



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# SPECIFICATION

Part No. : **AP.25E.07.0054A**

Product Name : 25mm One Stage GPS/GALILEO Active Patch  
Antenna Module with front-end Saw Filter

Features : Industry leading GPS/GALILEO antenna  
performance

35mm\*35mm\*4.50mm (Ground Plane)

54mm Ø1.13 I-PEX MHFI (U.FL)

15dB LNA

Wide Input Voltage 1.8V to 5.5V

Low Power Consumption

ROHS Compliant

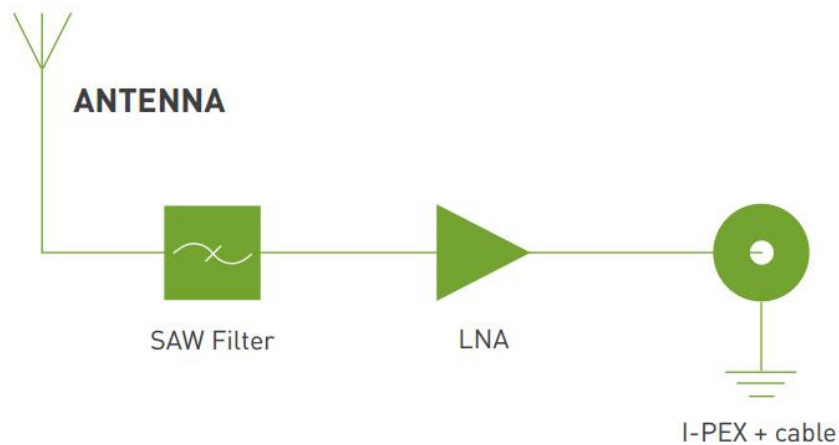


# 1. Introduction

The AP.25E has been designed specifically for embedded (inside device) integration with GPS/GALILEO receiver modules where there is a GSM transmitter nearby and risk of interference and saturation.

The AP.25E combines a 25\*25\*2mm advanced low profile ceramic patch antenna with a one stage LNA and a front-end SAW filter with ultra thin coaxial cable.

The Ground Plane size of 35\*35mm combined with the larger size GPS/GALILEO Patch, gives this solution a performance increase in gain of 1~2dB. It also helps shields the patch antenna from noise and increases performance at low elevations. Taoglas active antenna modules utilise XtremeGain™ technology for the highest sensitivity in the industry. The AP.25E consists of 2 functional blocks – the LNA and also the patch antenna.



The AP.25E has a SAW filter on the front of it. The main use of the AP.25E would be for small devices where the GSM transmitter is close to the GPS/GALILEO antenna, it helps avoid burn-out of the LNA or the module due to interference from the GSM transmitter at out band frequencies.

## 2. Specification

### 2.1. Patch Antenna

Parameter	Specification
Frequency	1575.42 ± 1.023MHz
Gain @ Zenith	+1.5 dBic Typ. @ Zenith
Polarization	RHCP
Axial Ratio	3.0dB max. @Zenith
Patch Dimension	25*25*2mm

### 2.2. LNA

Parameter	Specification
Frequency	1575.42 ± 1.023MHz
Outer Band Attenuation	F0=1575.42MHz
	F0□30MHz 9dB min.
	F0□50MHz 20dB min.
	F0□100MHz 25dB min.
Output Impedance	50Ω
Output VSWR	2.0 Max
Pout at 1dB Gain	Typ. -2dBm
Compression point	Min. -6dBm
LNA Gain, Power Consumption and Noise Figure	
	LNA Gain      Power Consumptio (mA)      Noise Figure
Voltage	(Typ)      Typ      Typ
Min. 1.8V	14dB      3mA      2.5dB
Typ. 3.0V	15dB      3mA      2.5dB
Max. 5.5V	15dB      3mA      2.5dB

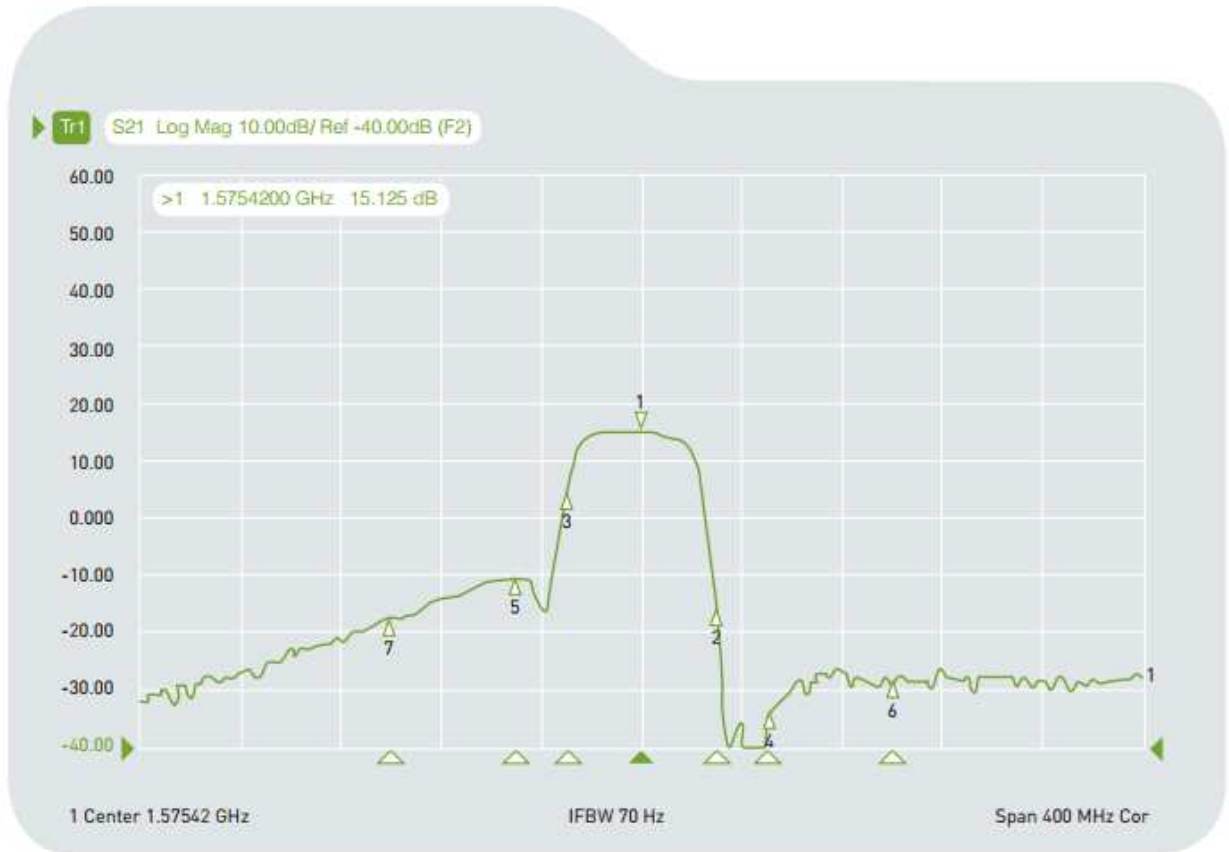
### 2.3. Cable\* & Connector

Parameter	Specification
RF Cable	Coaxial Cable Ø1.13 ± 0.1mm, length 54 ± 4.5mm
Connector	IPEX MHFI (U.FL)

## 2.4. Total Specification (through Antenna, LNA, Cable and Connector)

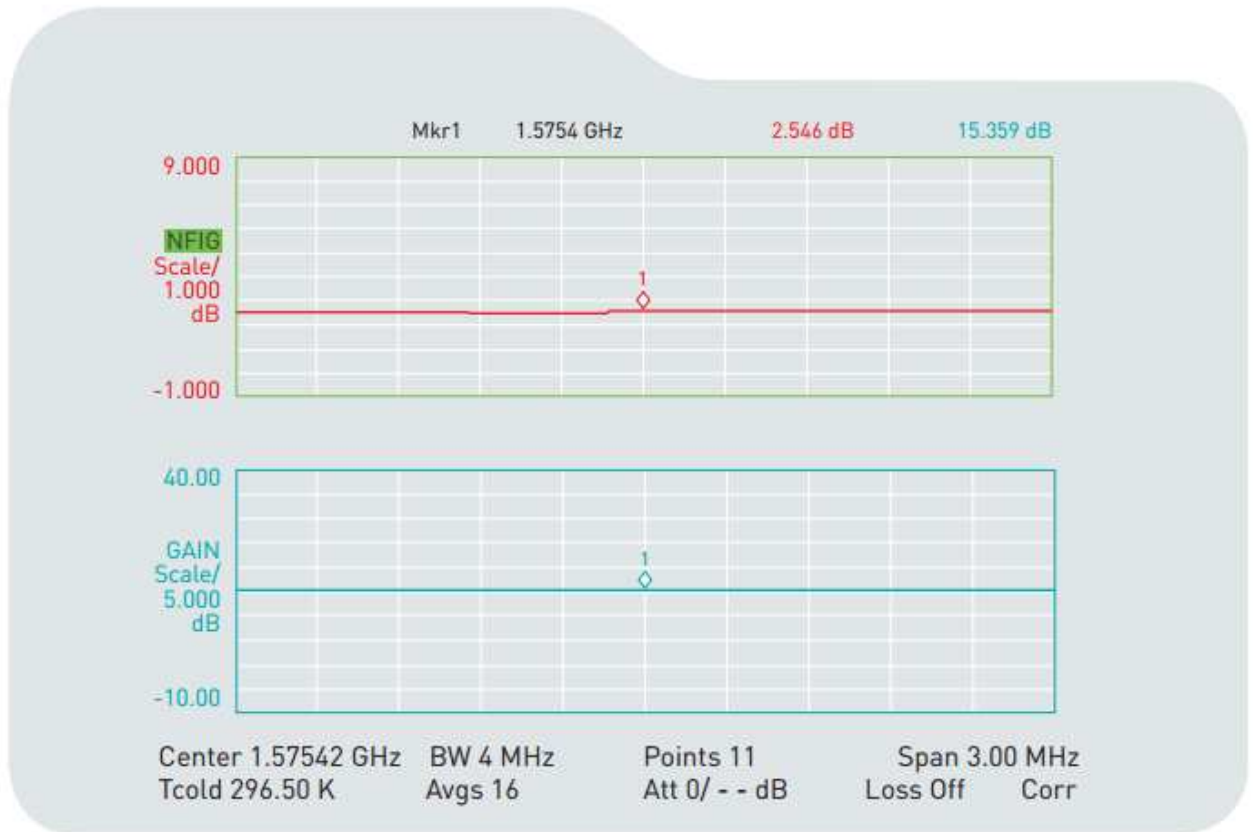
Parameter	Specification
Frequency	1575.42 ± 1.023MHz
Gain	At 5V: 16.5± 3dBic At 3V: 16.5 ± 3dBic At 1.8V: 15.5 ± 3dBic
Output Impedance	50Ω
Polarization	RHCP
Output VSWR	Max 2.0
Operation Temperature	-40°C to + 85°C
Storage Temperature	-40°C to + 85°C
Relative Humidity	40% to 95%
Input Voltage	Min:1.8V Typ. 3.0V Max:5V
Dimensions	35*35*4.5mm

### 3. LNA Gain and Out Band Rejection @3.0V

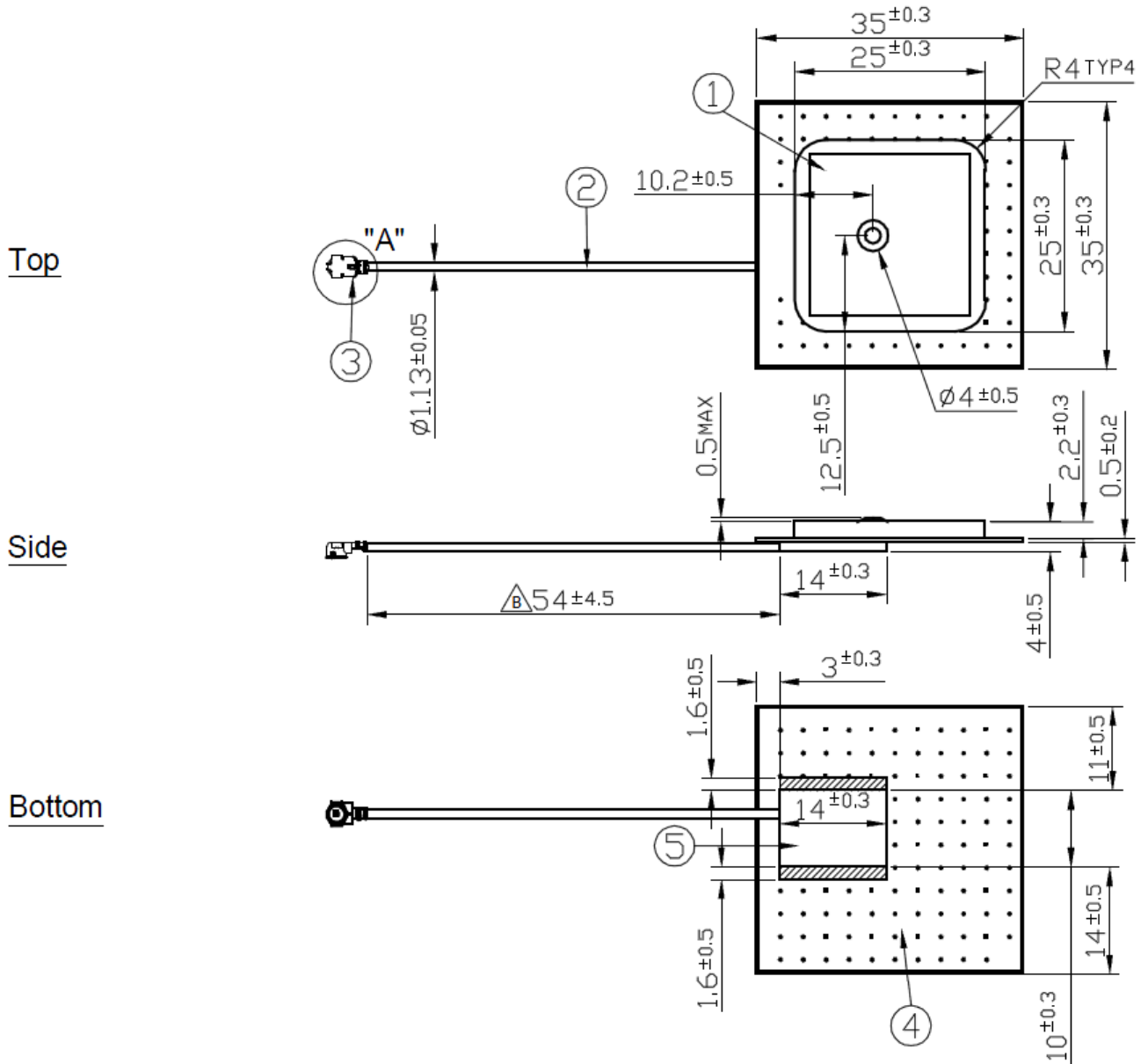


Cg1	Tr1	S21	>1	1.5754200 GHz	15.125 dB
Cg1	Tr1	S21	2	1.6054200 GHz	-15.348 dB
Cg1	Tr1	S21	3	1.5454200 GHz	4.4144 dB
Cg1	Tr1	S21	4	1.6254200 GHz	-34.991 dB
Cg1	Tr1	S21	5	1.5254200 GHz	-10.262 dB
Cg1	Tr1	S21	6	1.6754200 GHz	-28.746 dB
Cg1	Tr1	S21	7	1.4754200 GHz	-17.596 dB

## 4. LNA Noise Figure @3.0V

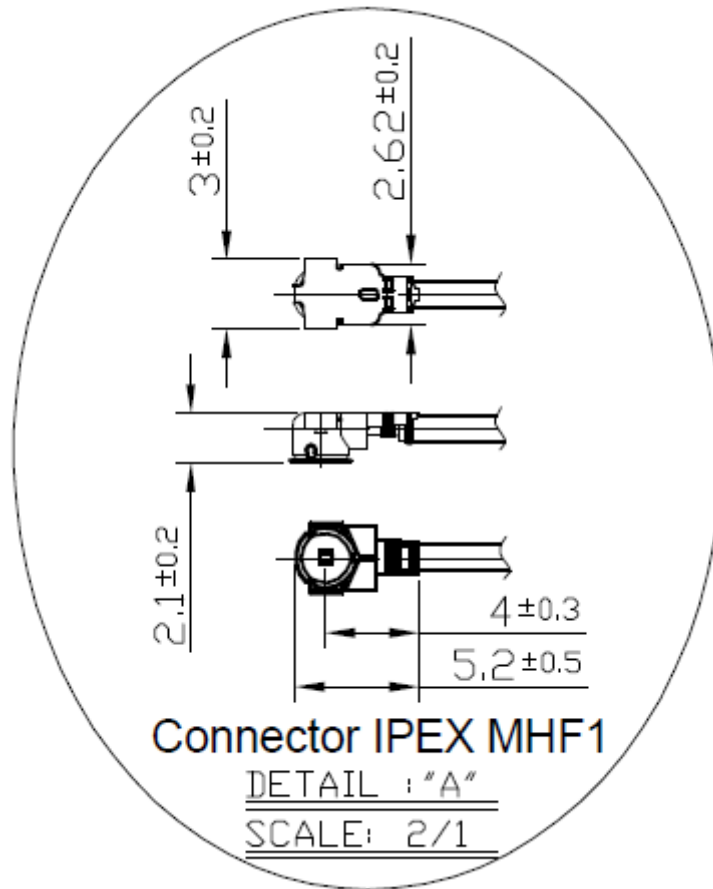


## 5. Technical Drawing



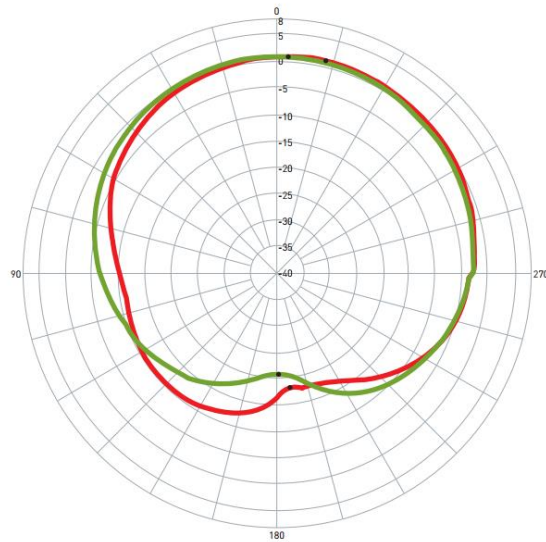
	Name	Material	Finish	QTY
1	AP.25E Patch(25*25*2mm)	Ceramic	Clear	1
2	1.13 Coaxial Cable	FEP	Gray	1
3	IPEX MHF1	Brass	Gold	1
4	AP.25E PCB	FR4 0.5t	Green	1
5	Shielding Case	SPTE (Tin)	Tin Plated	1





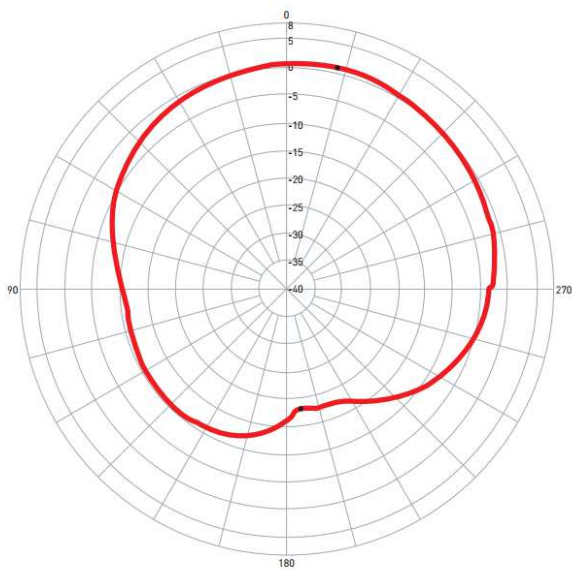
# 6. Radiation Patterns

## 6.3 XY Plane Radiation



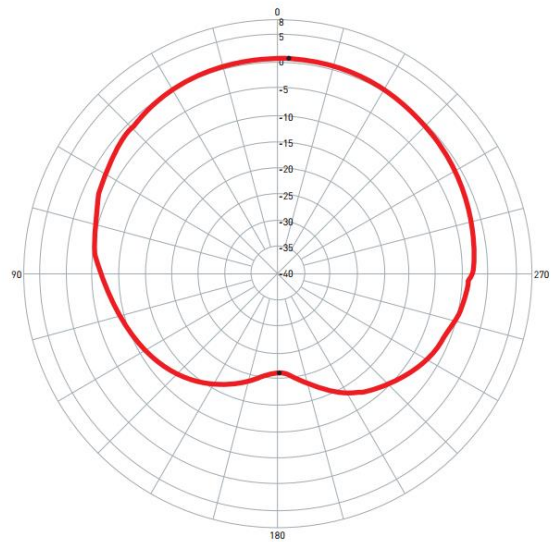
Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AP.25E.07.0054A	XZ	1579.42	0.86 / 347.00	-18.16 / 187.00	-3.65	RHCP	2010/4/19
2	AP.25E.07.0054A	YZ	1579.42	0.73 / 357.00	-20.87 / 181.00	-3.44	RHCP	2010/4/19

## 6.1 XZ Plane Radiation



Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AP.25E.07.0054A	XZ	1579.00	0.86 / 347.00	-18.16 / 187.00	-3.65	RHCP	2010/4/19

## 6.2 YZ Plane Radiation



Pattern	Model No.	Test Mode	Freq (MHz)	Max Gain(dBi)	Min Gain(dBi)	Avg. Gain(dBi)	Source Polar.	Date
1	AP.25E.07.0054A	YZ	1579.00	0.73 / 357.00	-20.87 / 181.00	-3.44	RHCP	2010/4/19

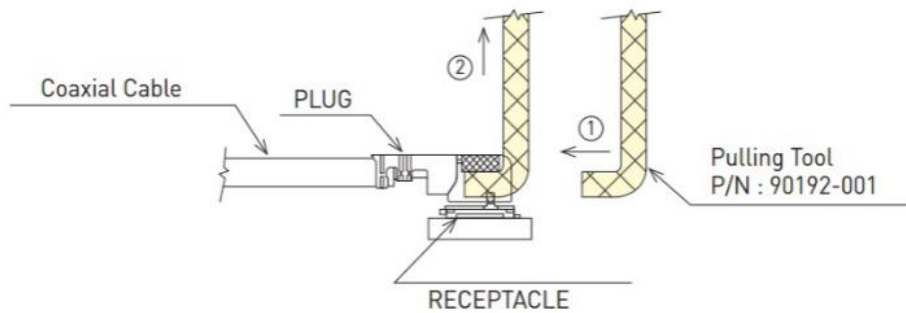
# 7. Plugs Usage Precautions

## Mating / unmating

(1) To disconnect connectors, insert the end portion of I-PEX under the connector flanges and pull off vertically, in the direction of the connector mating axis.

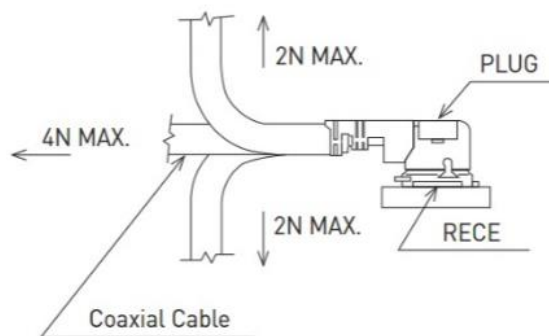
(2) To mate the connectors, the mating axes of both connectors must be aligned and the connectors can be mated. The "click" will confirm fully mated connection.

Do not attempt to insert on an extreme angle.

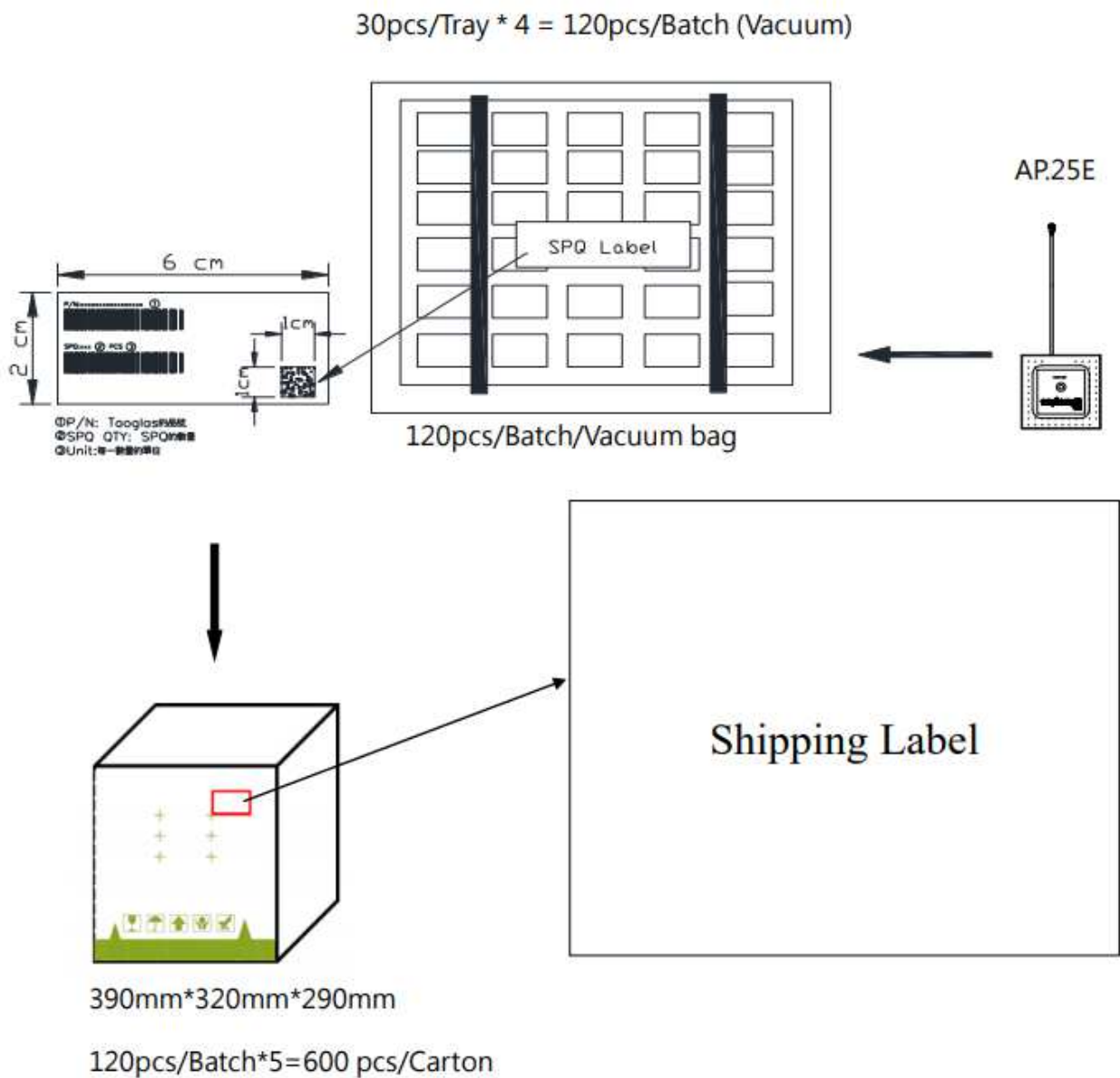


## Pull forces on the cable after connectors are mated

After the connectors are mated, do not apply a load to the cable in excess of the values indicated in the diagram below.



## 8. Packaging



Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein.

Reproduction, use or disclosure to third parties without express permission is strictly prohibited.

Copyright © Taoglas Ltd.