TAOGLAS

Datasheet

Part No:
DSGP.1575.12.4.A.02

Description

GPS L1 / GALILEO E1 1575MHz Ceramic SMD Patch Antenna

Features:

- 2.73 dBi Peak Gain for GPS/GALILEO Band
- SMD Mount Ceramic Patch Antenna
- Dimension: 12 x 12 x 4mm
- Automotive IATF16949 Production and Quality Approved
- RoHS Compliant

1. Introduction

The DSGP.1575.12.4.A.02 is a ceramic GPS L1 / GALILEO E1 passive patch antenna. 12mm square and with a height of just 4mm, this antenna is perfect for applications in compact telematics devices, vehicle tracking/fleet management systems, wearables and navigation devices.

The antenna has been tuned on a 50*50mm ground plane, working at 1575.42MHz with a 2.73dBi gain. The ceramic patch is mounted via SMT process, suitable for high-volume low-cost assembly.

The antenna is manufactured and tested in a TS16949 first tier automotive approved facility.

Small antennas should ideally be custom tuned for the device environment, Taoglas offers this service subject to NRE and MOQ. For more details please contact your regional Taoglas sales office.

2. Specification

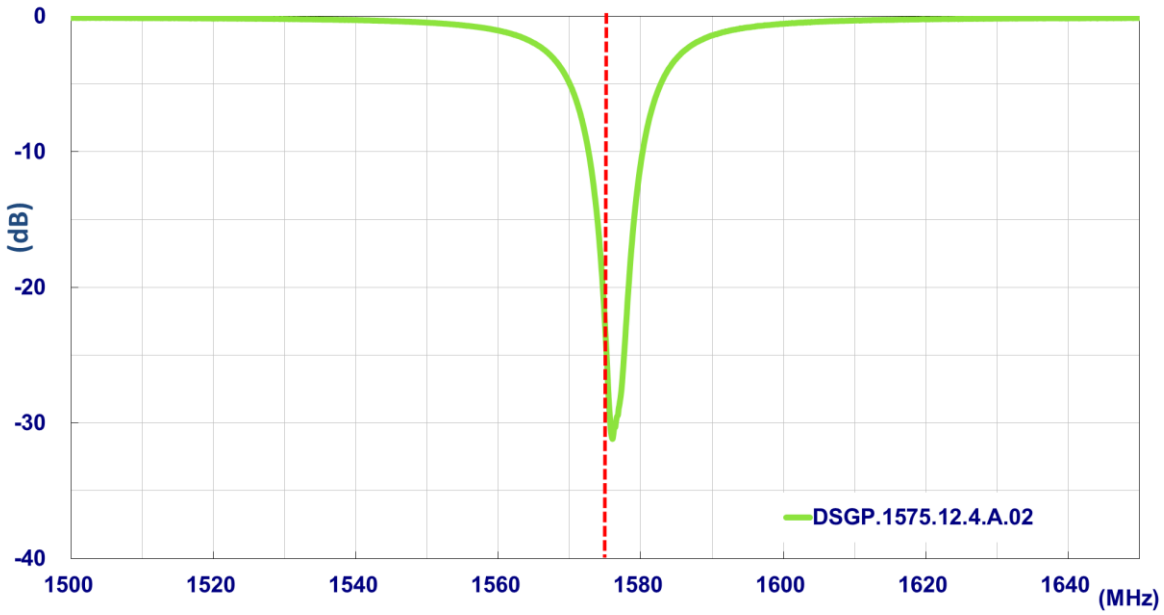
Electrical						
Band	Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)	Return Loss(dB)	Impedance	Polarization
GPS L1/ Galileo E1	1575.42 ±1.023 MHz	62.36	2.73	<-10	50 Ω	RHCP

Mechanical	
Dimensions	12 x 12 x 4mm
Material	Ceramic
Weight	3.3g

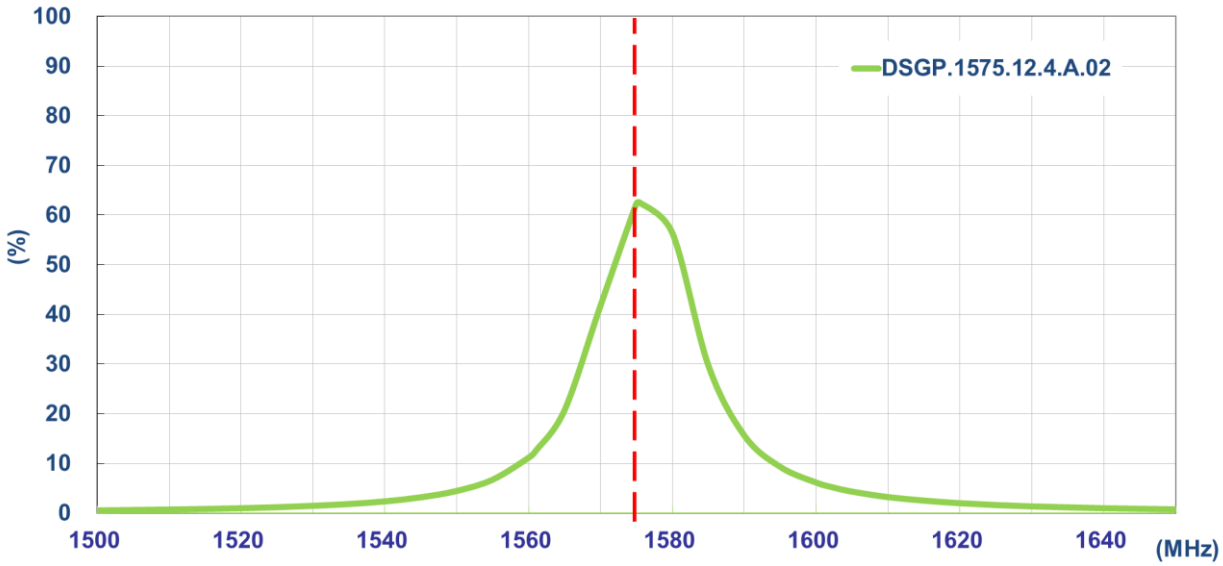
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 105°C
Humidity	Non-condensing 65°C 95% RH
Moisture Sensitivity Level (MSL)	3 (168 Hours)

3. Antenna Characteristics

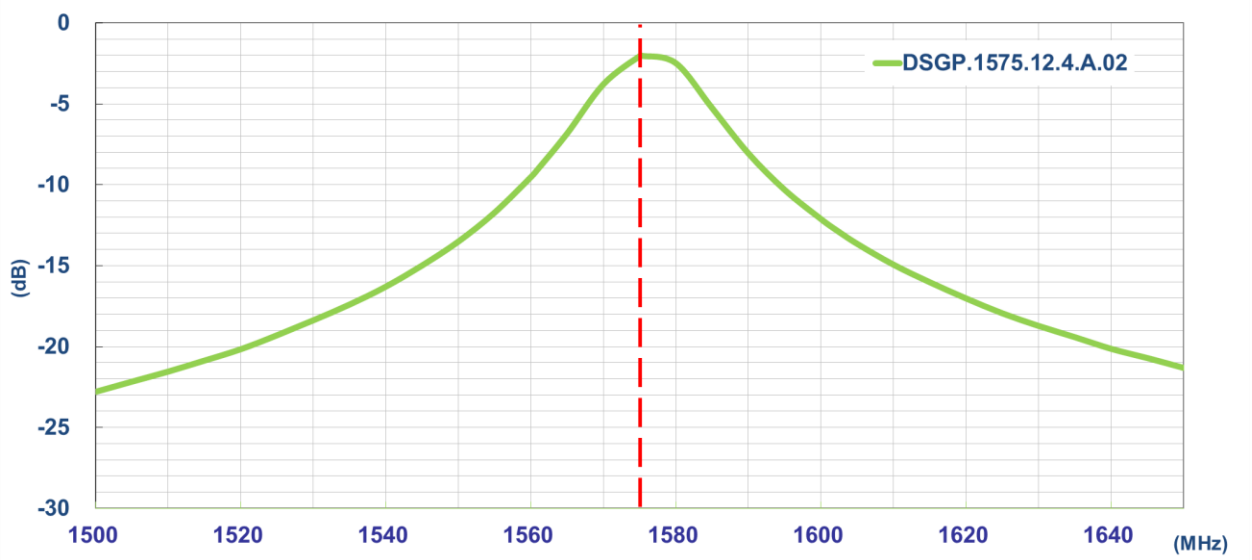
3.1 Return Loss



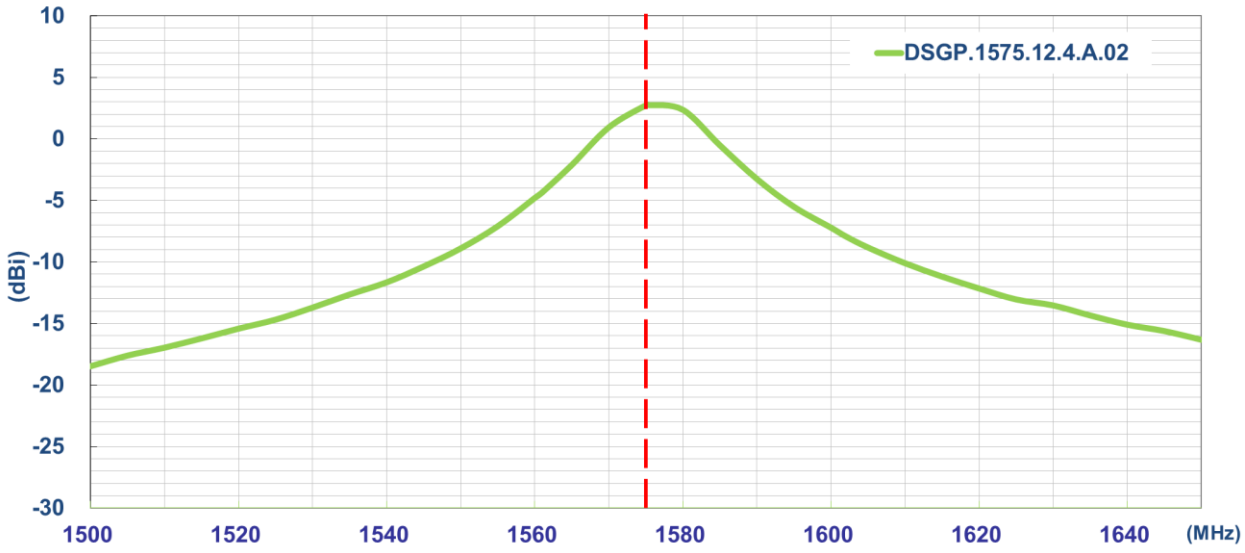
3.2 Efficiency



3.3 Average Gain

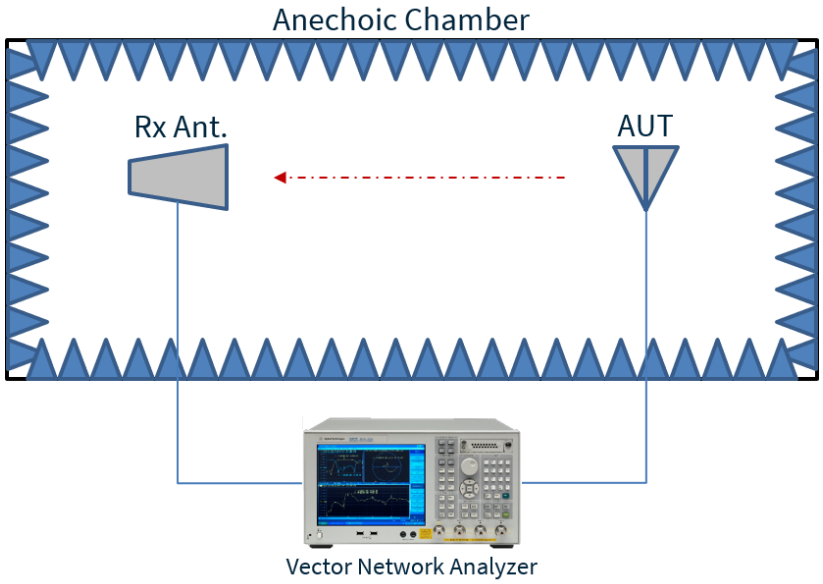


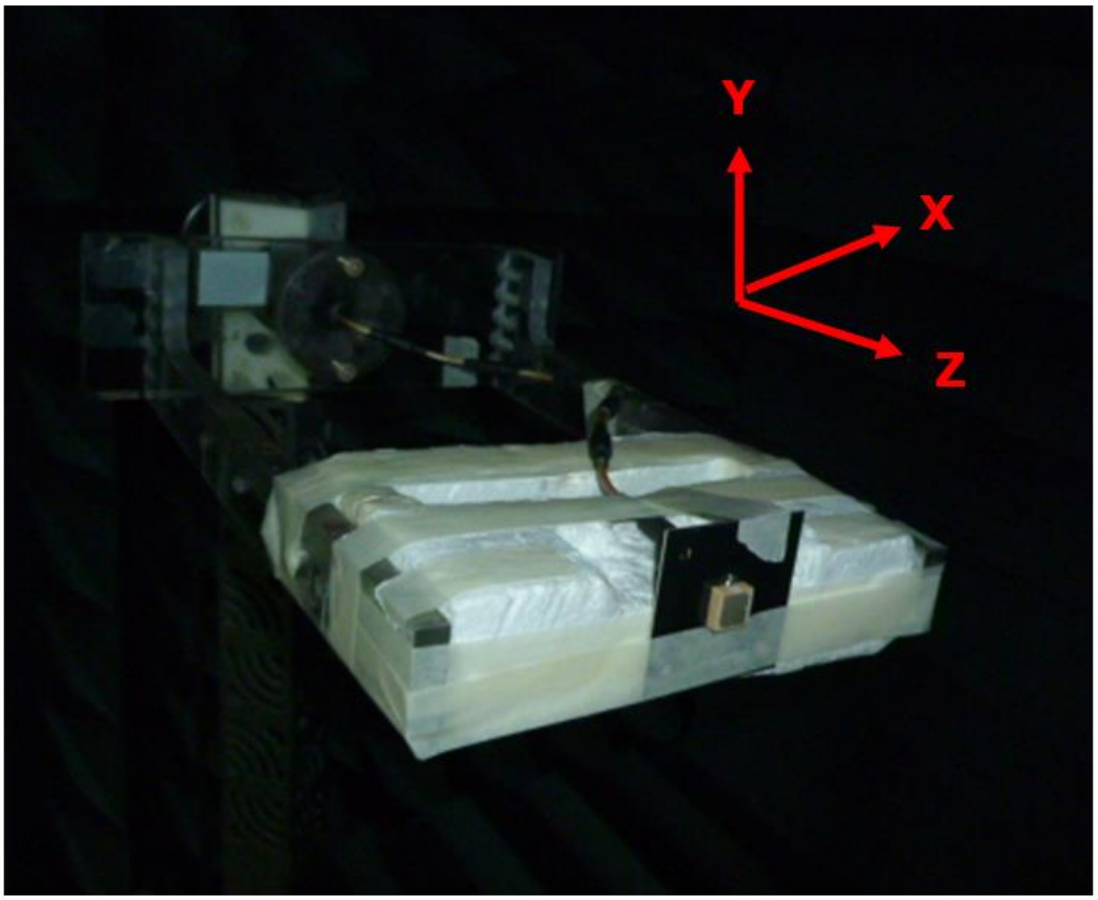
3.4 Peak Gain



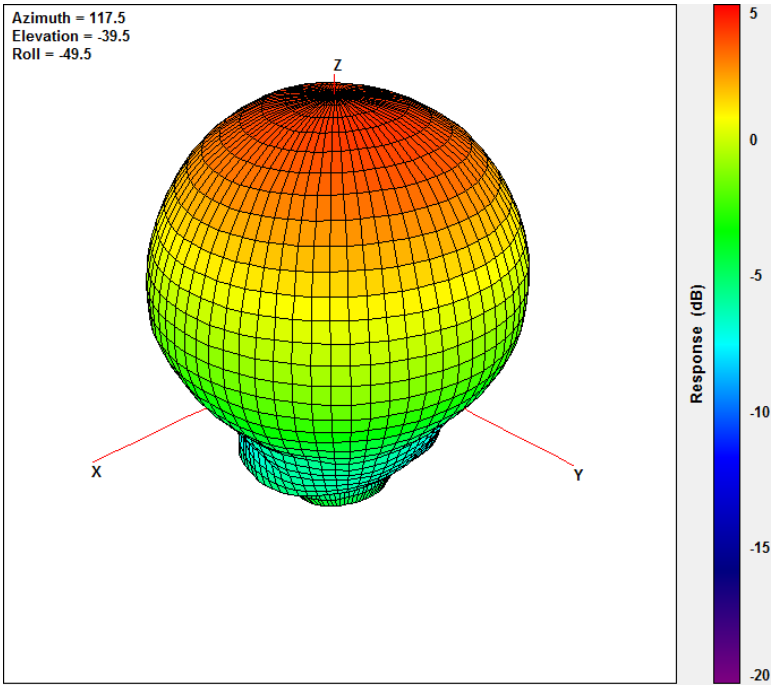
4. Radiation Patterns

4.1 Test Setup

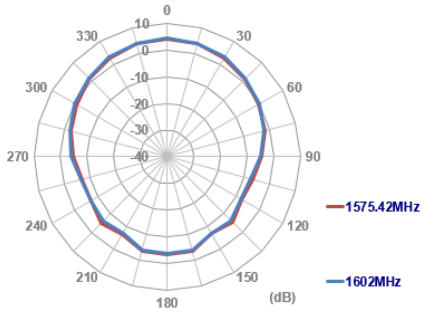




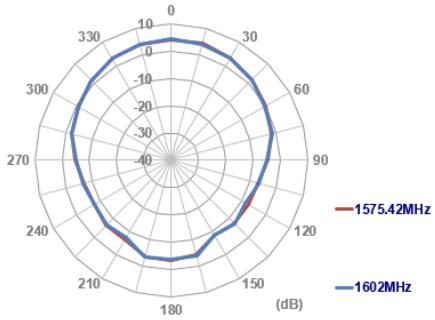
4.2 DSGP.1575.12.4.A.02 - Patterns at 1575.42 MHz



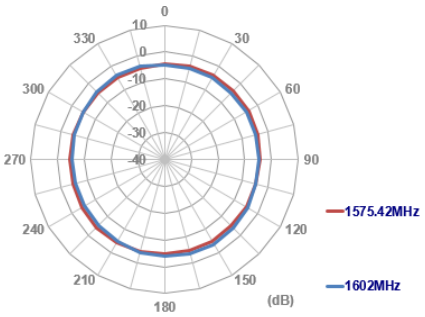
XZ Plane



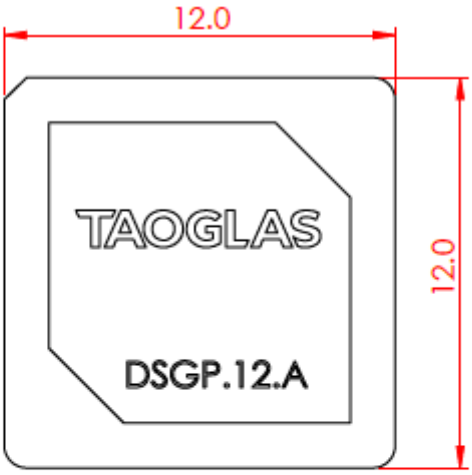
YZ Plane



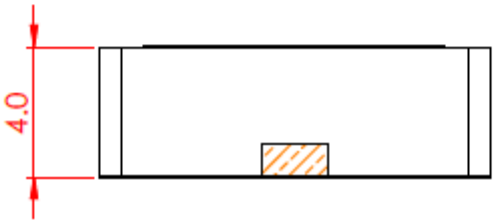
XY Plane



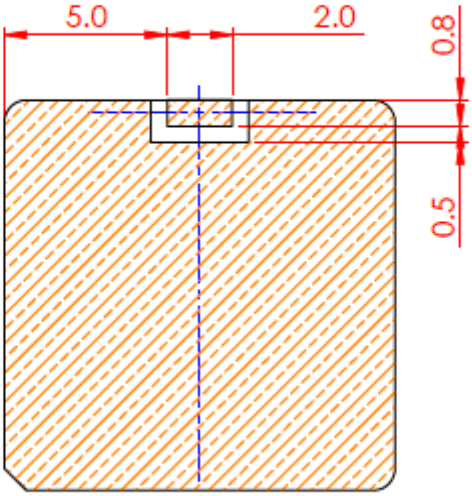
5. Mechanical Drawing



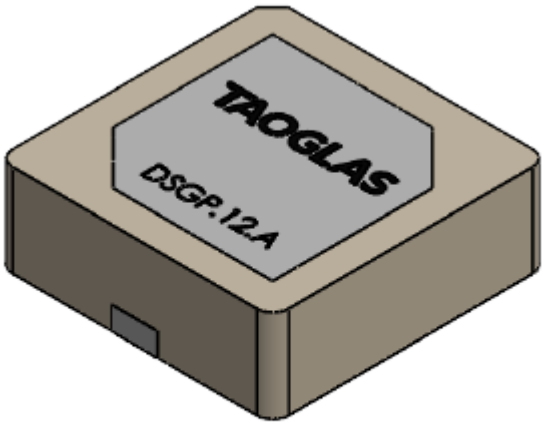
TOP VIEW



FRONT VIEW

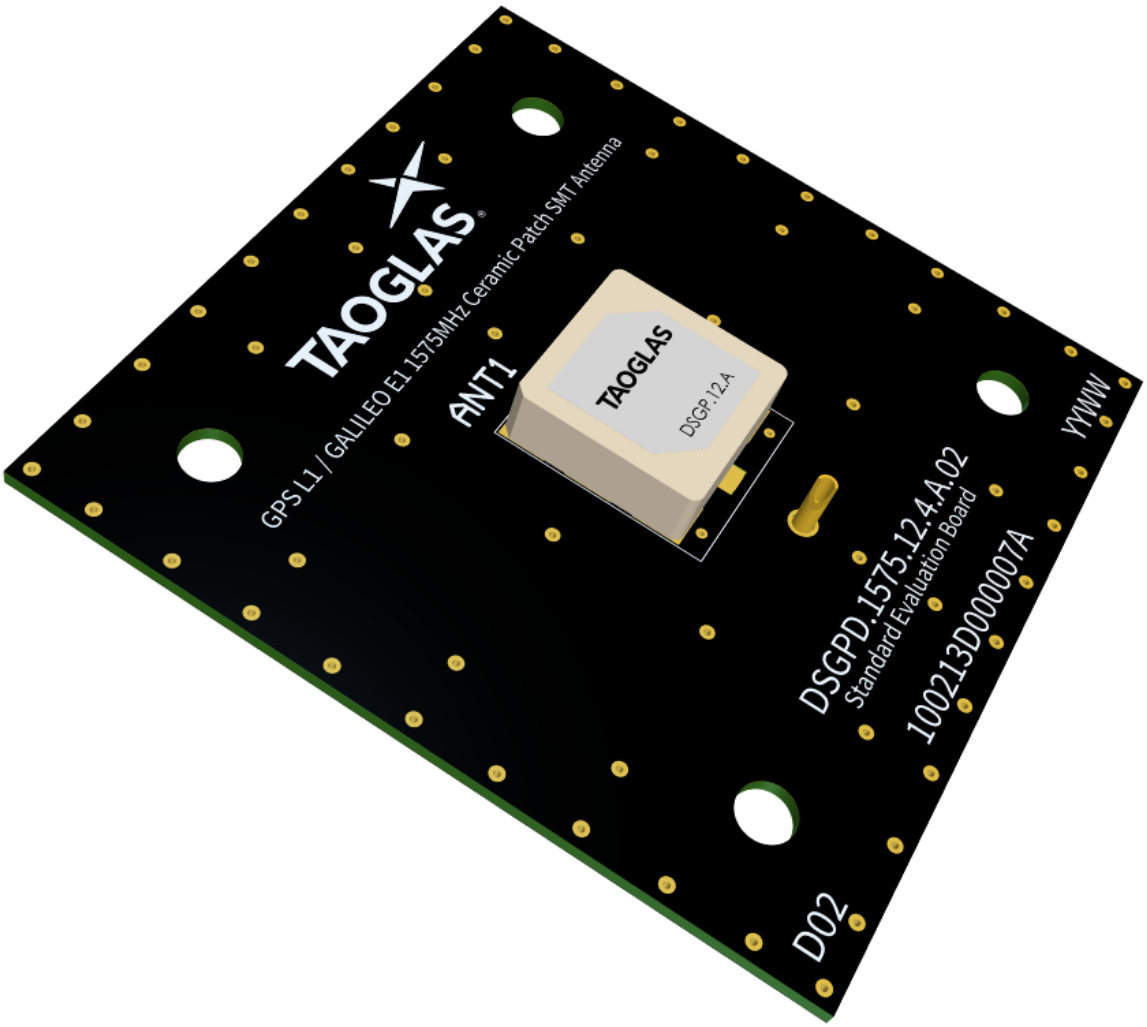


BOTTOM VIEW



MODEL VIEW

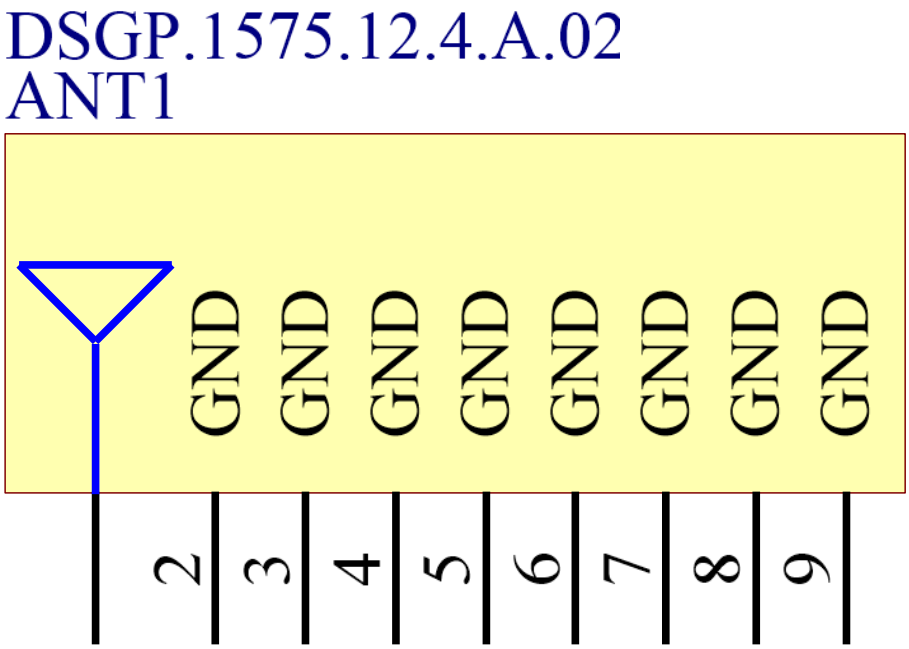
6. Antenna Integration Guide



6.1 Schematic Symbol and Pin Definition

The circuit symbol for the antenna is shown below. The antenna has 9 pins as indicated below.

Pin	Description
1	RF Feed
2, 3, 4, 5, 6, 7, 8, 9	Ground



6.2 Antenna Integration

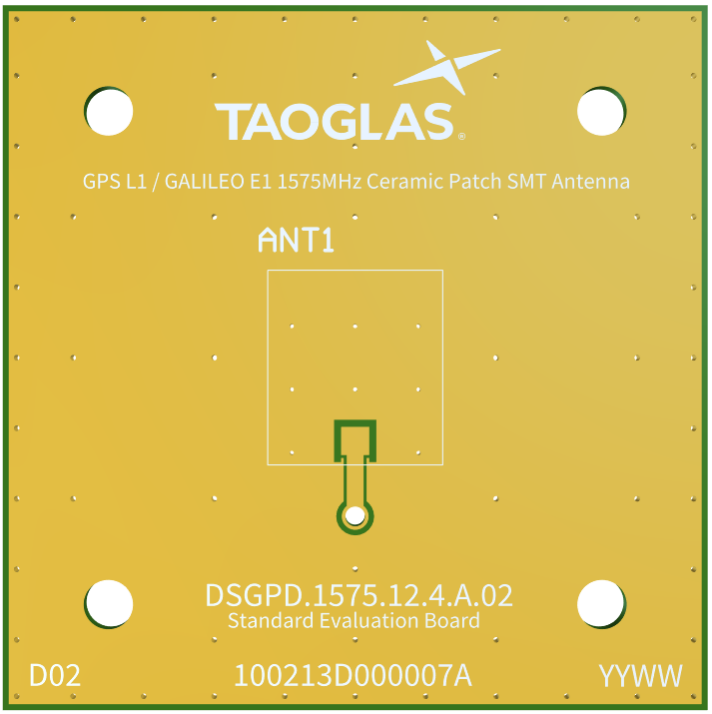
The antenna should be placed at the center of the ground plane with a length and width of 50mm. Maintaining a square symmetric ground plane shape and symmetric environment around the antenna is critical to maintaining the excellent axial ratio and phase center performance shown in this datasheet.

Top Side w/ Solder Mask

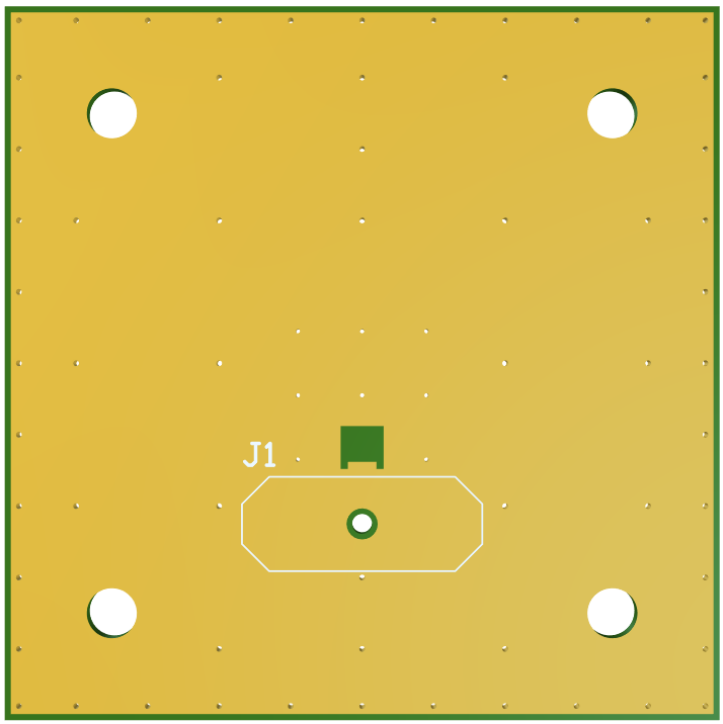
Top Side w/o Solder Mask

6.3 PCB Layout

The footprint and clearance on the PCB must comply with the antenna specification. The PCB layout shown in the diagram below demonstrates the antenna footprint.

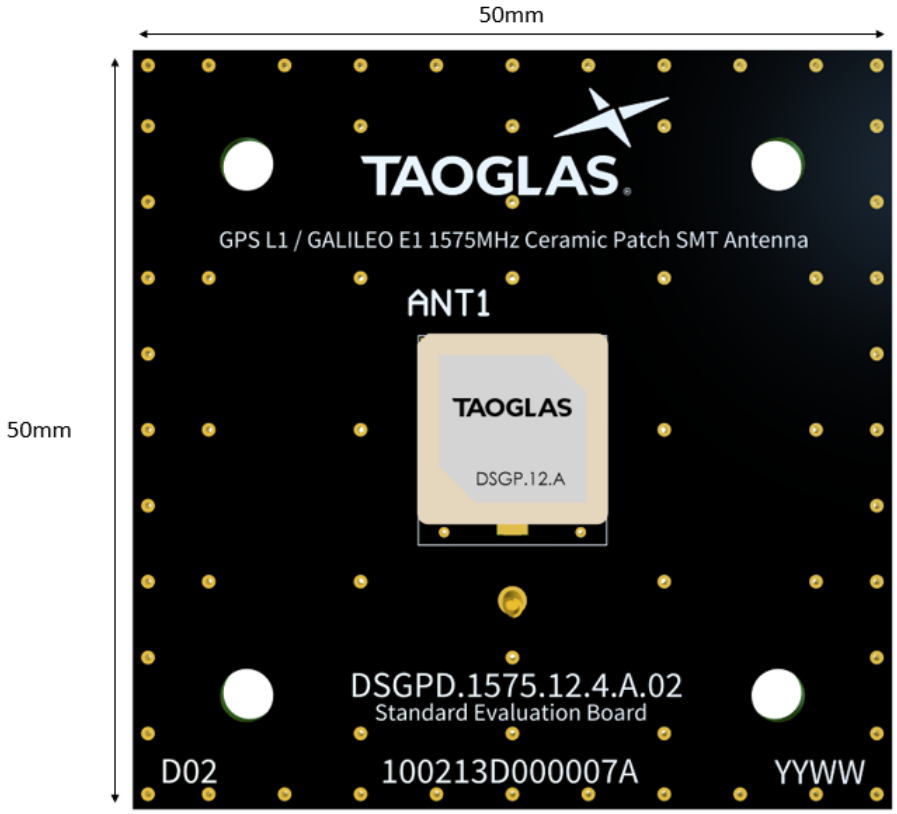


Topside

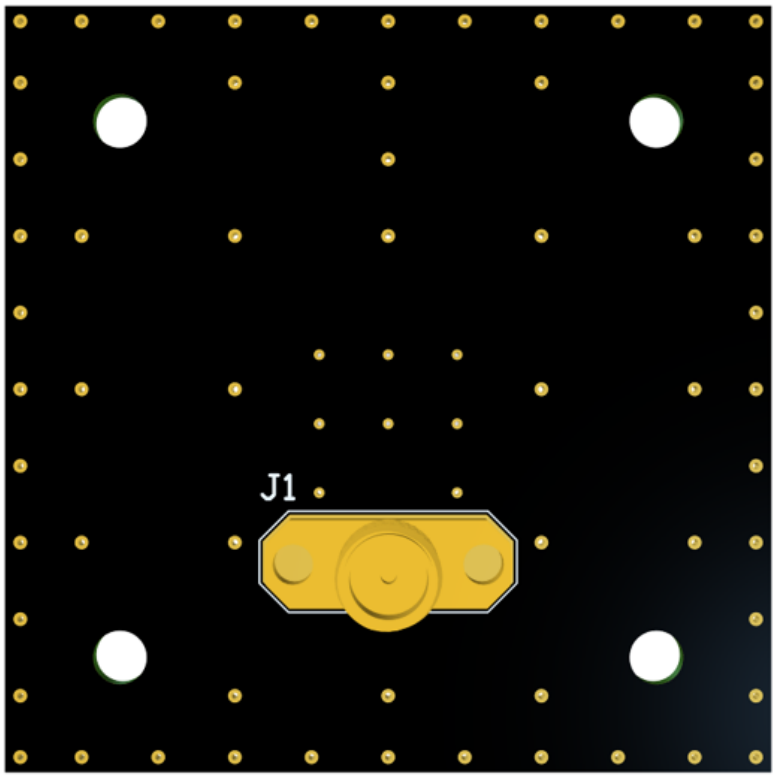


Bottom **Side**

6.4 Evaluation Board

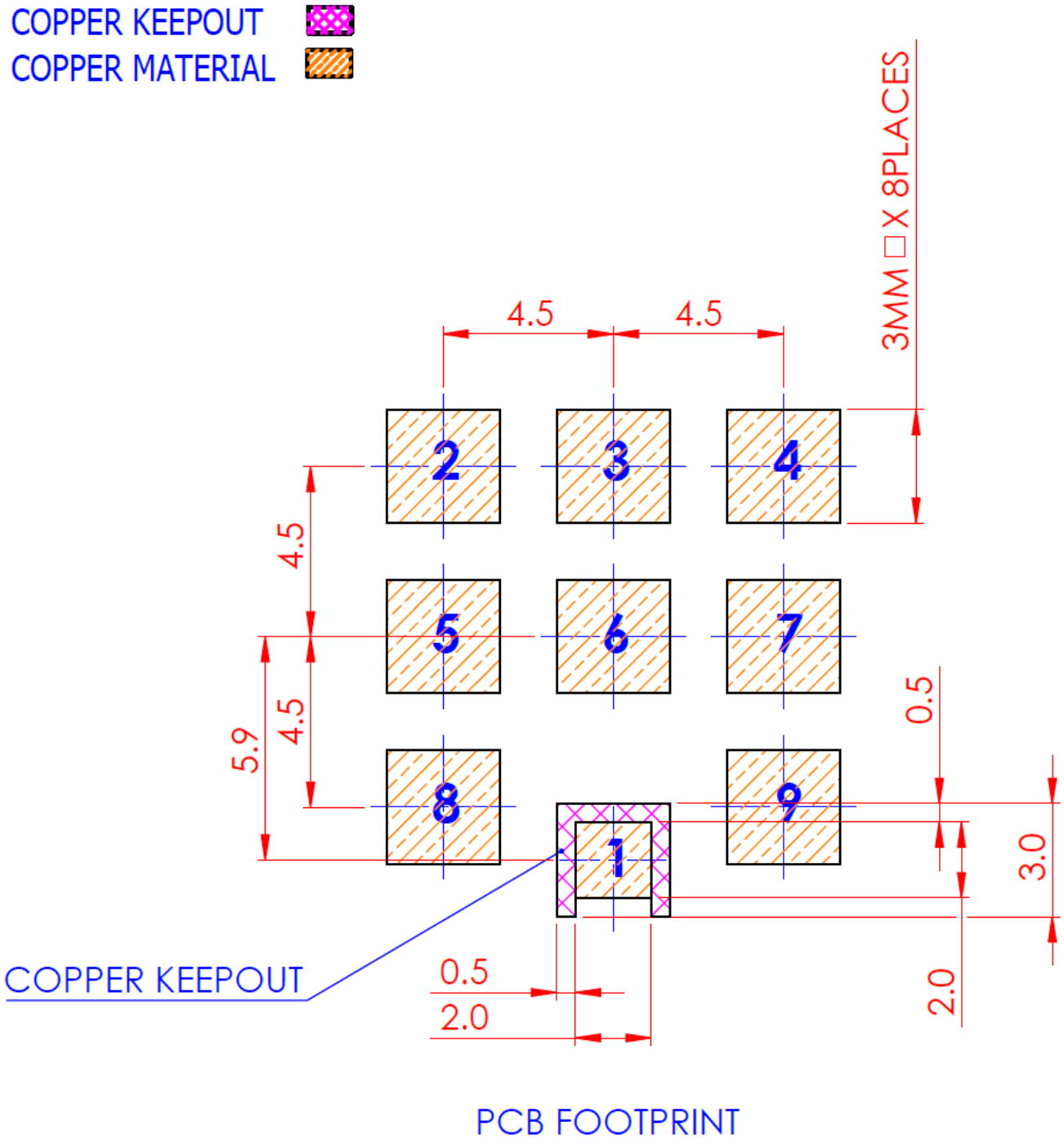


Topside



Bottom Side

6.5 Footprint

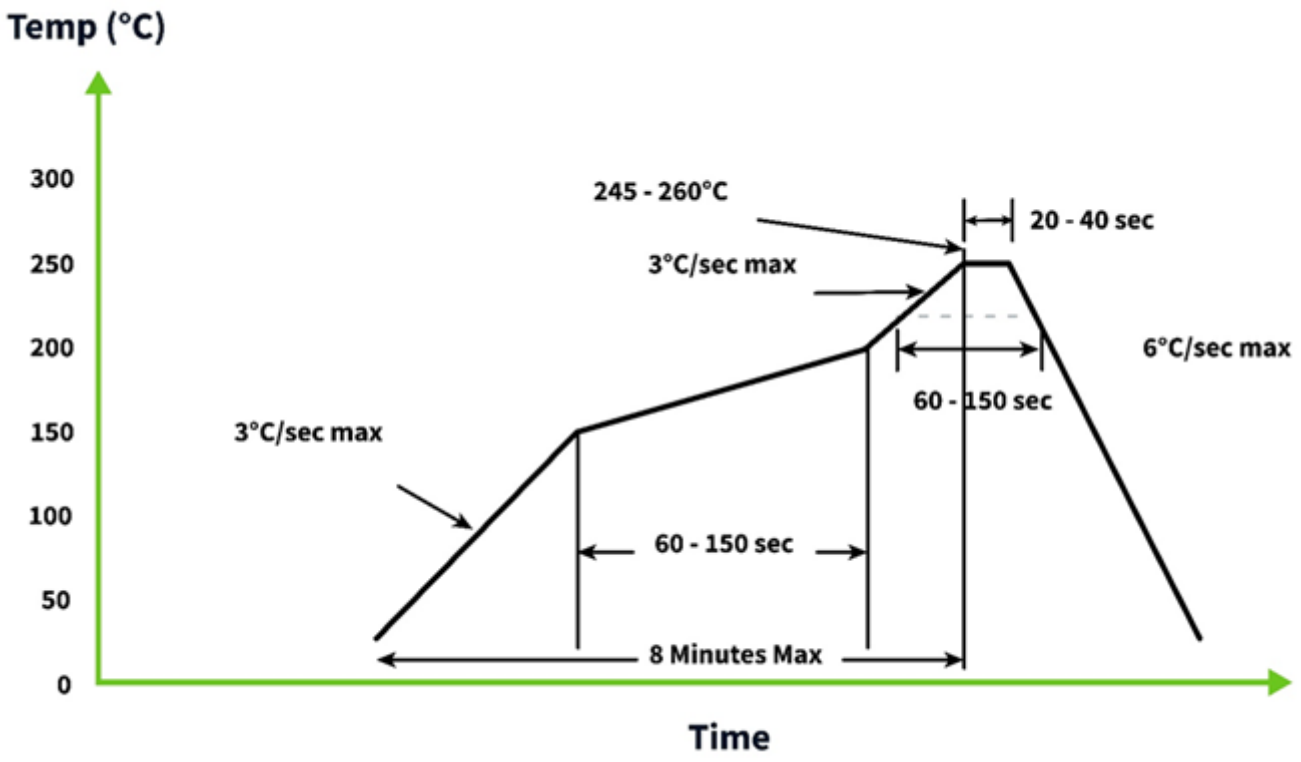


PCB FOOTPRINT

PIN	DESCRIPTION
1	FEED
2-9	GROUND

7. Solder Reflow Profile

The DSGP.1575.12.4.A.02 can be assembled by following the recommended soldering temperatures are as follows:

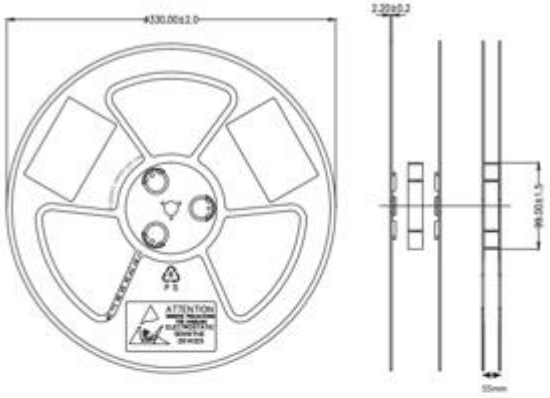


*Temperatures listed within a tolerance of +/- 10º C

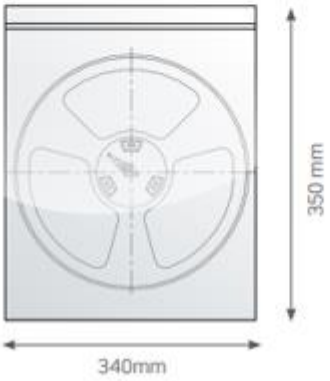
The antenna is not limited to the number of passes through the reflow process. Smaller components are typically mounted on the first pass, however, we do advise mounting the when placing larger components on the board during subsequent reflows

8. Packaging

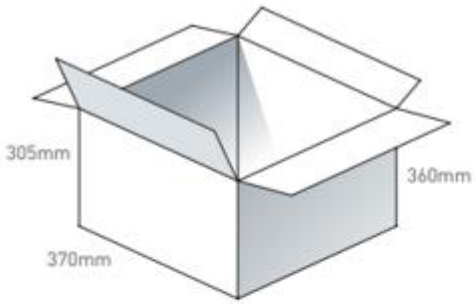
500 pc DSGP.1575.12.4.A.02 per reel
Dimensions - Ø330*55mm
Weight - 2300Kg



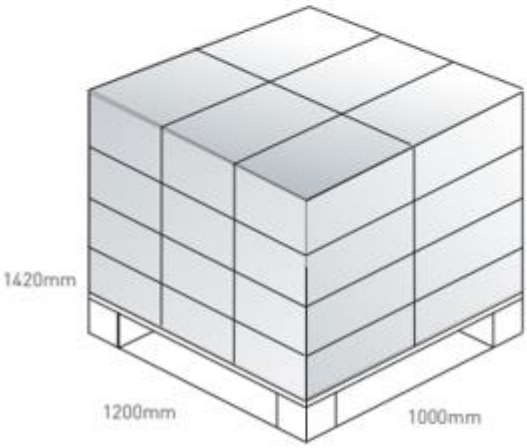
1 pc reel in small in Anti-static Bag
Dimensions - 340*350*55mm
Weight - 2400Kg



4 Reels / 2000 pcs in one carton
Carton Dimensions - 370*360*305mm
Weight - 10.5Kg



Pallet Dimensions 1200*1000*1420mm
24 Cartons per Pallet
6 Cartons per layer
4 Layers



Changelog for the datasheet

SPE-17-8-028 – DSGP.1575.12.4.A.02

Revision: C (Current Version)	
Date:	2023-08-10
Changes:	Full datasheet update
Changes Made by:	Gary West

Previous Revisions

Revision: B	
Date:	2023-03-23
Changes:	Antenna Integration Guide Added
Changes Made by:	Cesar Sousa

Revision: A (Original First Release)	
Date:	2018-05-17
Notes:	
Author:	Technical Writer

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