

## 2JE15b

433 MHz ISM Surface Mount

### Key Features

- 433 MHz ISM
- 433-435 MHz
- Surface Mount
- Easy to Integrate
- Compact Size
- Ceramic Material
- Ground Plane Dependent
- Dimensions 12 x 4 x 1.6 mm



## 1. Antenna and electrical specifications

Parameters	433 MHz ISM Antenna
<b>Standards</b>	ISM, LoRa
<b>Band (MHz)</b>	433 MHz
<b>Frequency (MHz)</b>	433-435
<b>Return Loss (dB)</b>	~-15.0
<b>VSWR</b>	~1.5:1
<b>Peak Gain (dBi)</b>	~-10.3
<b>Average Gain (dB)</b>	~-13.6
<b>Impedance (Ohm)</b>	50
<b>Polarisation</b>	Linear
<b>Radiation Pattern</b>	Omni-Directional
<b>Max. Input Power (W)</b>	10

### Antenna Measurement Conditions:

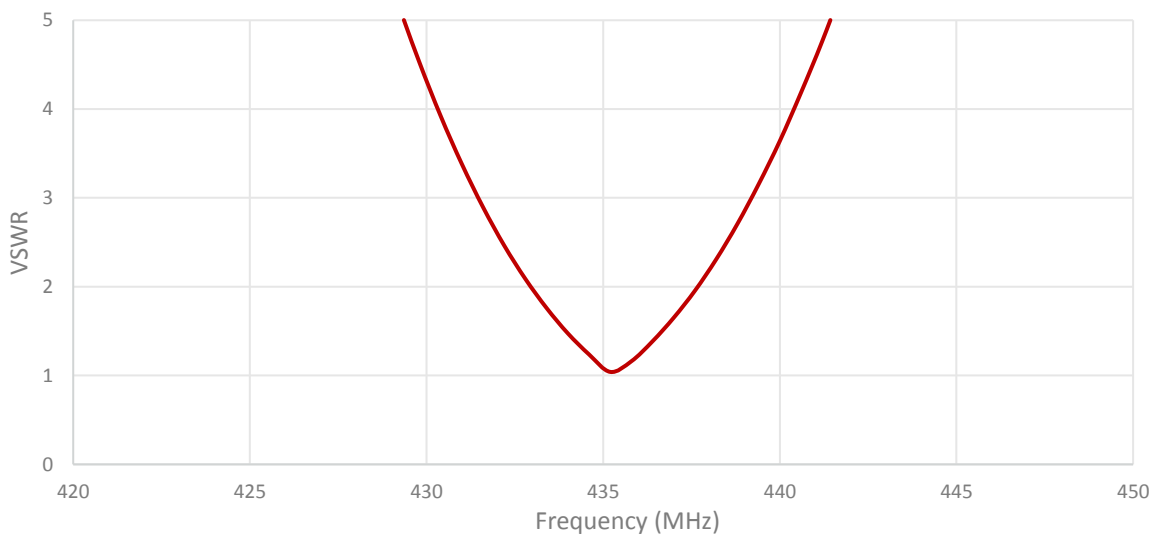
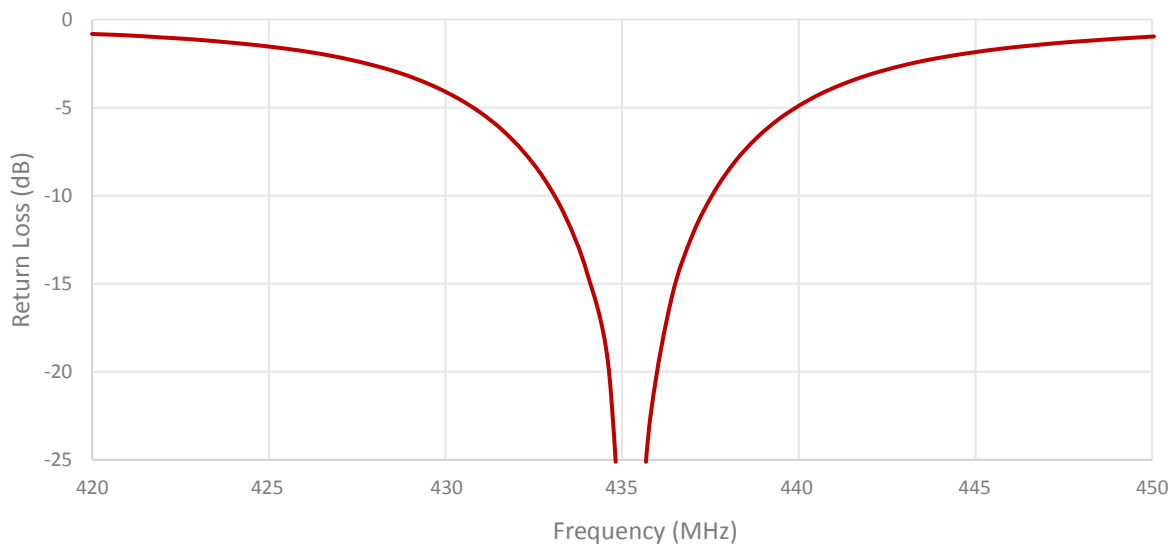
Mounted on ground plane of 50 x 90 mm

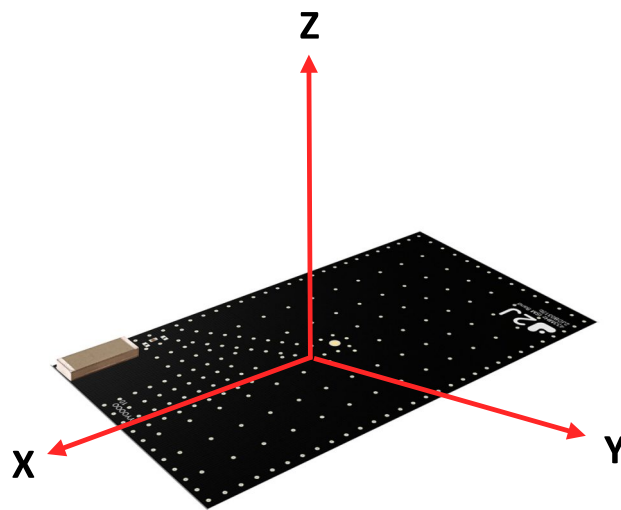
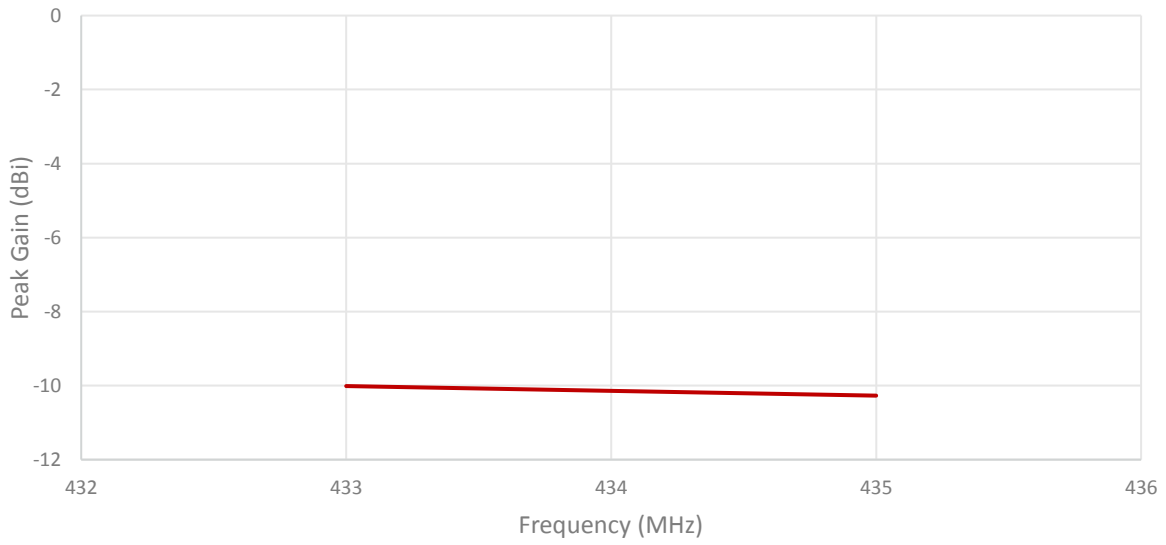
Measured in Certified CTIA 3D Anechoic Chamber

## 2. Mechanical and environmental specifications

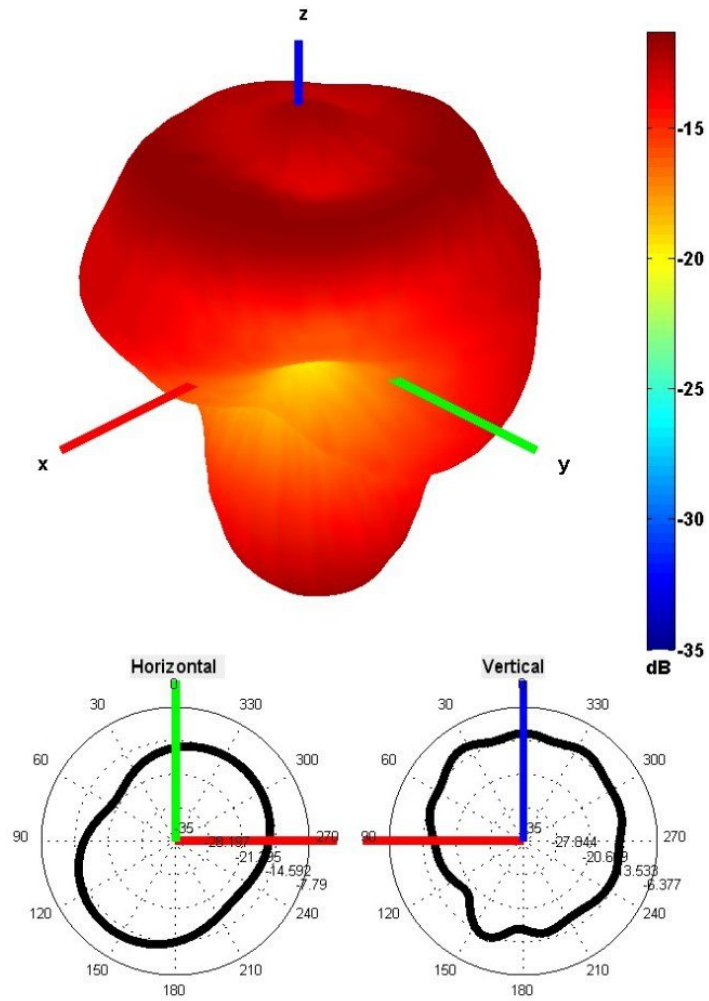
Specifications	2JE15b
<b>Mounting Type</b>	Surface Mount
<b>Dimensions (mm)</b>	12 x 4 x 1.6
<b>Material</b>	Ceramic
<b>Operating Temperature (C)</b>	-40 to +85
<b>Storage Temperature (C)</b>	-40 to +85
<b>Substance Compliance</b>	RoHS

### 3. Antenna parameters



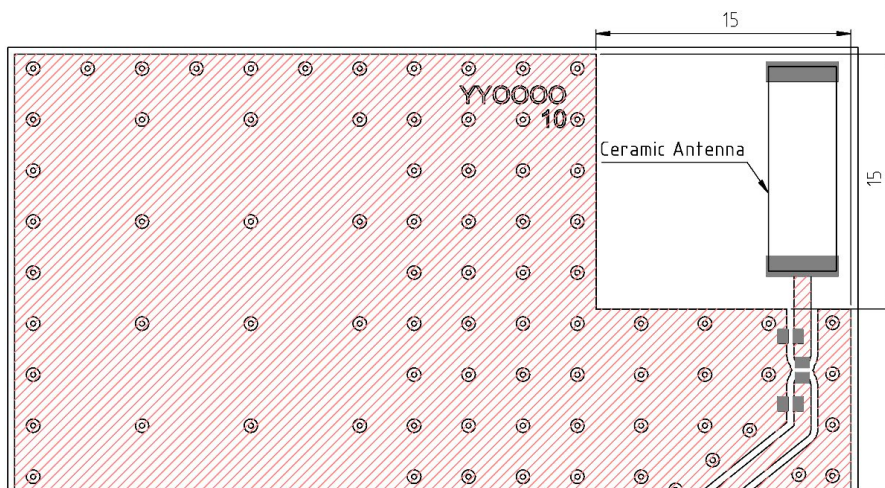


Radiation pattern reference



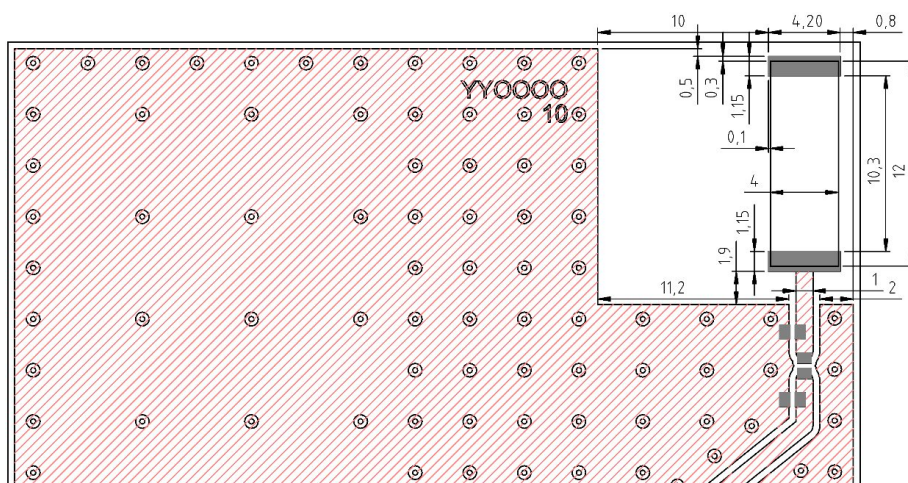
433 MHz Radiation pattern

## 4. PCB Layout



Minimum area required for antenna integration (15mm × 15mm)

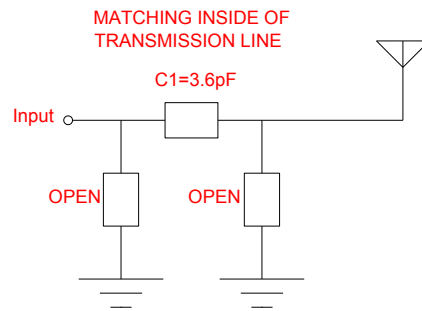
- Solder Region
- Copper Region
- Copper-Free Region



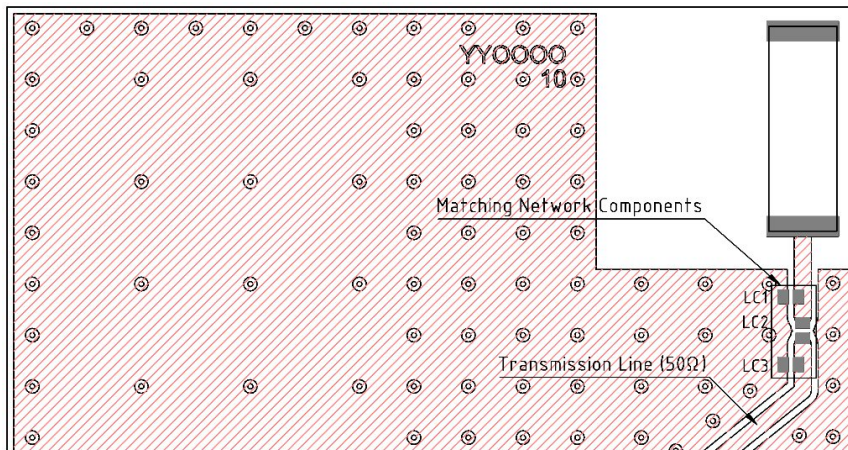
Layout dimensions for antenna integration (mm)

- Solder Region
- Copper Region
- Copper-Free Region

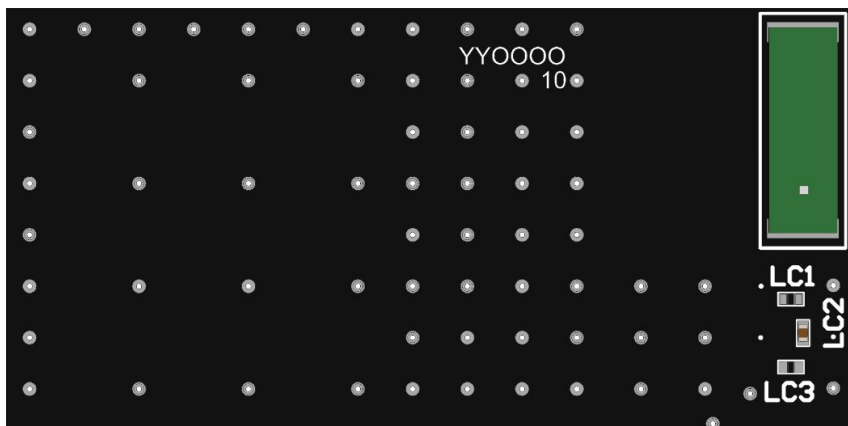
## 5. Matching Components



Matching Network Schematic



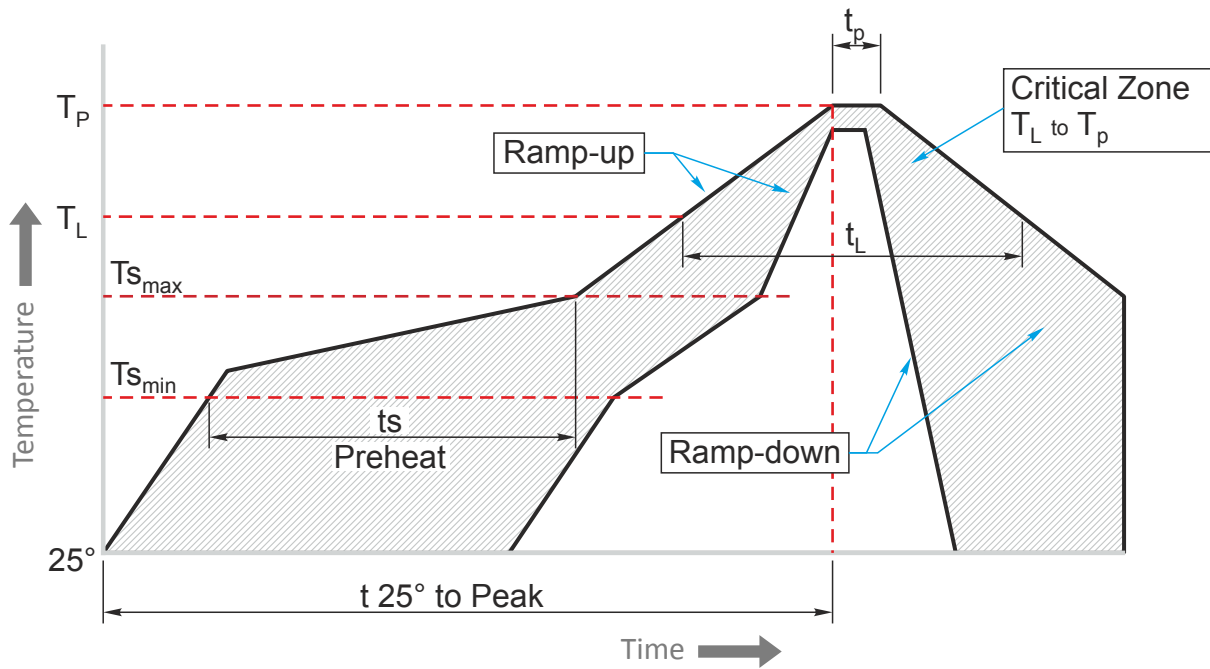
Matching network drawing (LC1 = OPEN, LC2=3.6pF, LC3= OPEN)



3D View of matching components and recommended values (LC1 = OPEN, LC2=3.6pF, LC3= OPEN)



**REFLOW TEMPERATURE PROFILE**



Phase	Profile features	Sn-Pb Assembly	Pb-Free Assembly (SnAgCu)
<b>RAMP-UP</b>	Avg. Ramp-up Rate ( $T_{s_{max}}$ to $T_p$ )	3°C / second (max)	3°C / second (max)
<b>PREHEAT</b>	-Temperature Min Rate ( $T_{s_{min}}$ ) -Temperature Max Rate ( $T_{s_{min}}$ ) -Time ( $t_{s_{min}}$ to $t_{s_{max}}$ )	100°C 150°C 60-120 seconds	100°C 150°C 60-120 seconds
<b>REFLOW</b>	-Temperature ( $T_L$ ) -Total Time above $T_L$ ( $t_L$ )	183°C 60-150 seconds	217°C 60-150 seconds
<b>PEAK</b>	-Temperature ( $T_p$ ) -Time ( $t_p$ )	235°C 10-30 seconds	260°C 20-40 seconds
<b>RAMP-DOWN</b>	Rate	6°C / second max.	6°C / second max.
<b>Time from 25°C to Peak Temperature</b>		6 minutes max.	8 minutes max.



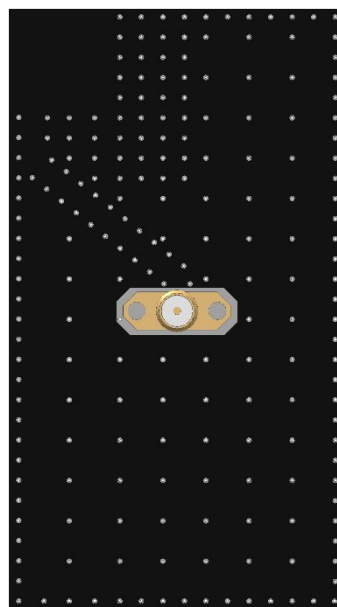
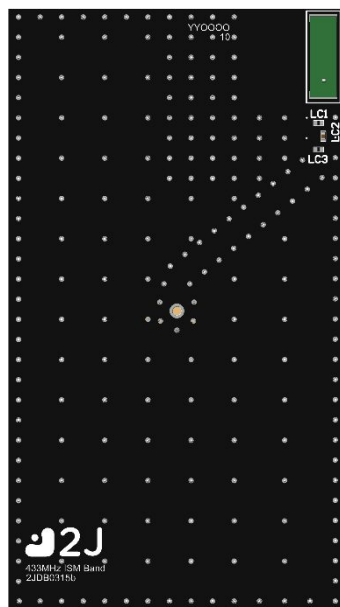
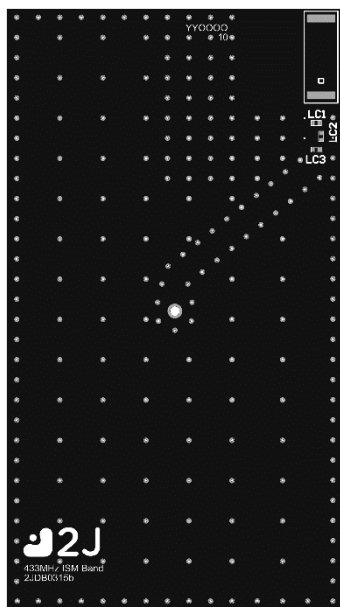
## 6. Evaluation Board

90mm x 50mm

90mm x 50mm

90mm x 50mm

90mm x 11.9mm  
(PCB: 0.8mm, Antenna: 1.6mm,  
Connector: 9.5mm)



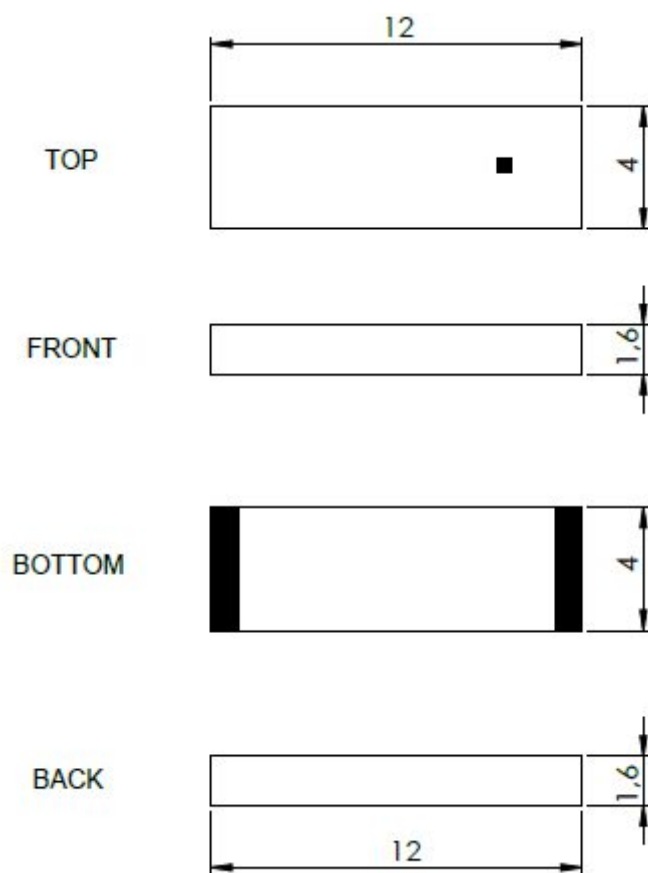
Front View without Antenna

Front View with Antenna

Back View

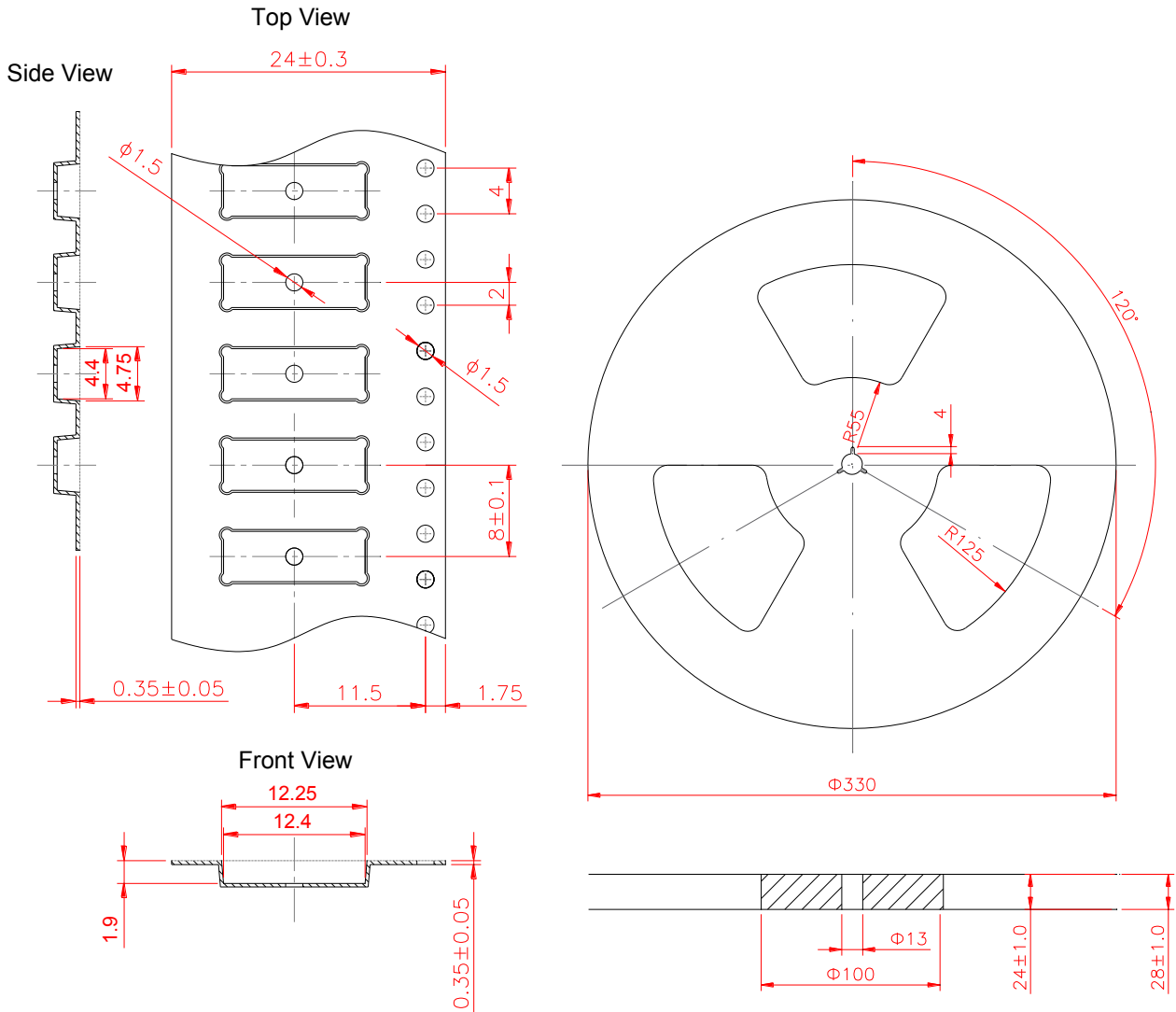
Side View

## 7. Antenna drawings



ceramic antenna body (mm)

## 8. Tape and Reel Information



Tape and Reel Specifications

## 9. Packaging

### PACKAGING SPECIFICATION

<b>Antenna</b>	2JE15b
<b>REEL</b>	
<b>Max Quantity per Reel</b>	3000
<b>REEL BOX</b>	
<b>Reels per Box</b>	1
<b>Reel Box Dimensions (cm)</b>	34 x 34 x 4.9
<b>Reel Box Weight (Kg)</b>	1.4
<b>CARTON</b>	
<b>Reels per Carton</b>	5
<b>Max Quantity per Carton</b>	15,000
<b>Reel Carton Dimensions (cm)</b>	34.5 x 25 x 36
<b>Reel Carton Weight (Kg)</b>	7.5

### Storage Conditions:

- Storage Temperature Range: -40 °C to +85 °C
- Oxidizable material. Store for 12 months in vacuum sealed bag.
- Repack material after use by re-sealing package.

10. Antenna Images

