

SPECIFICATION

Part No.	:	WPC.25B.35
Description	:	2dBi 25mm 2.4 GHz Patch Antenna With MMCX Female Connector
Features	:	Ceramic Patch 25*25*4.5mm Compact Integration via On-board MMCX Female Connector

ROHS and REACH Compliant



Bottom



Top

1. Introduction

The WPC.25B.35 2.4 GHz Ceramic Patch Antenna is an excellent solution for Wi-Fi, ZigBee, Bluetooth and ISM band at 2.4GHz. It has a PCB under the ceramic antenna with a MMCX female mounted connector mounted to the back-side, allowing for simple installation in tight device environments, and can be placed directly over metal ground-planes without compromising performance.

The antenna can be stuck to the inside of a plastic enclosure by adding adhesive tape or glue. Attaching a cable between the MMCX connector and device PCB completes the connection. Taoglas offers many types of suitable cable assemblies from MMCX(M) to U.FL, MMCX(M) to SMA, MMCX(M) to TNC, MMCX to Fakra, etc.

This passive patch antenna has a typical gain response from 2.5 dBi. The radiation pattern is largely omnidirectional, with no distinct nulls, allowing for broad coverage area for wireless applications. Higher gain can be achieved, depending on the ground-plane, the space available, and clearance afforded. The antenna also delivers more than 70% efficiency across the band. The WPC.25B.35's high gain performance and excellent efficiency make it a perfect solution for metering and remote monitoring applications. The ceramic used is robust and reliable, can be used in automotive environments.

Many module manufacturers specify peak gain limits for any antennas that are to be connected to that module. Those peak gain limits are based on free-space conditions. In practice, the peak gain of an antenna tested in free-space can degrade by at least 1 or 2dBi when put inside a device. So ideally you should go for a slightly higher peak gain antenna than mentioned on the module specification to compensate for this effect, giving you better performance.

Upon testing of any of our antennas with your device and a selection of appropriate layout, integration technique, or cable, Taoglas can make sure any of our antennas' peak gain will be below the peak gain limits. Taoglas can then issue a specification and/or report for the selected antenna in your device that will clearly show it complying with the peak gain limits,

so you can be assured you are meeting regulatory requirements for that module.

For example, a module manufacturer may state that the antenna must have less than 2dBi peak gain, but you don't need to select an embedded antenna that has a peak gain of less than 2dBi in free-space. This will give you a less optimized solution. It is better to go for a slightly higher free-space peak gain of 3dBi or more if available. Once that antenna gets integrated into your device, performance will degrade below this 2dBi peak gain due to the effects of GND plane, surrounding components, and device housing. If you want to be absolutely sure, contact Taoglas and we will test. Choosing a Taoglas antenna with a higher peak gain than what is specified by the module manufacturer and enlisting our help will ensure you are getting the best performance possible without exceeding the peak gain limits.

2. Specification Table

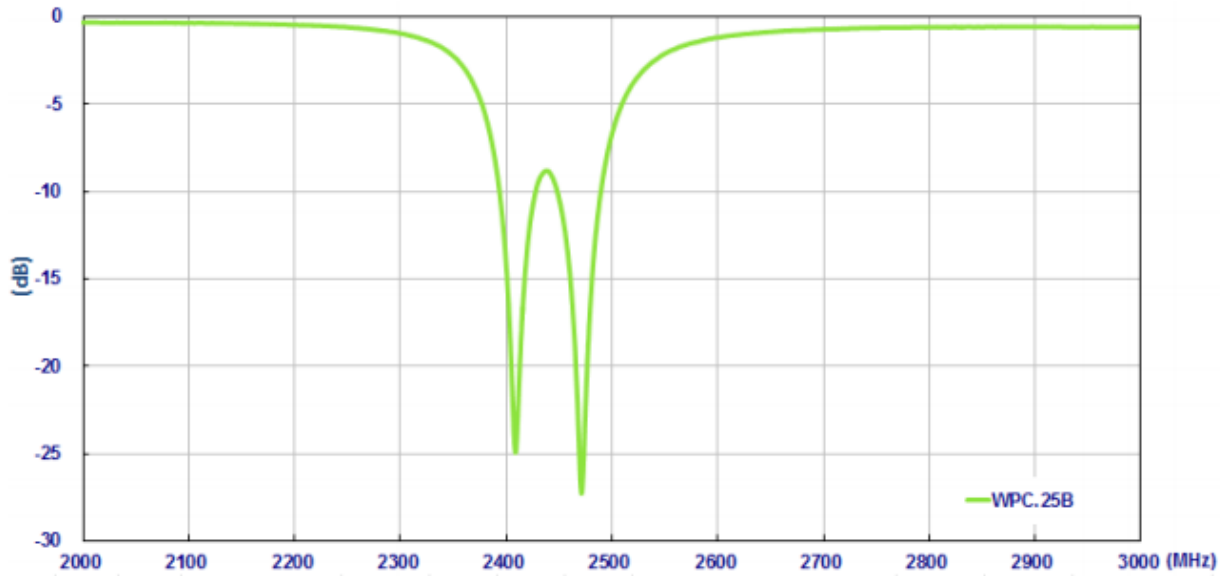
No	Parameter	Specification
1	Frequency	2400 MHz - 2500 MHz
2	Impedance	50Ω
3	Bandwidth	100 MHz min Return Loss <-6dB
4	VSWR	3:1
5	Gain toward Zenith	+3.5 dBic typ. Center Frequency
6	Efficiency	65% min.
7	Peak Gain	2 dBi min.
8	Polarization	Broadly Linear
9	Frequency Temperature Coefficient (τf)	0 ± 20ppm/°C
10	Operating Temperature	-40°C to +85°C
11	Weight	5g

*The antenna is testing in free space.

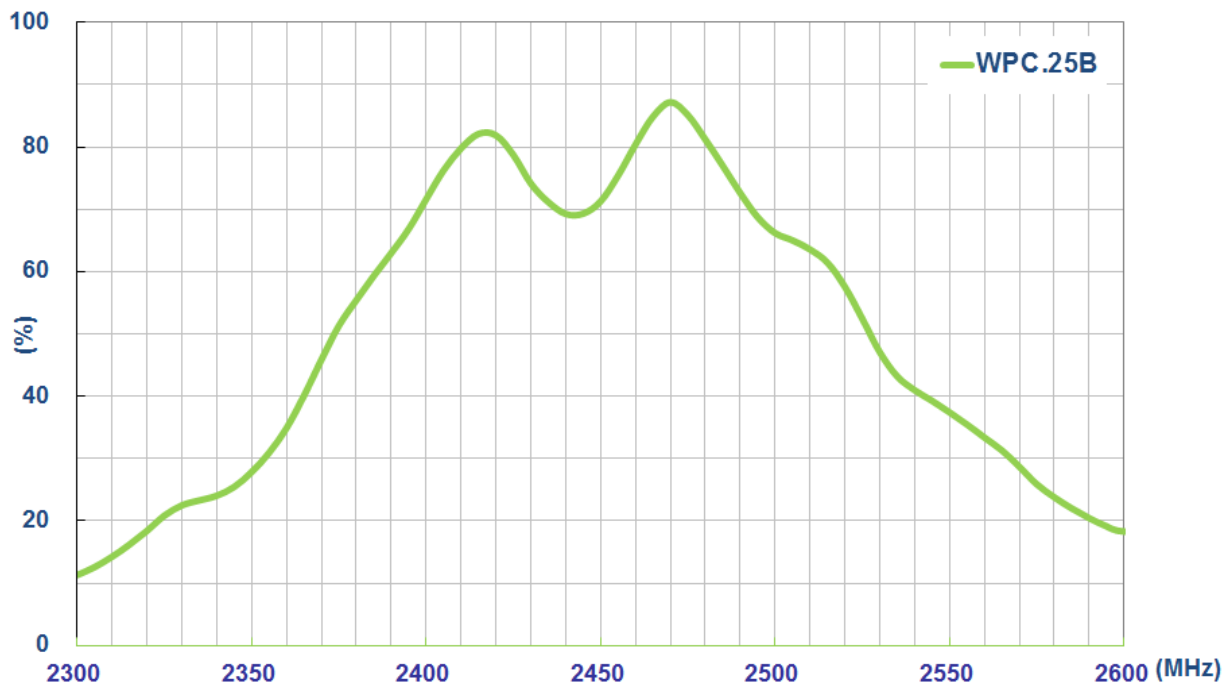
3. Electrical Specification

3.1 Return Loss

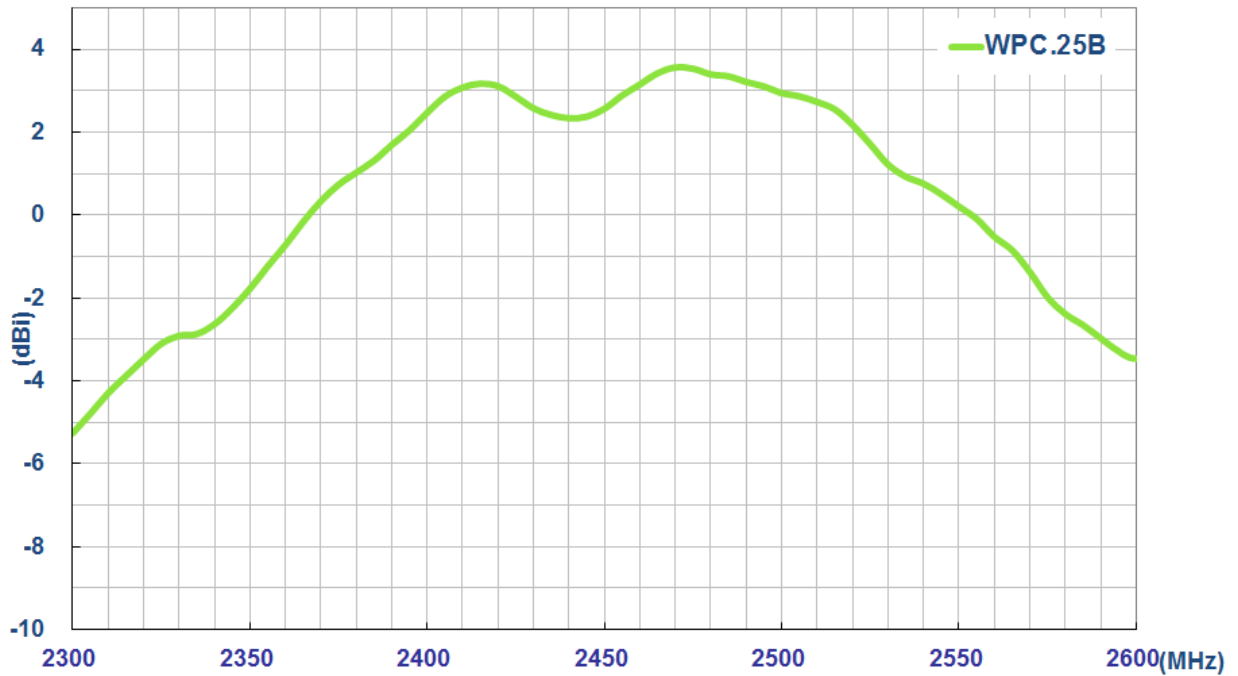
3.1 Return Loss



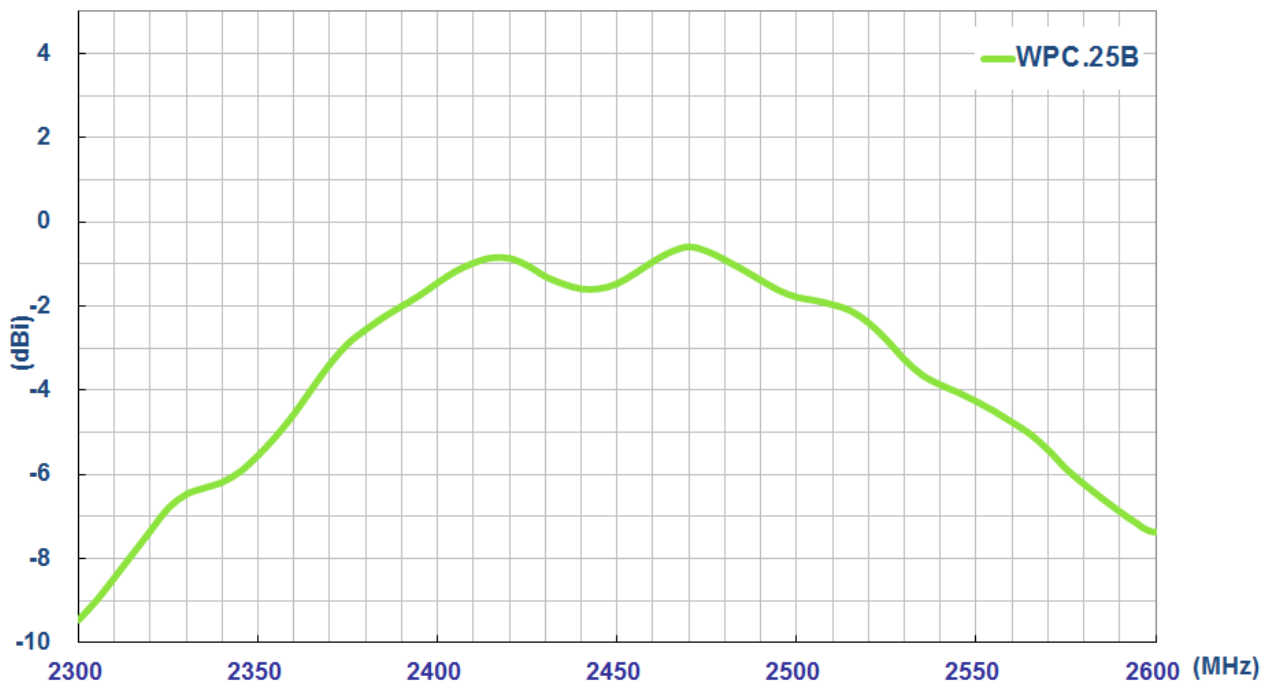
3.2 Efficiency



3.3 Peak Gain

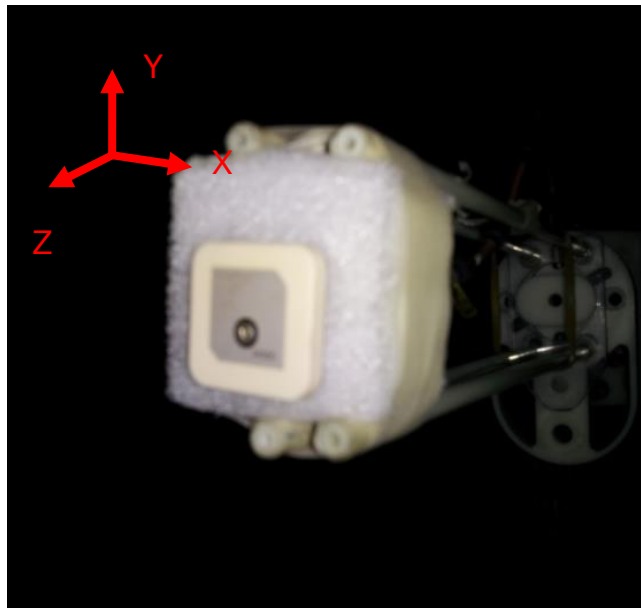


3.4 Average Gain

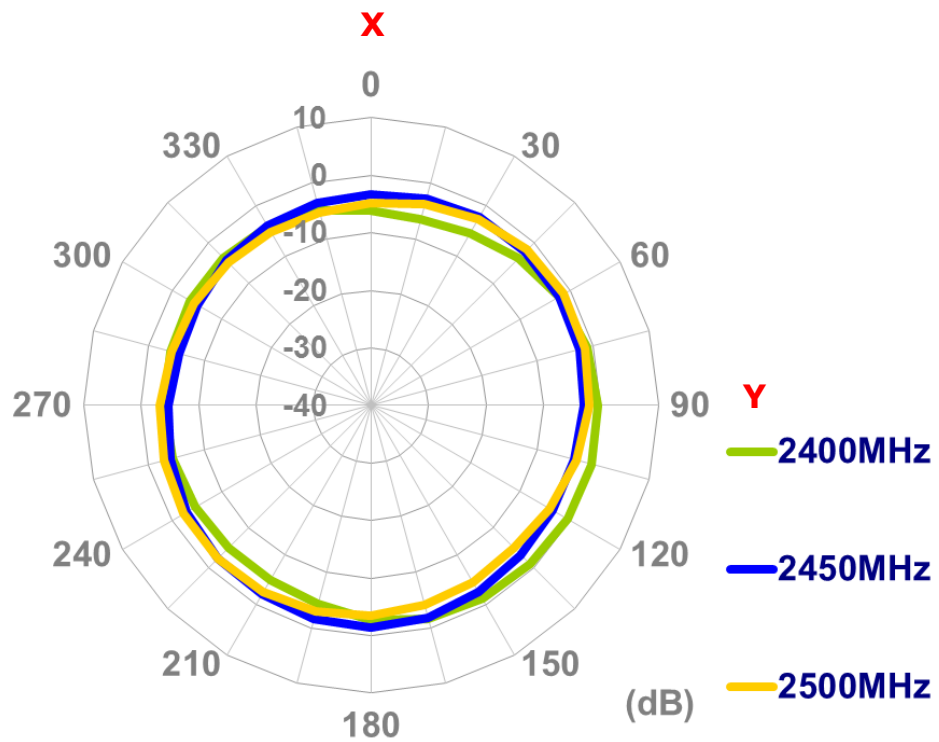


3.5 Radiation Pattern

The antenna was measured in an ETS certified Anechoic Chamber.

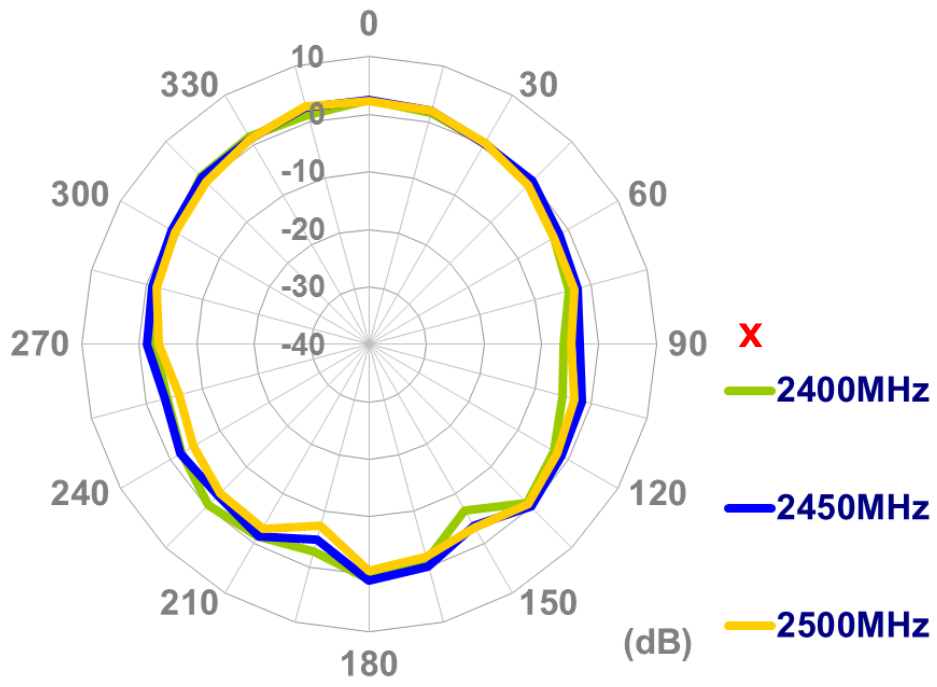


XY Plane

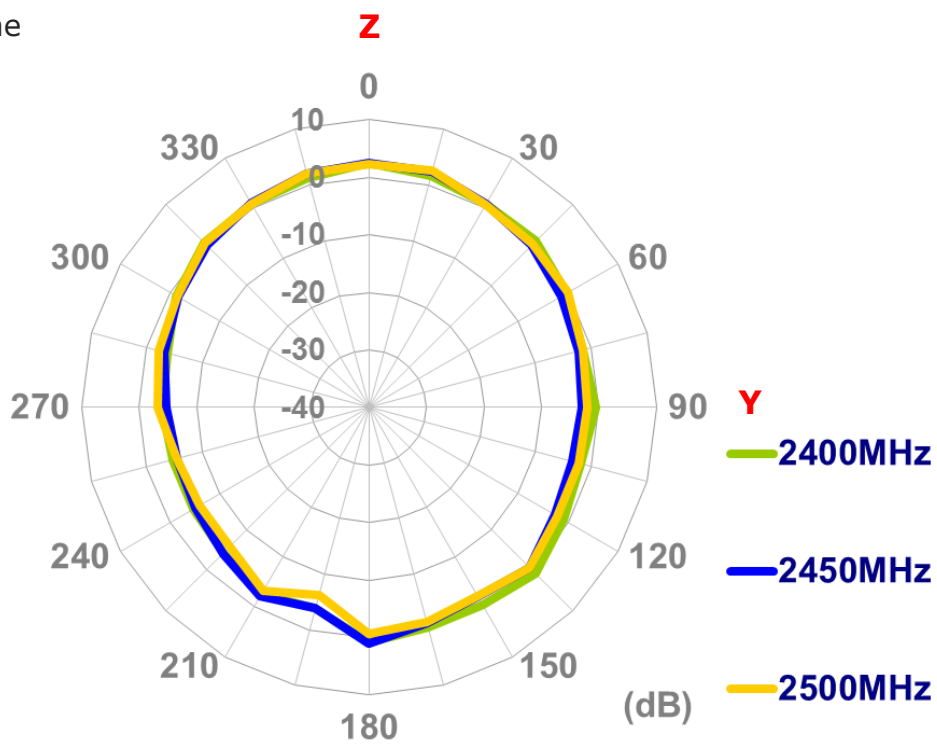


XZ-Plane

Z

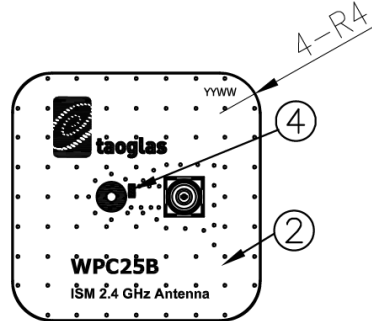


YZ-Plane

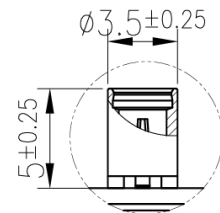
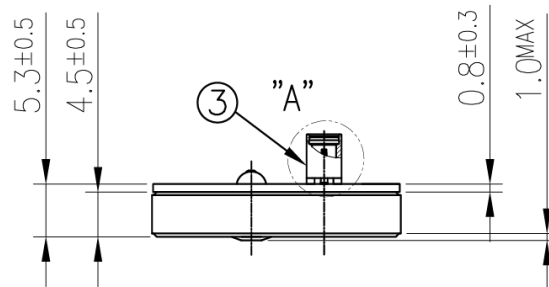


4. Mechanical Drawing

Front View

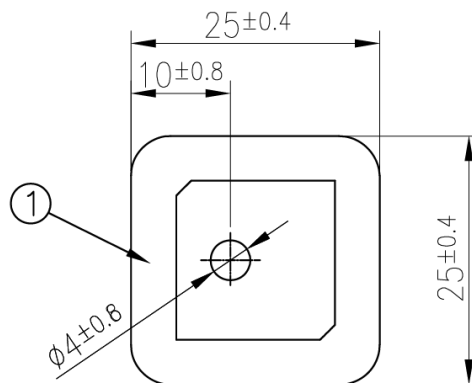


Side View



Detail A
Scale: 2:1

Back View



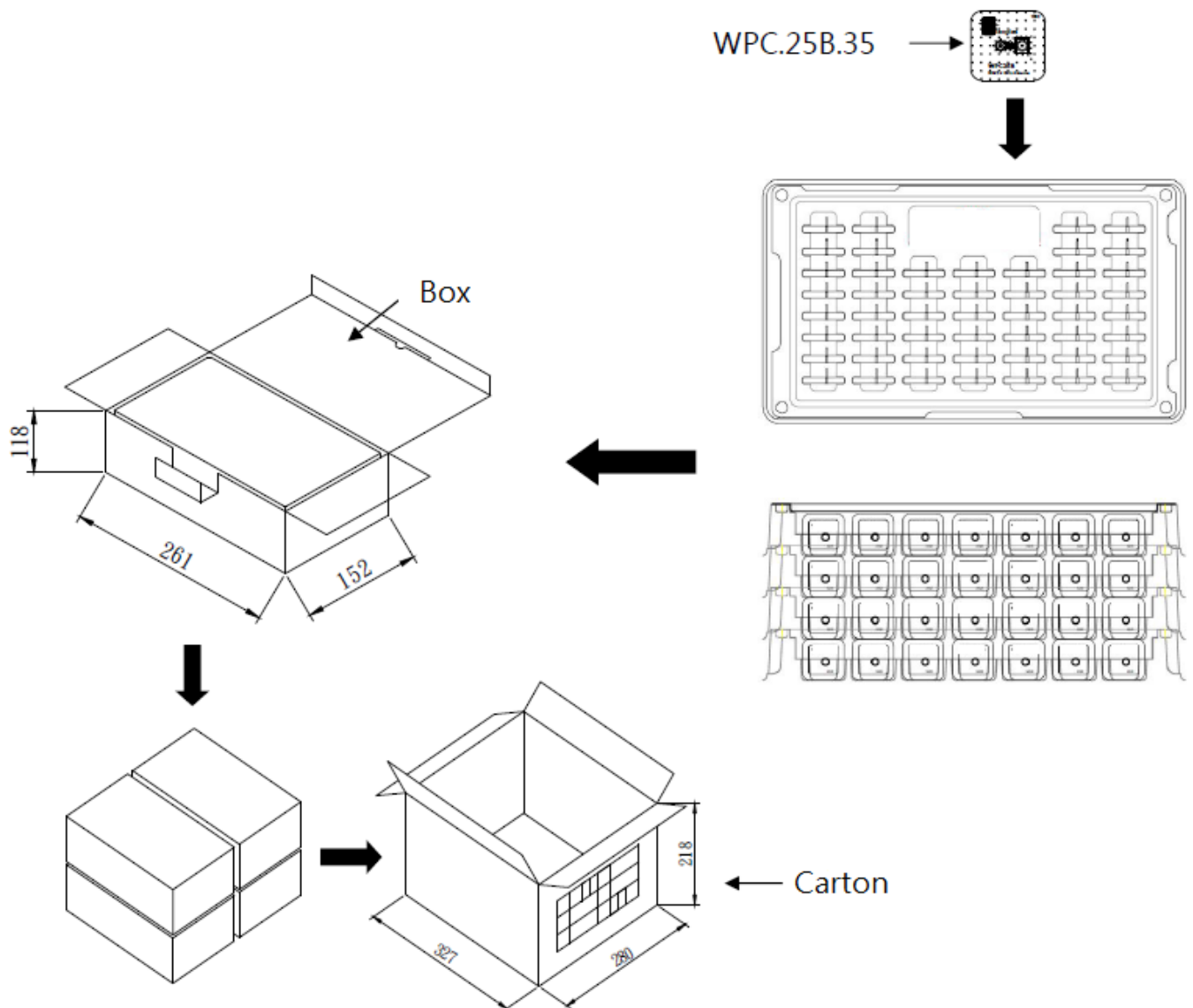
	Name	Material	Finish	QTY
1	WLP.2450 Patch	Ceramic	Clear	1
2	WPC.25B.35 PCB (24.8x24.8)	Composite 0.8t	Black	1
3	MMCX(F)ST	Brass	Au Plated	1
4	L=3nH Inductor	Ceramic	N/A	1

5. Packaging

50 pieces per Tray

200 per Box

4 x 200 – 800 pieces per Carton



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