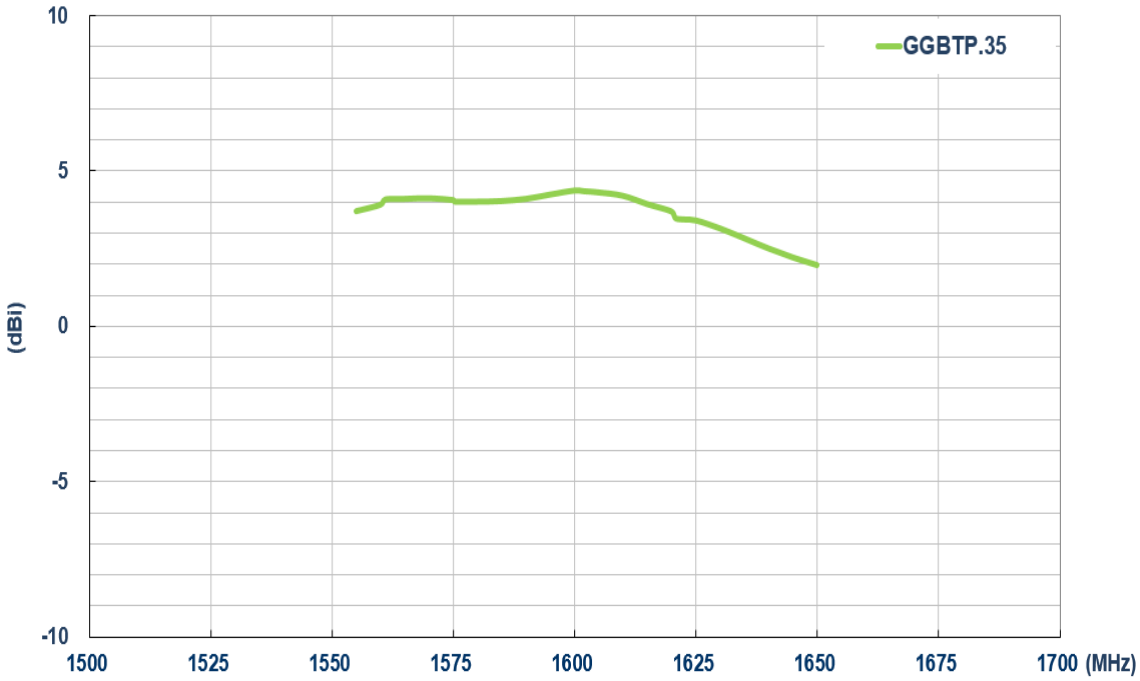
3.2 Efficiency



3.3 Average Gain

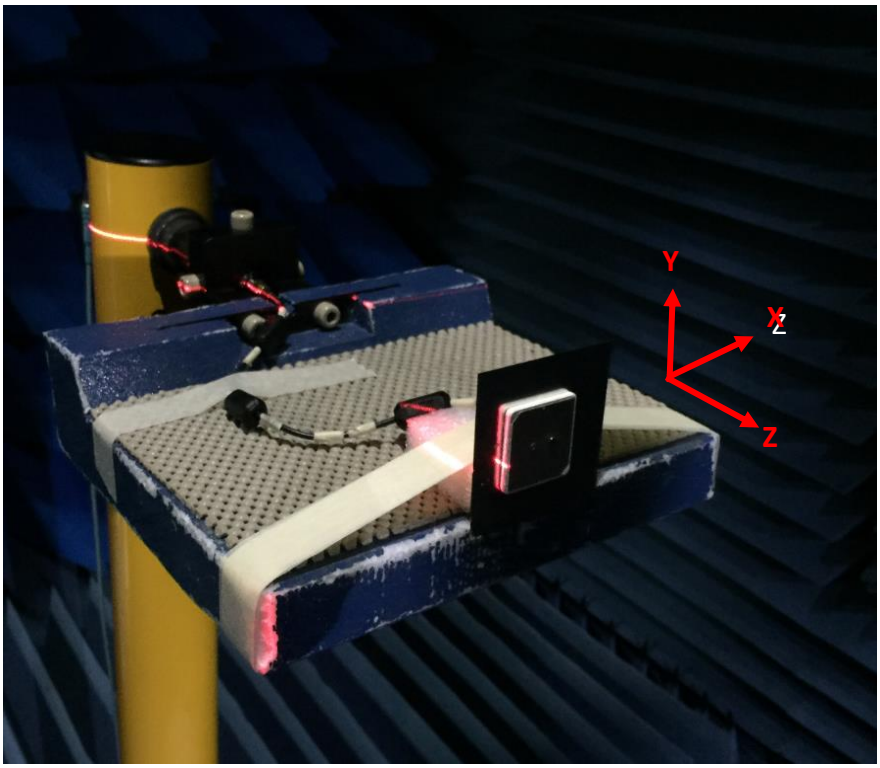


3.4 Peak Gain



4. Radiation Patterns

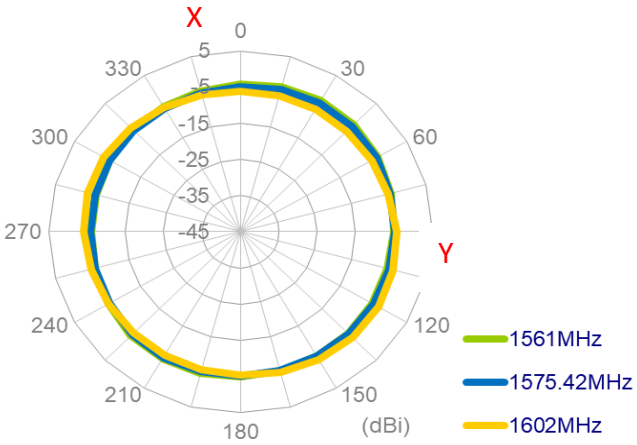
4.1 Test Setup



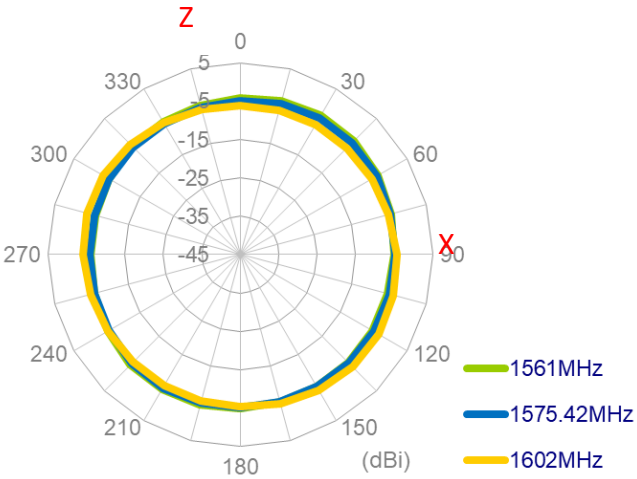
Tested on a 70*70mm ground plane.

4.2 2D Radiation Patterns

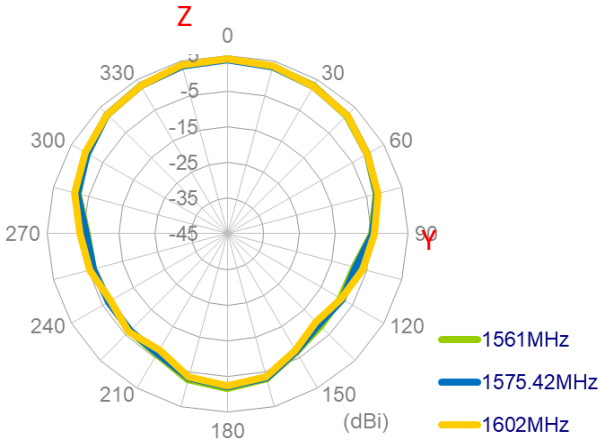
XY Plane



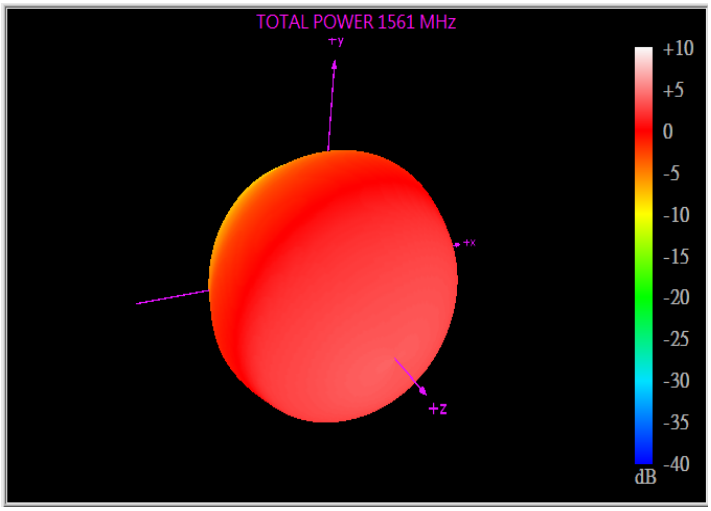
XZ Plane

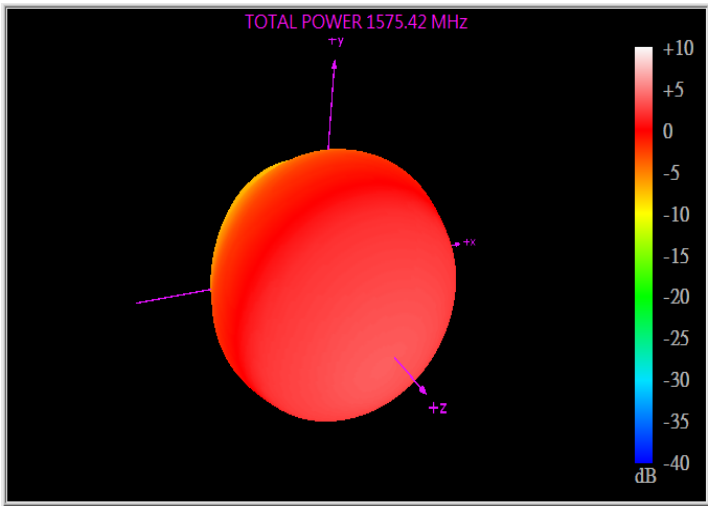


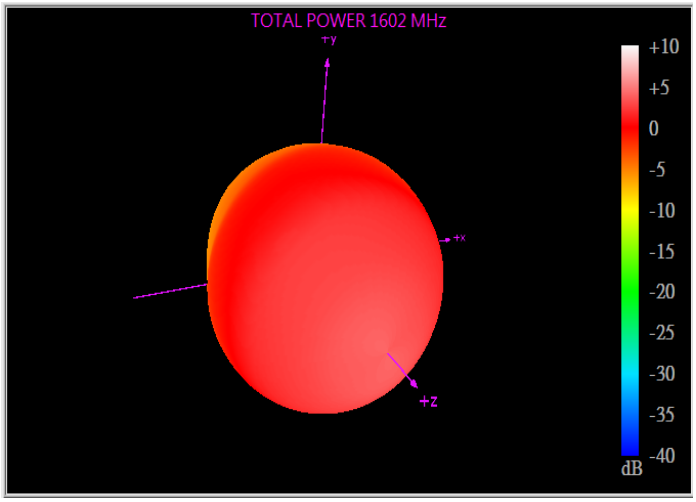
YZ Plane



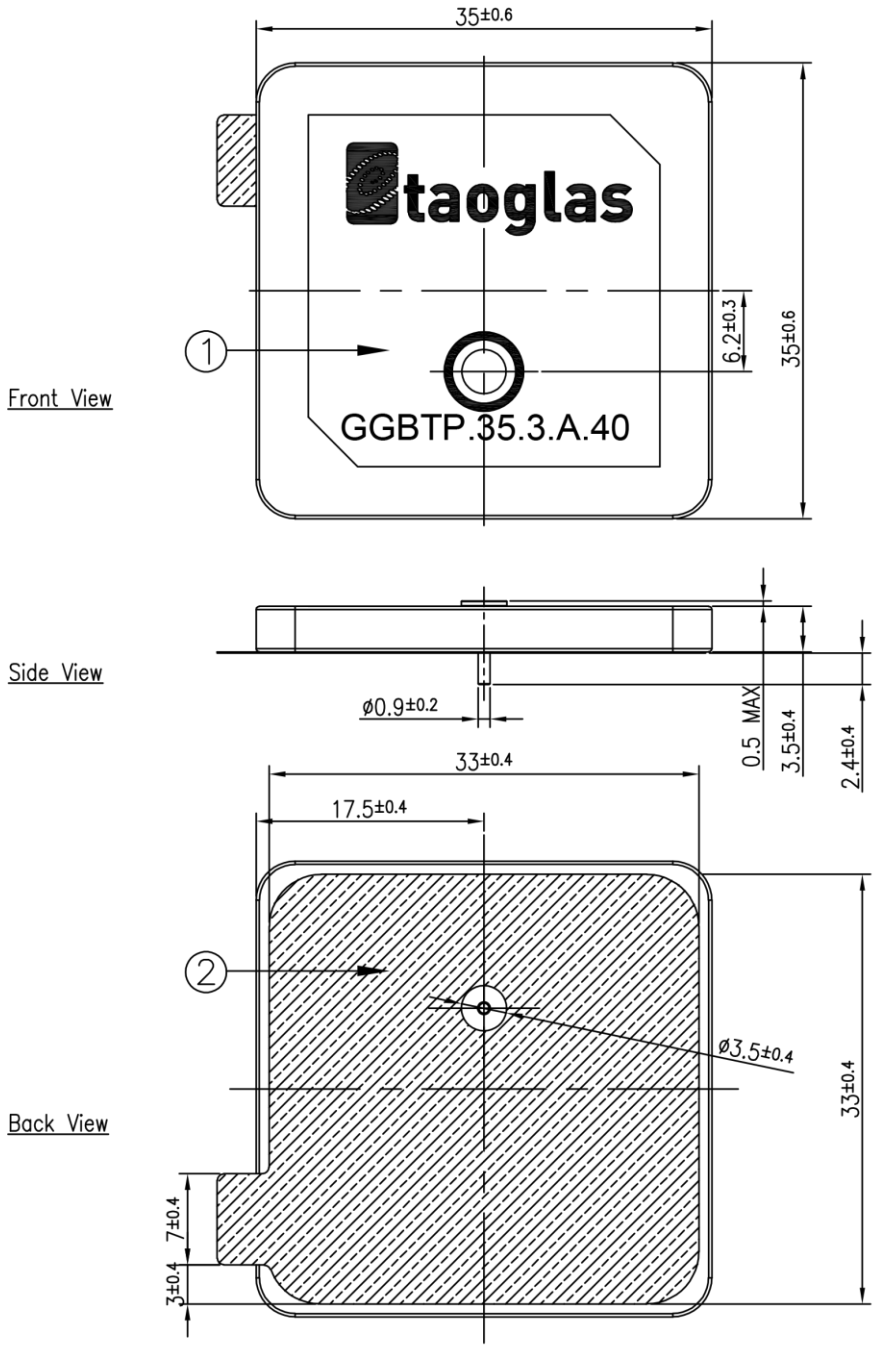
4.3 3D Radiation Patterns







5. Mechanical Drawing (Units: mm)

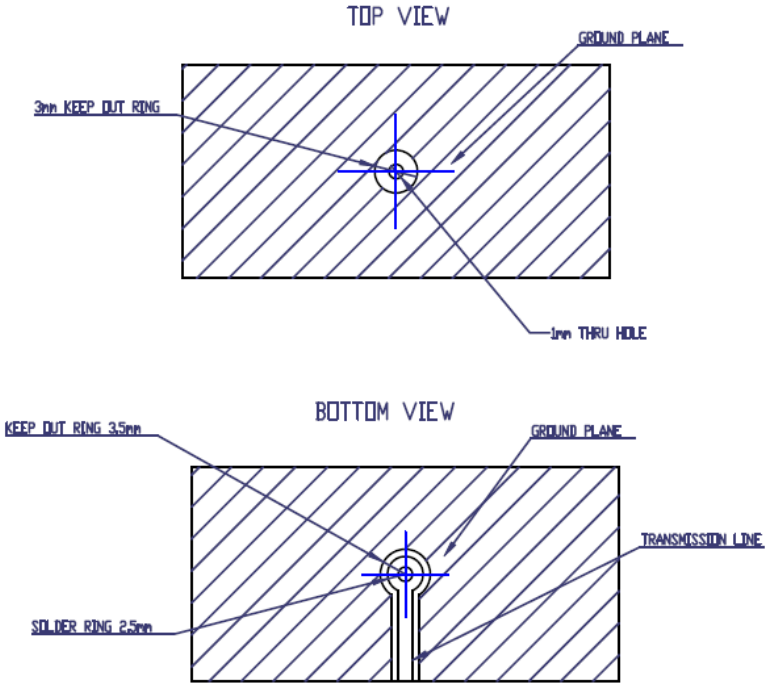


NOTES: 1. Double sided adhesive area.
2. Soldermask Area.

	Name	P/N	Material	Finish	QTY
1	GGBTP.35 Patch	001517C080000A	Terrablast	Clear	1
2	Double sided Adhesive	001517C080000A	NITTO 5015	White Linter	1

Download Drawing Download 3D Model

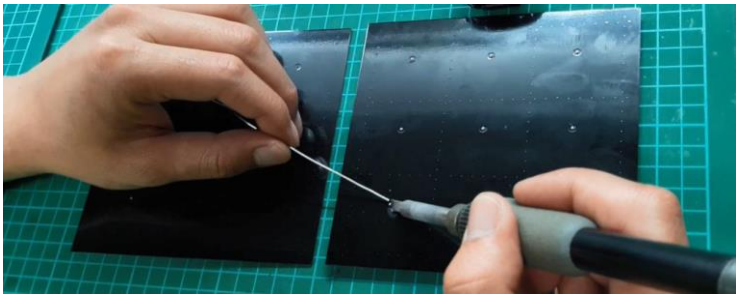
6. Footprint


TOP VIEW
GROUND PLANE
3mm KEEP OUT RING
1mm THRU HOLE
BOTTOM VIEW
KEEP OUT RING 3.5mm
GROUND PLANE
TRANSMISSION LINE
SOLDER RING 2.5mm

7. Soldering Method Recommendation

7.1 Manual Hand Soldering

Soldering Temperature: 360-380°C
Soldering Duration: 3~4 seconds



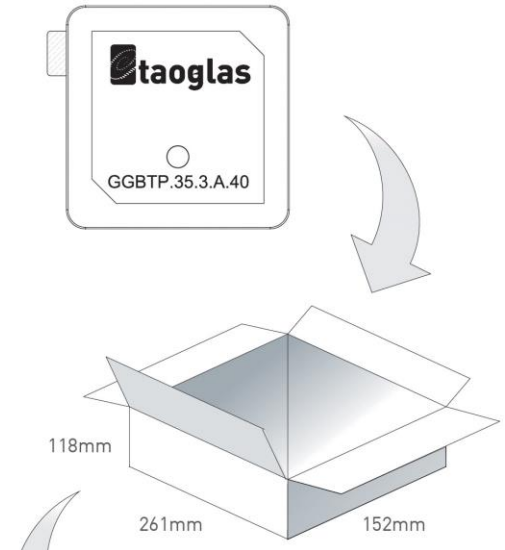
7.2 Automated Ferrochrome Soldering Machine

Soldering Temperature: 360-380°C
Soldering Duration: 3~4 seconds

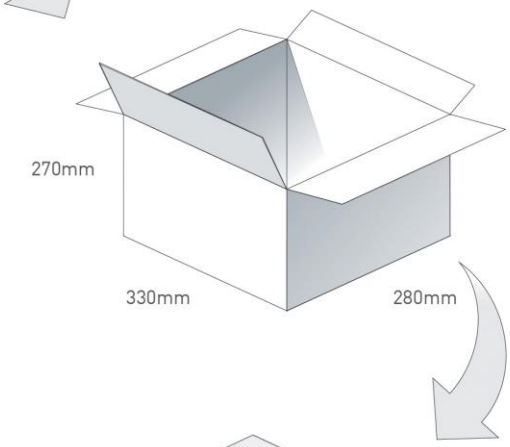
Please note that this process will require a one-time fixture to be made for each PCB design, Example as per image above.

8. Packaging

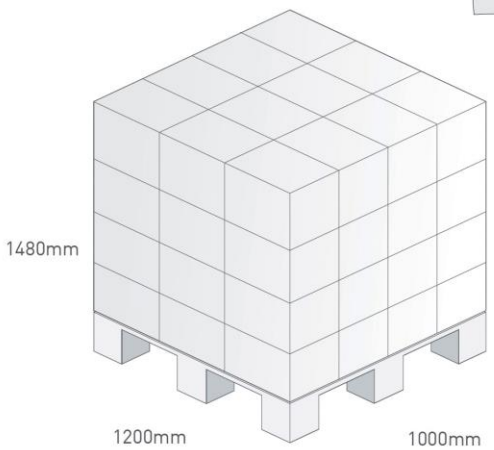
72 pcs GGBTP.35.3.A.40 per box
Box Dimensions - 261*152*118mm
Total Weight - 1.17kg



4 boxes / 288 pcs GTP.35.3.A.40 per carton
Carton Dimensions - 330*280*270
Weight - 4.94Kg



Pallet Dimensions 1200mm*1000mm*1480mm
48 Cartons per pallet
12 Cartons per layer
4 Layers



Changelog for the datasheet

SPE-18-8-020 - GGBTP.35.3.A.40

Revision: E (Current Version)	
Date:	2023-01-19
Changes:	Updated footprint drawing.
Changes Made by:	Gary West

Previous Revisions

Revision: D	
Date:	2021-06-12
Changes:	Updated Pin Length to 2.4mm Updated Drawing
Changes Made by:	Dan Cantwell

Revision: C	
Date:	2021-01-19
Changes:	Updated Packaging
Changes Made by:	Jack Conroy

Revision: B	
Date:	2020-12-09
Changes:	Amended soldering recommendations and updated datasheet to new format.
Changes Made by:	Gary West

Revision: A (Original First Release)	
Date:	2018-01-17
Notes:	
Author:	WY

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