

## SPECIFICATION

- Part No. : **DBP.433.T.A.30**
- Description : Dielectric Band Pass Filter for 433MHz  
Bandwidth 2MHz
- Features : Center Frequency 433.92MHz  
Supports ISM 433.05MHz to 434.79MHz use.  
Low Insertion Loss  
Low Pass-Band Ripple  
High Ultimate Attenuation  
Dims: 10\*7.5\*3.7mm



## 1. Introduction

Taoglas are utilizing their deep understanding of the RF component design and manufacturing process to provide high-quality, small-form-factor, cost-effective and easy to implement RF filters. The Taoglas Filters Division will feature a range of off-the-shelf filters for a variety of applications, including filters for emerging license free bands used for IoT and for GPS L1/L2 and L1/L5 applications. We can also work with customers to develop bespoke filter solutions.

Taoglas dielectric filters are designed to be used in wireless transmitters or receivers. These filters are designed to protect the LNA from noisy out of band emissions originated from nearby transmitters that can overdrive, or even damage your LNA. Overdriving the LNA results in non-linear distortion which negatively impacts the sensitivity of your receiver.

By selecting the proper Taoglas filter you can eliminate unnecessary out of band noise while maintaining minimal in-band insertion loss. The filter is manufactured as a single ceramic block [monoblock] which provides high reliability, low insertion loss and high attenuation in a simple compact SMD package.

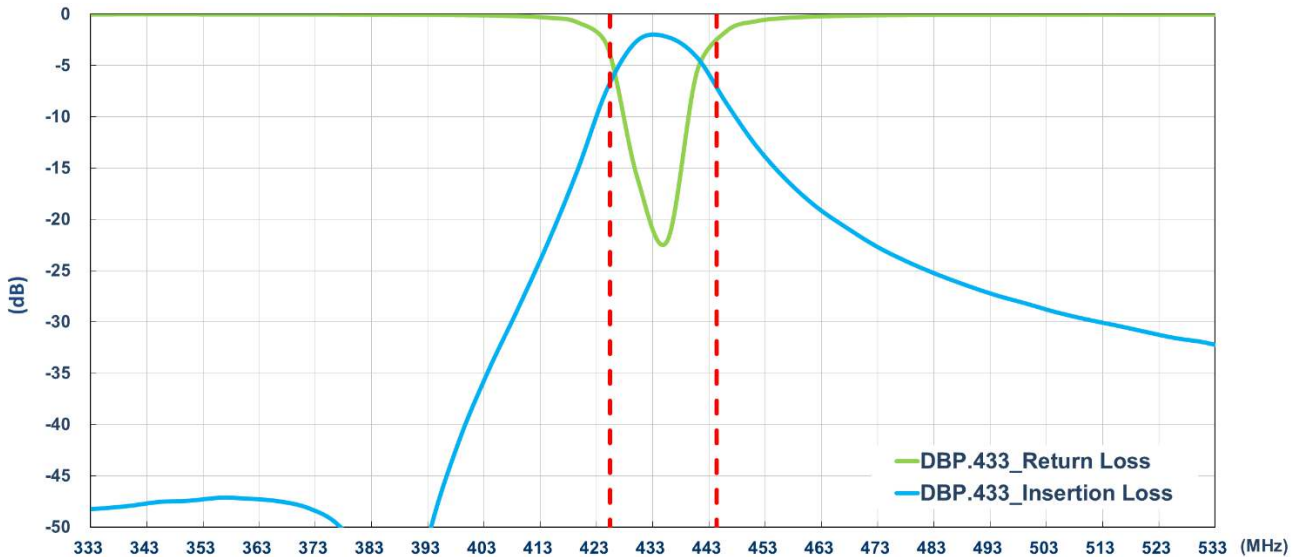
The DBP.433.T.A.30 is a standard Taoglas product but can be customized for specific customer needs. For more information please contact your regional sales office.

## 2. Specification

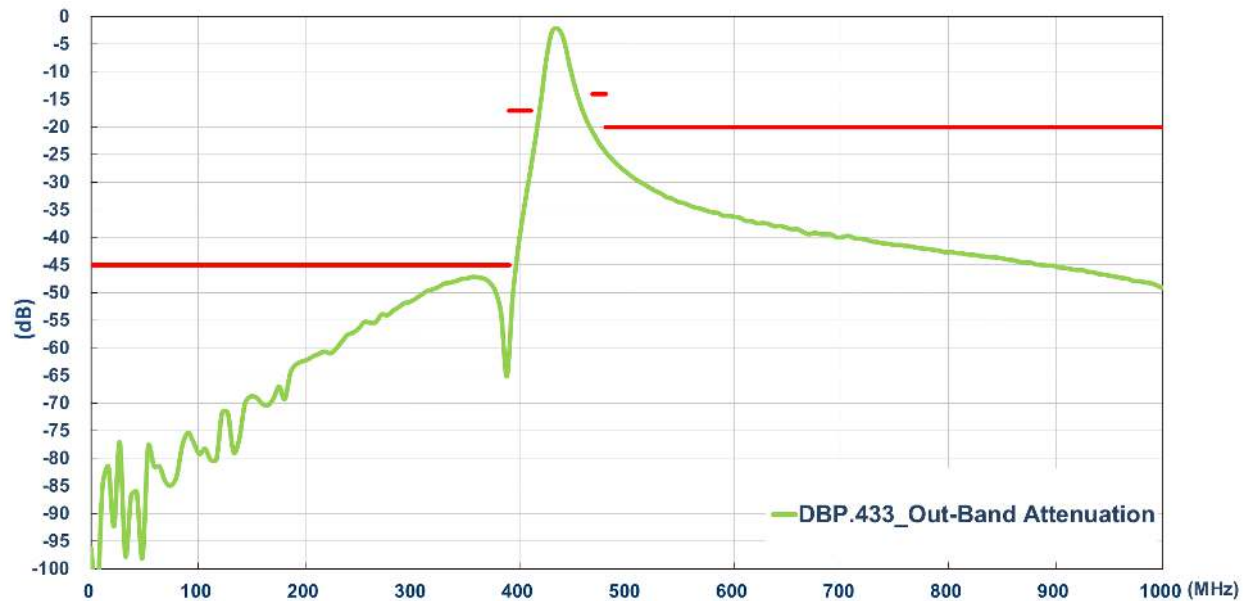
| ELECTRICAL                       |   |
|----------------------------------|---|
| Centre Frequency (Fo)            | 433.92MHz   |
| 3dB Bandwidth                    | 10MHz   |
| Insertion Loss                   | 3.0 dB max  |
| Passband Ripple                  | 0.5 dB max  |
| Return Loss                      | < -10 dB  |
| Attenuation                      | > 45.0 dB @ 0 ~ 390 MHz<br>> 17.0 dB @ 390 MHz ~ 410 MHz<br>> 14.0 dB @ 468 MHz ~ 480 MHz<br>> 20.0 dB @ 480 MHz ~1 GHz |
| In/Out Impedance                 | 50 Ω  |
| Power Dissipation                | 1.0 W min.  |
| MECHANICAL                       |   |
| Dimension                        | 10 x 7.5 x 3.7 (L x W x H)  |
| Material                         | Ceramic   |
| Finish                           | Ag plated   |
| ENVIRONMENTAL                    |   |
| Operating Temperature            | -40°C to 85°C   |
| Storage Temperature              | -40°C to 85°C   |
| Moisture Sensitivity Level (MSL) | 3 (168 Hours)   |

### 3. Characteristics Curve

#### 3.1. Pass Band Return & Insertion Loss

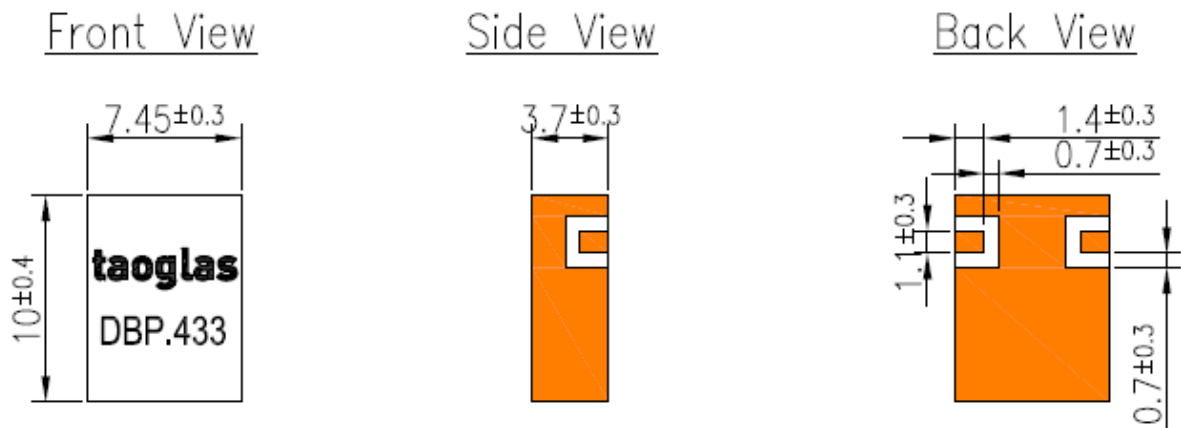


#### 3.2. Out-Of-Band Attenuation



## 4. Mechanical Drawings (Unit: mm)

### 4.1. Antenna Drawing



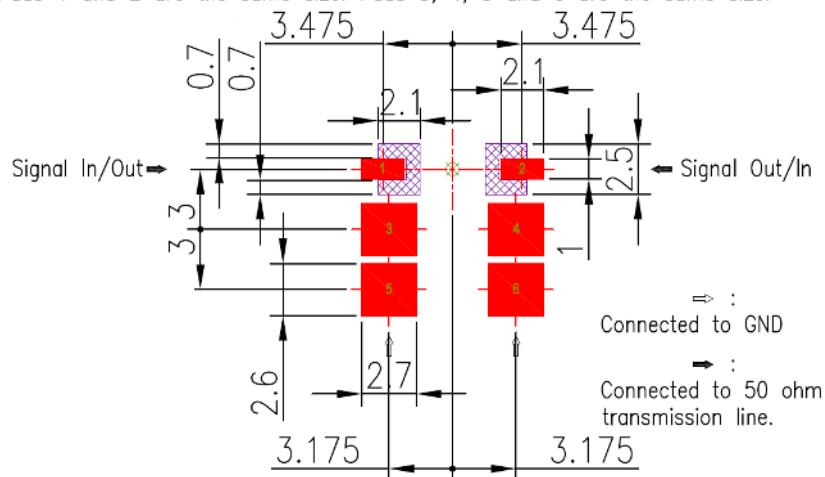
## 4.2. Recommended PCB Layout

### 4.2.1. Top Copper

Pads 1 and 2 should be connected to a 50 ohm transmission line.

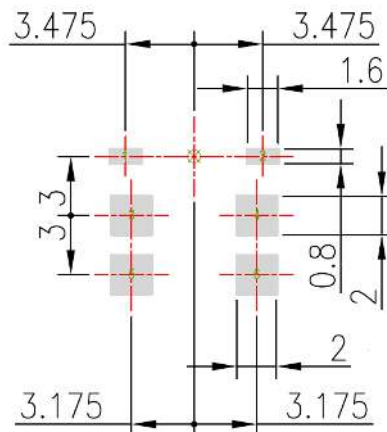
Pads 3, 4, 5 and 6 are connected to GND.

Pads 1 and 2 are the same size. Pads 3, 4, 5 and 6 are the same size.



### 4.2.2. Top Solder Paste

Pads 1 and 2 are the same size. Pads 3, 4, 5 and 6 are the same size.



#### NOTE:

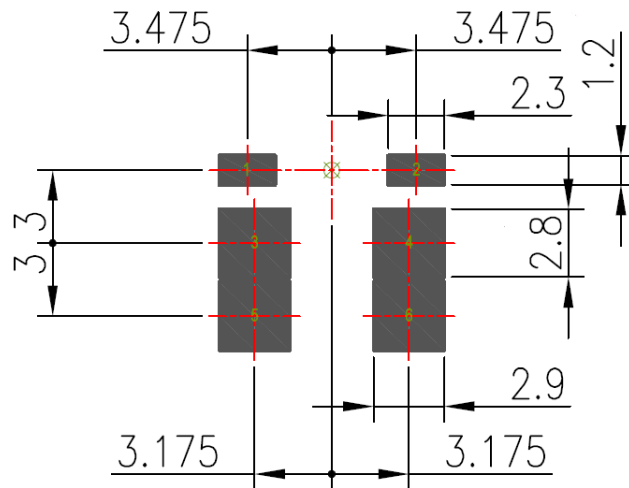
1. Ag Plated area
2. Solder Mask area
3. Copper area
4. Paste area
5. Copper Keepout Area



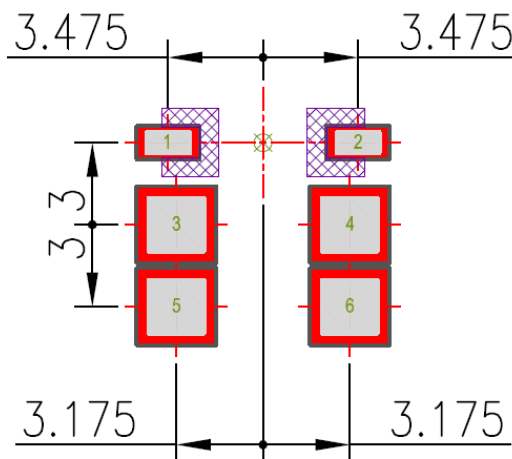
6. Any vias in pads should be either filled or tented to prevent solder from wicking away from the pad during reflow.
7. The dimension tolerances should follow standard PCB manufacturing guidelines

### 4.2.3. Top Solder Mask






Pads 1 and 2 are the same size. Pads 3, 4, 5 and 6 are the same size.  
This drawing is a negative of solder mask. Black regions are anti-mask.



### 4.2.4. Composite Diagram

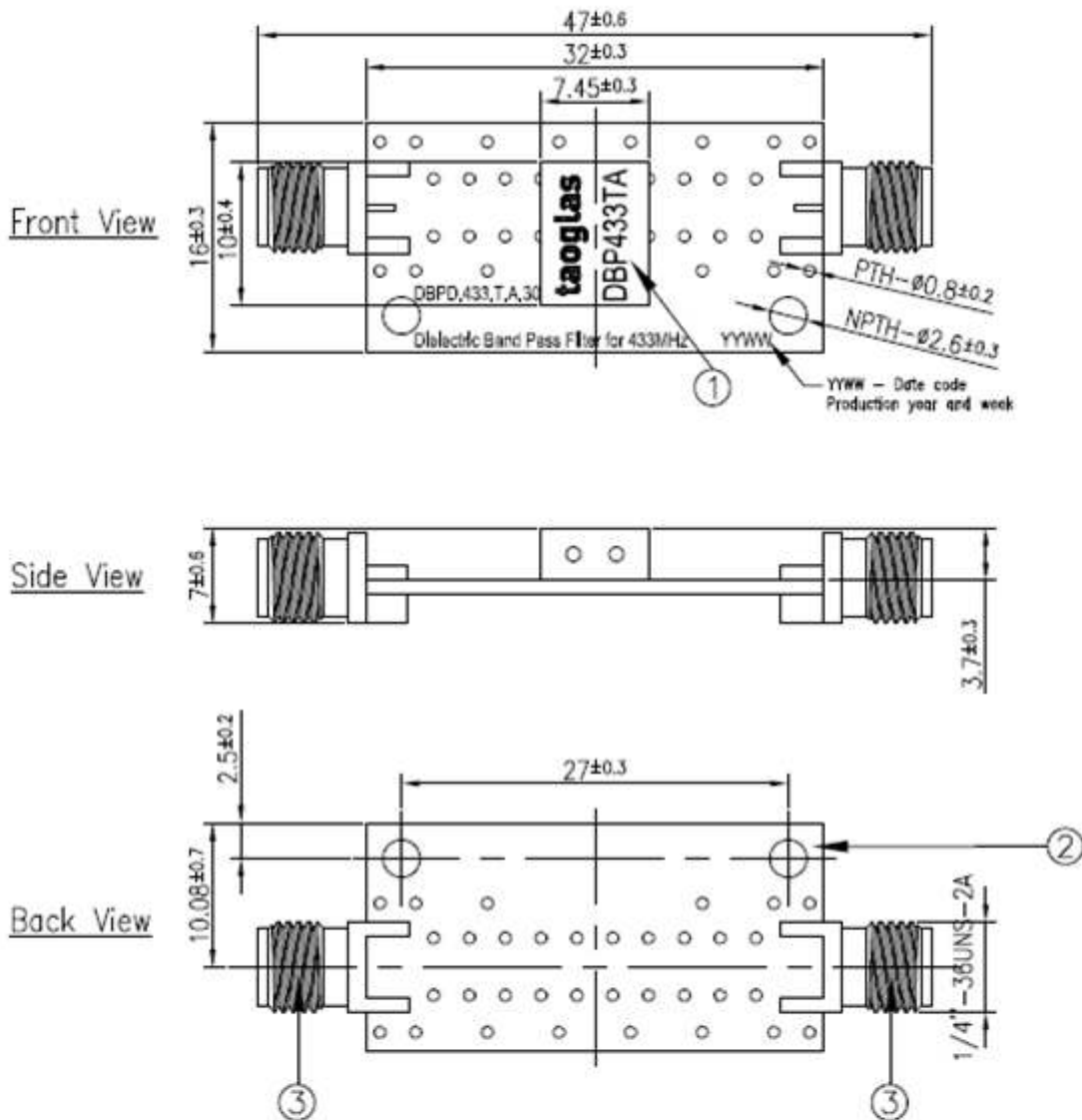


NOTE:

- |                        |   |
|------------------------|---|
| 1. Ag Plated area      |  |
| 2. Solder Mask area    |  |
| 3. Copper area         |  |
| 4. Paste area          |  |
| 5. Copper Keepout Area |  |

6. Any vias in pads should be either filled or tented to prevent solder from wicking away from the pad during reflow.
7. The dimension tolerances should follow standard PCB manufacturing guidelines

### 4.3. Evaluation Board



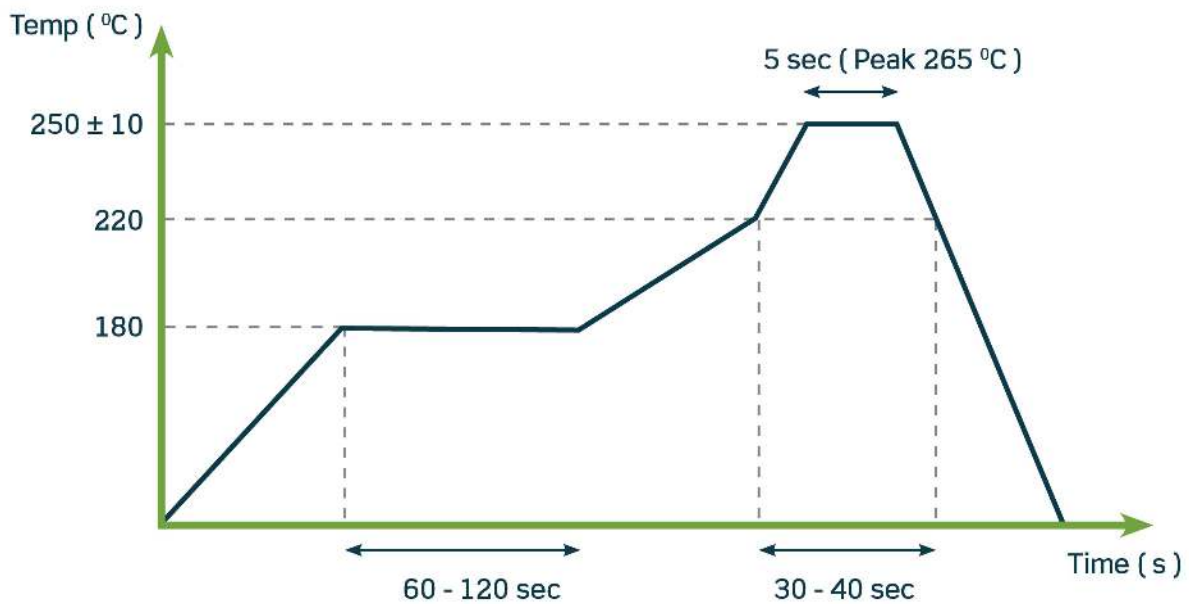
NOTE:  
1.All material must be RoHS compliant.

|   | Name      | Material       | Finish    | QTY |
|---|-----------|----------------|-----------|-----|
| 1 | Filter    | Ceramic        | Clear     | 1   |
| 2 | PCB       | Composite 1.0t | Black     | 1   |
| 3 | SMA(F) ST | Brass          | Au Plated | 2   |



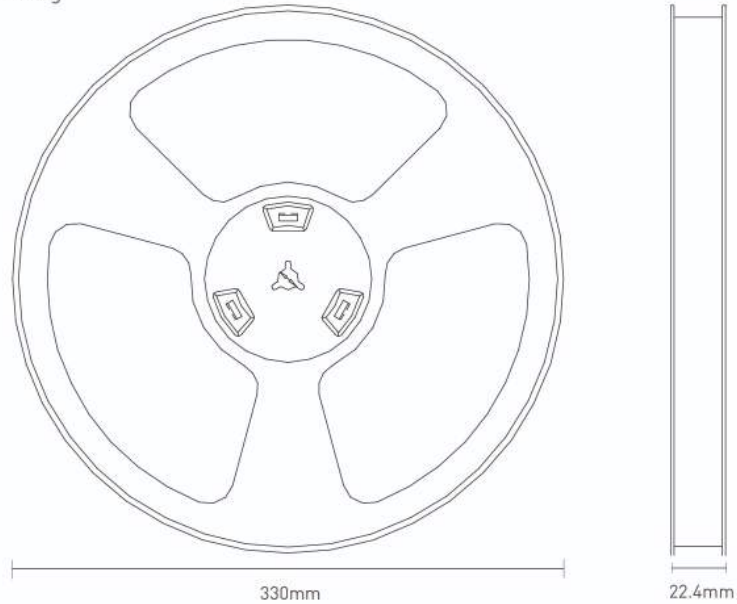
## 5. Recommended Reflow Soldering Profile

| Phase     | Profile Features    | Maximum        |
|-----------|---------------------|----------------|
| Preheat   | Temperature Min     | 150 °C         |
|           | Temperature Max     | 180 °C         |
|           | Duration            | 60-120 sec     |
| Ramp-Up   | Avg. Ramp up rate   | 3 °C/sec (max) |
| Reflow    | Temperature         | 220 °C         |
|           | Duration            | 30-40 sec      |
| Peak      | Temperature         | 265 °C         |
|           | Duration            | 5 sec Max      |
| Ramp Down | Avg. Ramp down rate | 3 °C/sec (max) |

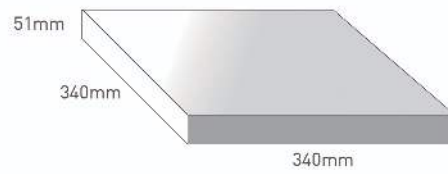


## 6. Recommended Reflow Soldering Profile

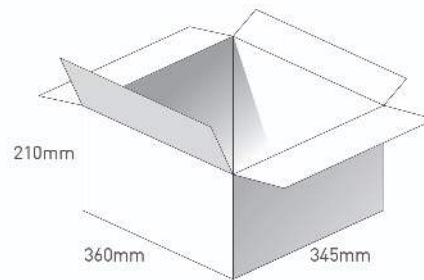
1250 pc DBP.433.T.A.30  
1 reel per small inner box  
Dimensions - 330\*22.4mm  
Weight - 2030g



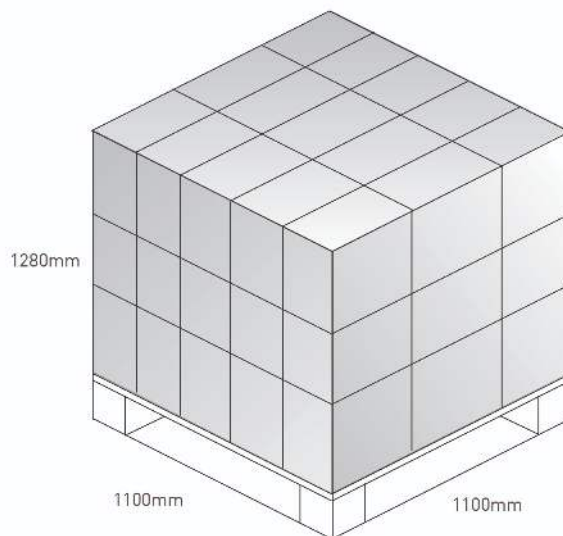
2500 pc DBP.433.T.A.30  
2 reel in small inner box  
Dimensions - 340\*340\*51  
Weight - 4.17Kg



4 inner boxes / 10000 pcs in one carton  
Carton Dimensions - 210\*345\*360mm  
Weight - 17.2Kg



Pallet Dimensions 1100\*1100\*1280mm  
24 Cartons per Pallet  
6 Cartons per layer  
4 Layers



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