

# 2JE28

## CELLULAR / LTE Surface Mount

### Key Features

#### CELLULAR / LTE

- 698-960 MHz
- 1710-2170 MHz
- 2500-2700 MHz

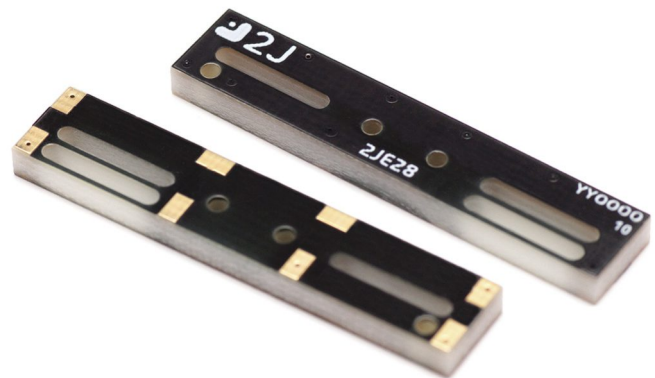
Surface Mount

High Performance

Fiberglass Material

Ground Plane Dependent

Dimensions 40 × 8 × 3 mm



## 1. Antenna and electrical specifications

| Parameters                  | CELLULAR / LTE Antenna |                     |           |
|-----------------------------|------------------------|---------------------|-----------|
| <b>Standards</b>            | 2G,3G and 4G           |                     |           |
| <b>Band (MHz)</b>           | 700/850/900            | 1700/1800/1900/2100 | 2600      |
| <b>Frequency (MHz)</b>      | 698-960                | 1710-2170           | 2500-2700 |
| <b>Return Loss (dB)</b>     | ~-7.6                  | ~-11.2              | ~-14.9    |
| <b>VSWR</b>                 | ~2.6:1                 | ~1.8:1              | ~1.5:1    |
| <b>Efficiency (%)</b>       | ~58                    | ~70                 | ~65       |
| <b>Peak Gain (dBi)</b>      | ~0.5                   | ~3.1                | ~3.5      |
| <b>Average Gain (dB)</b>    | ~-2.6                  | ~-1.7               | ~-2.1     |
| <b>Impedance (Ohm)</b>      | 50                     |                     |           |
| <b>Polarisation</b>         | Linear                 |                     |           |
| <b>Radiation Pattern</b>    | Omni-Directional       |                     |           |
| <b>Max. Input Power (W)</b> | 25                     |                     |           |

### Antenna Measurement Conditions:

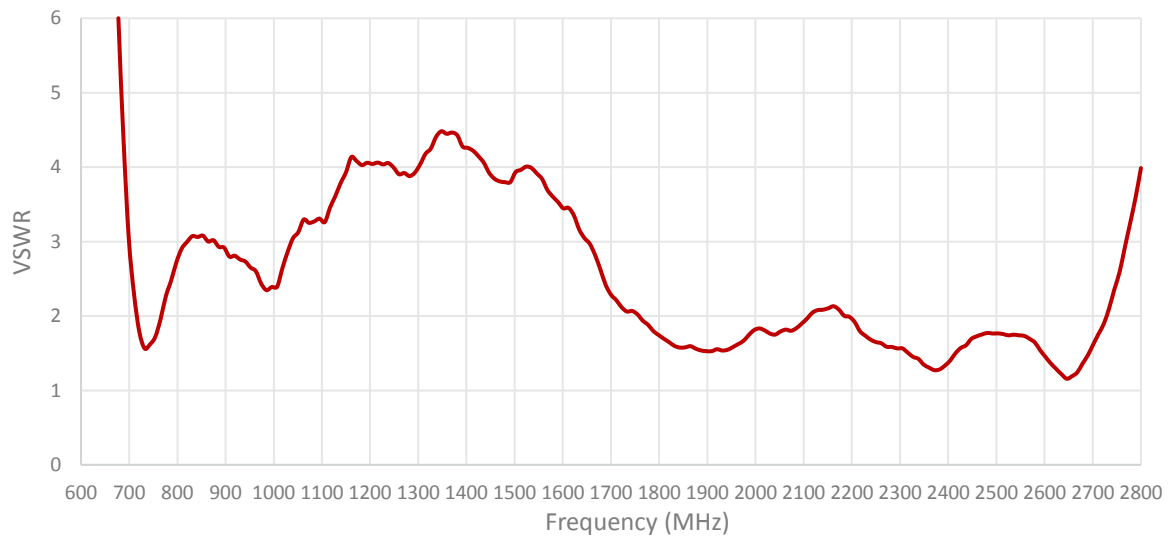
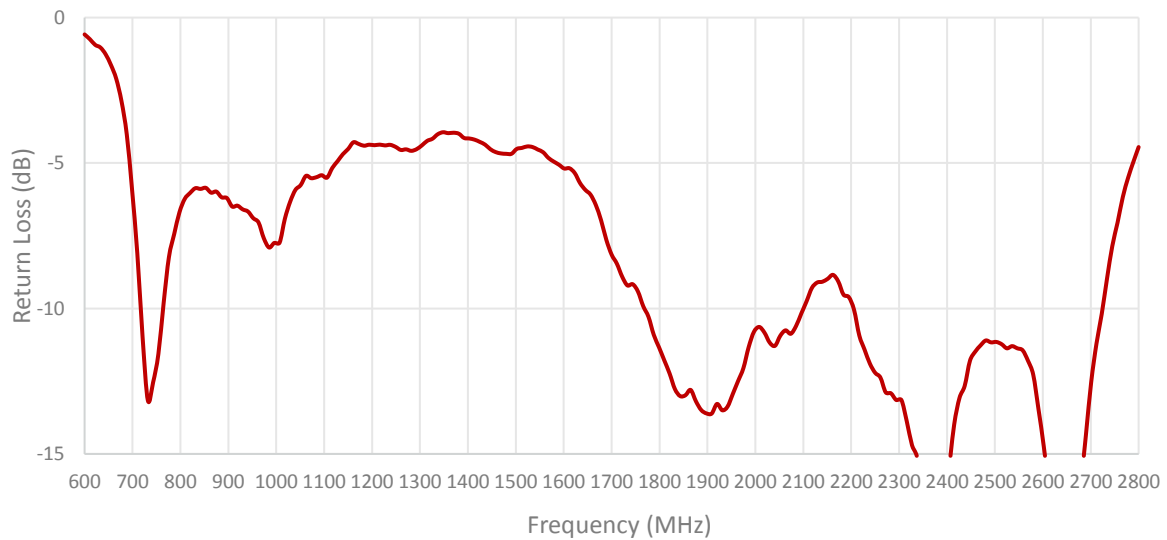
Mounted on ground plane of 110 x 40 mm

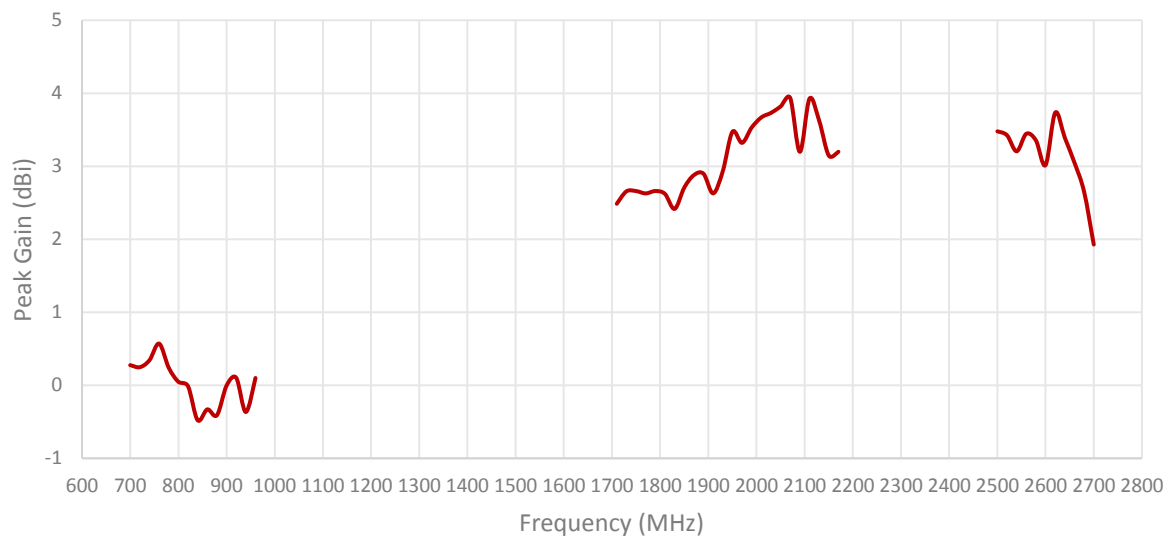
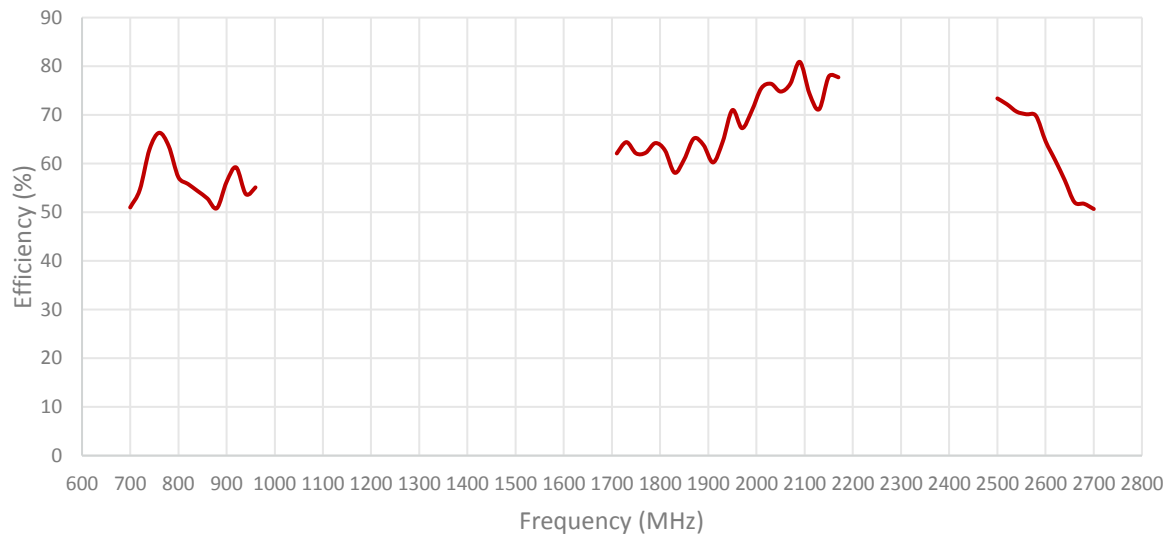
Measured in Certified CTIA 3D Anechoic Chamber

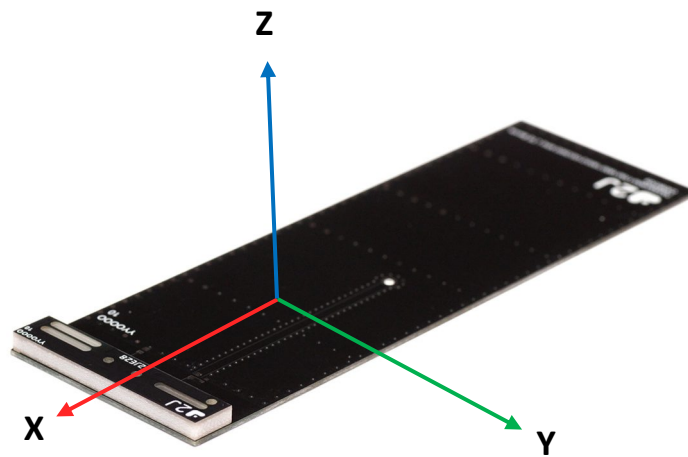
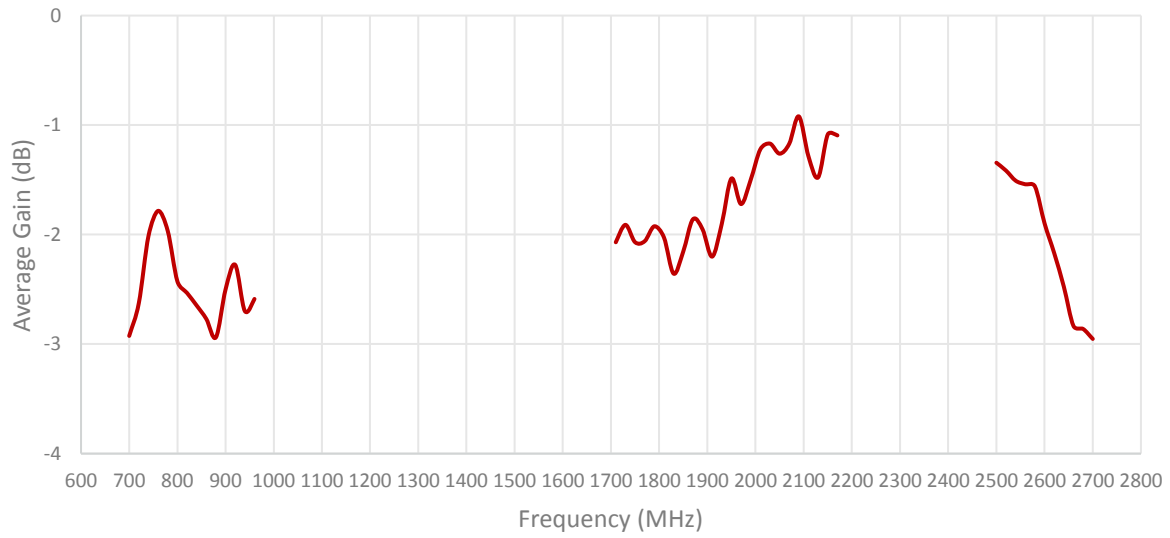
## 2. Mechanical and environmental specifications

| Specifications                       | 2JE28                                 |
|--------------------------------------|---------------------------------------|
| <b>Mounting Type</b>                 | Surface Mount                         |
| <b>Dimensions (mm)</b>               | 40 × 8 × 3                            |
| <b>Material</b>                      | Fiberglass                            |
| <b>Operating Temperature (C)</b>     | -40 to +85                            |
| <b>Storage Temperature (C)</b>       | -40 to +85                            |
| <b>Storage Relative Humidity (%)</b> | Up to 93 at 30 C                      |
| <b>Substance Compliance</b>          | RoHS                                  |
| <b>Typical Shear Force Test</b>      | 25 kgf according to IEC62137-1-2:2007 |

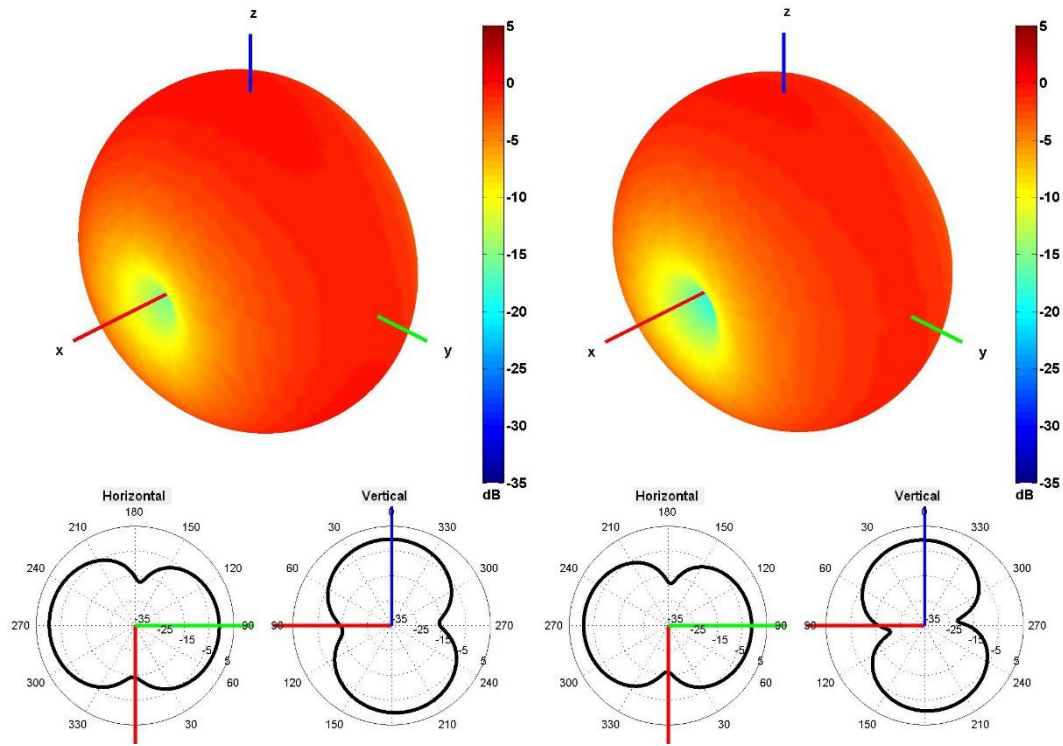
## 3. Antenna parameters



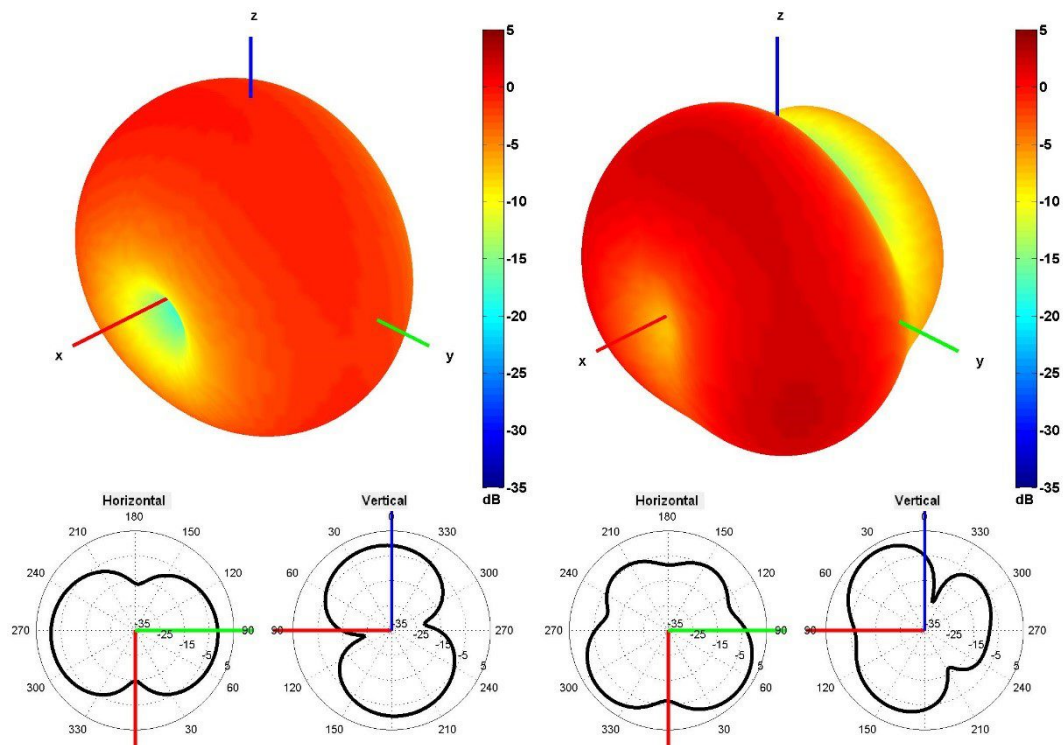




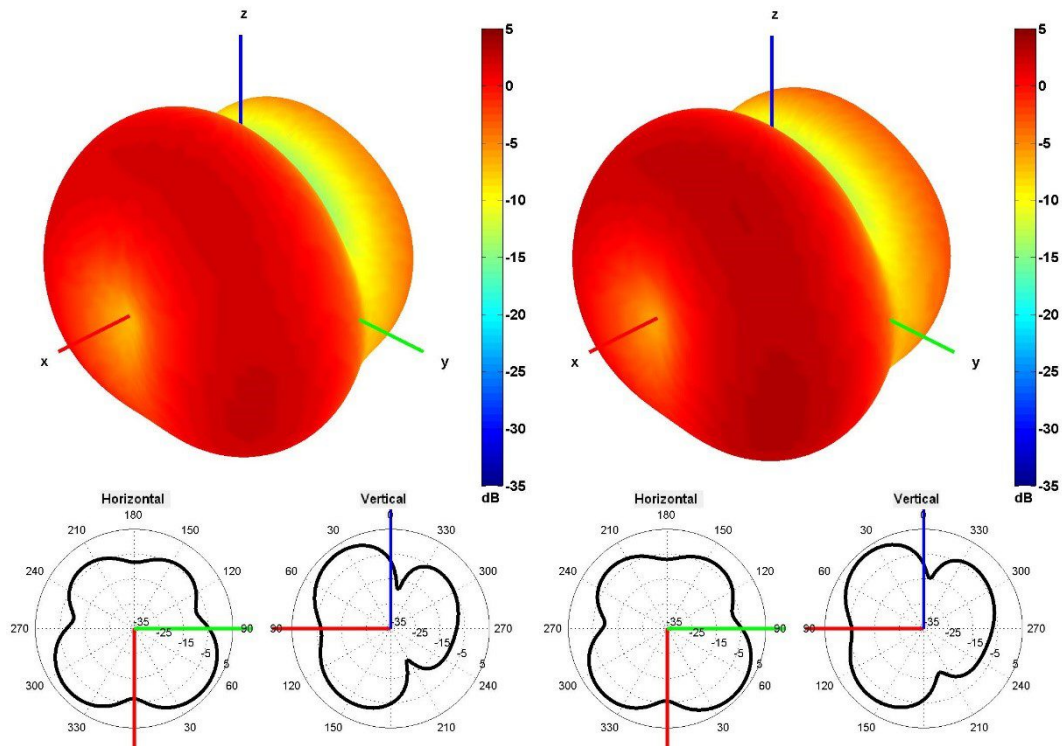
Radiation pattern reference



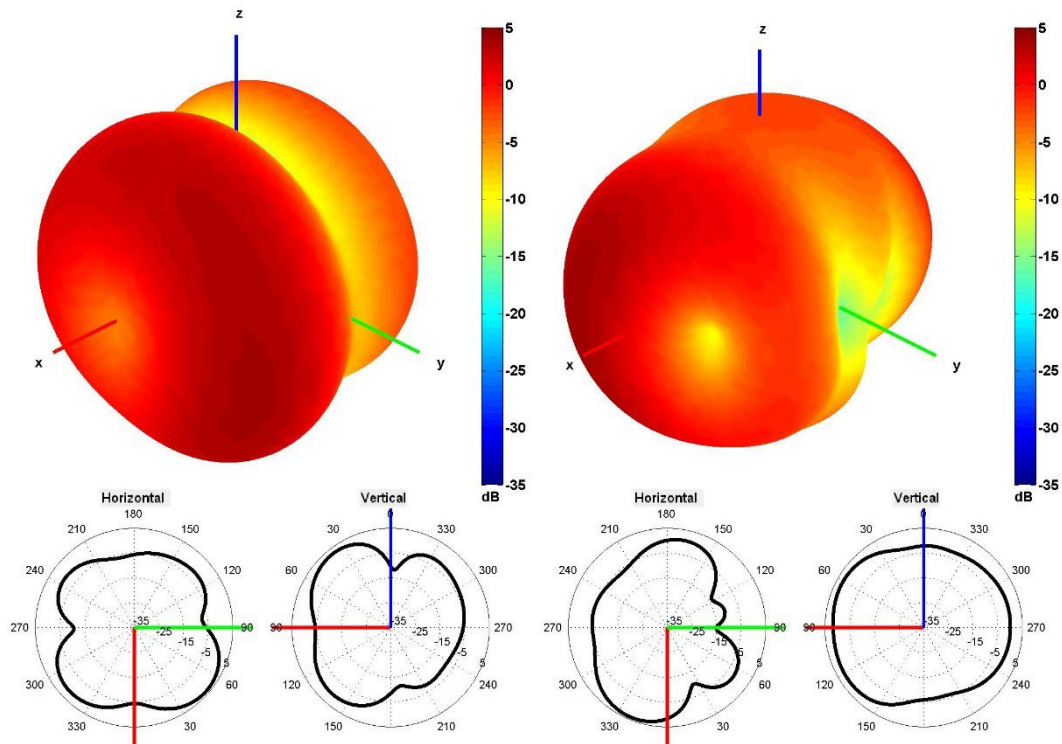
740 and 840 MHz Radiation pattern



940 and 1750 MHz Radiation pattern

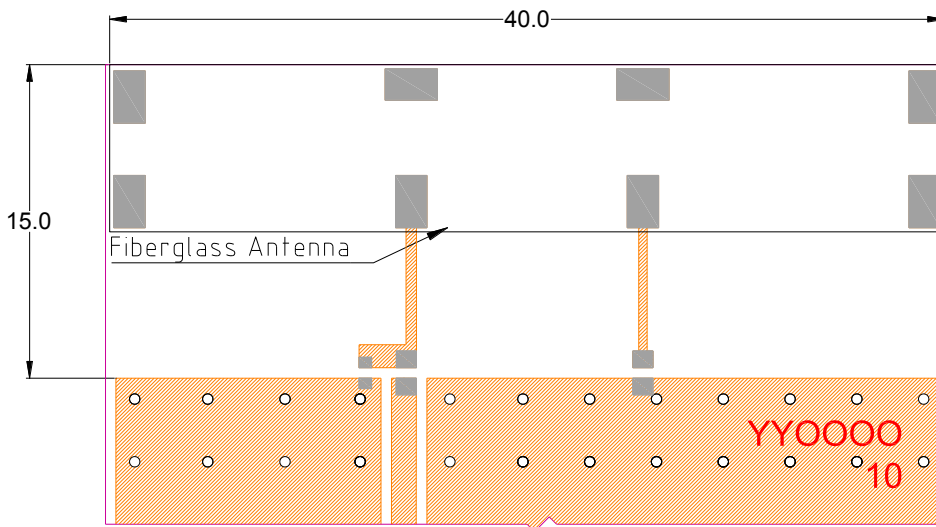


1850 and 1950 MHz Radiation pattern



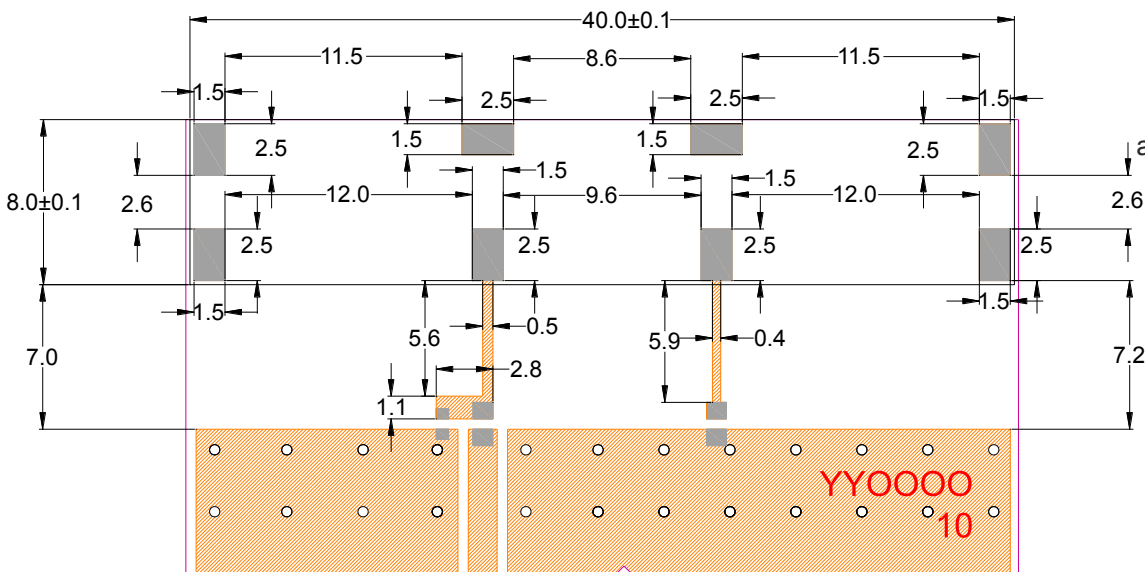
2100 and 2600 MHz Radiation pattern

## 4. PCB Layout



Minimum area required for antenna integration (40mm × 15mm)

- Solder Region
- ▨ Copper Region
- Copper-Free Region



Layout dimensions for antenna integration (mm)

Tolerance of Linear Dimensions (unless otherwise indicated):

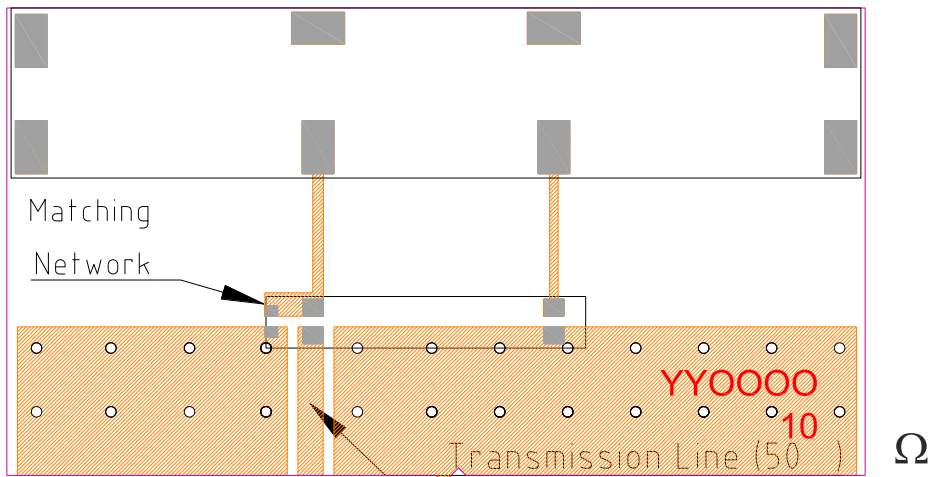
| Dimension (mm) | Tolerance |
|----------------|-----------|
| 0.5-6          | +/-0.05   |
| 6-30           | +/-0.07   |
| 30-50          | +/-0.1    |

Layout dimensions for antenna integration (mm)

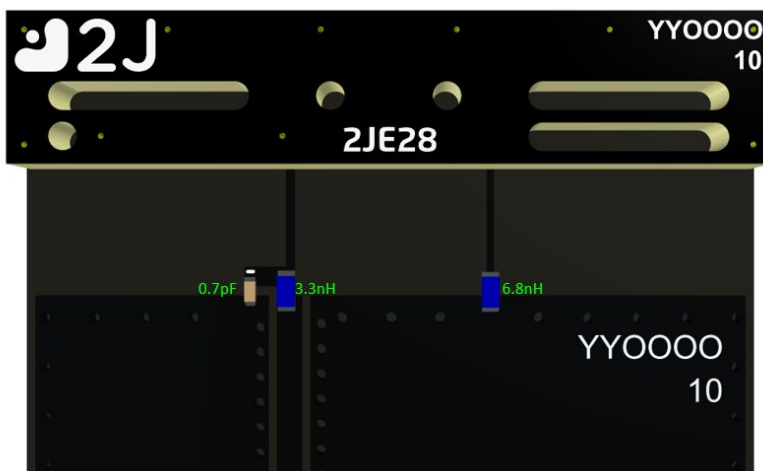
- Solder Region
- ▨ Copper Region
- Copper-Free Region



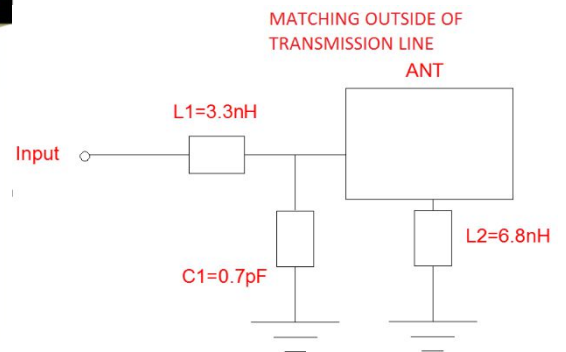
## 5. Matching Network



Matching network drawing

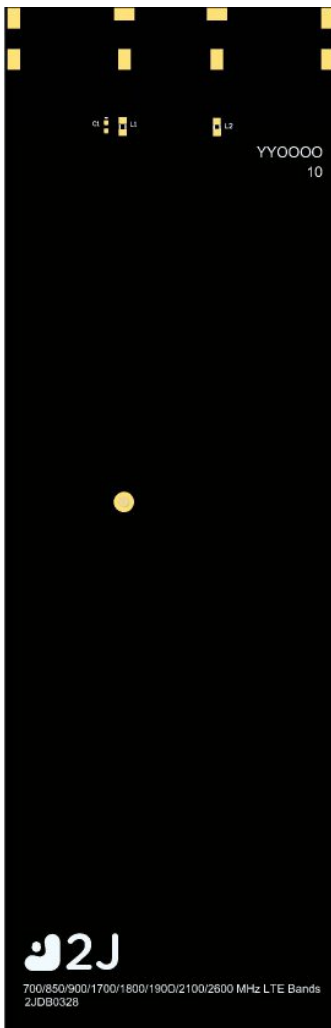


3D View of matching components and recommended values



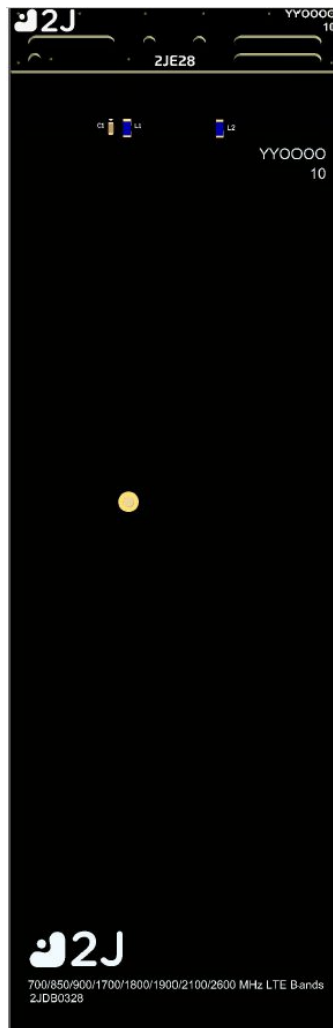
## 6. Evaluation Board

125mm x 40.4mm



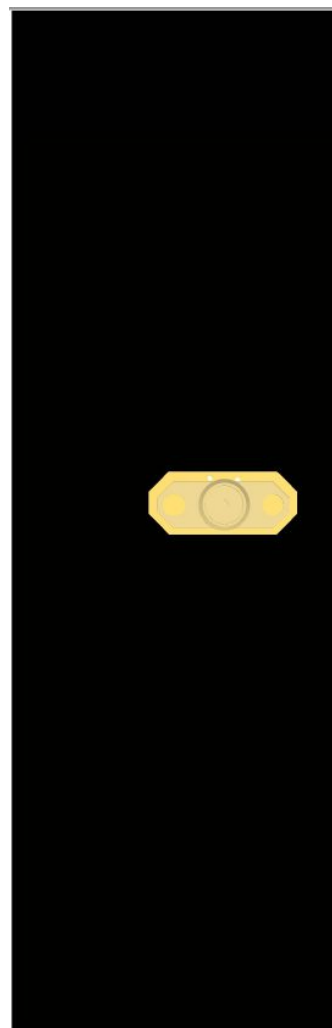
Front View without Antenna

125mm x 40.4mm



Front View with Antenna

125mm x 40.4mm



Back View

125mm x 40.4mm  
(PCB: 1.0mm, Antenna: 3mm,  
Connector: 9.5mm)



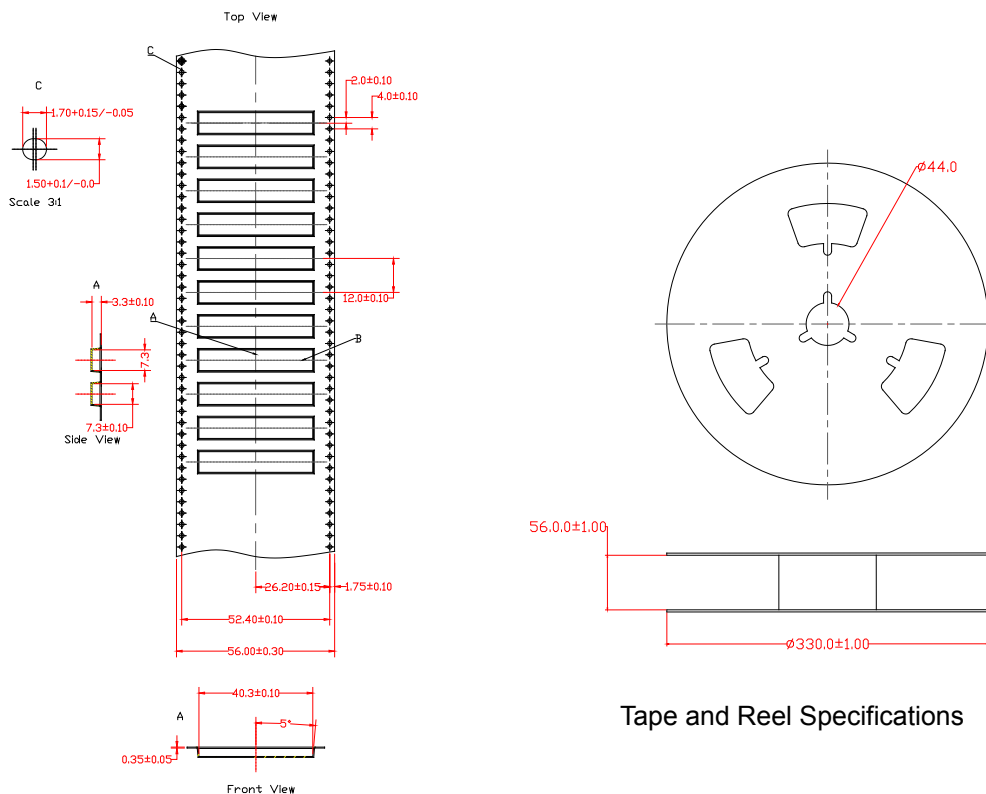
Side View

## 7. Packaging

### PACKAGING SPECIFICATION

|  |                  |
|--|------------------|
| <b>Antenna</b>                                   | 2JE71            |
| <b>REEL</b>                                      |                  |
| <b>Max Quantity per Reel</b>                     | 1500             |
| <b>REEL CARTON</b>                               |                  |
| <b>Reels per Carton</b>                          | 2                |
| <b>Max Quantity per Carton</b>                   | 3000             |
| <b>Reel Carton Dimensions (cm)</b>               | 36.5 x 36.5 x 16 |
| <b>Reel Carton Weight (Kg)</b>                   | 7                |
| <b>PALLET</b>                                    |                  |
| <b>Max Cartons per Pallet</b>                    | 42               |
| <b>Cartons per Layer</b>                         | 6                |
| <b>Number of Layers</b>                          | 7                |
| <b>Max Quantities per Pallet</b>                 | 126,000          |
| <b>Total Cartons Dimensions (cm)</b>             | 109.5 x 73 x 112 |
| <b>Total Cartons Weight (Kg)</b>                 | 294              |
| <b>Pallet size and weight not included above</b> |                  |
| <b>Typical Pallet Size (cm)</b>                  | 120 x 100 x 14.4 |
| <b>Typical Pallet Weight (Kg)</b>                | 5-25             |

## 8. Tape and Reel Information

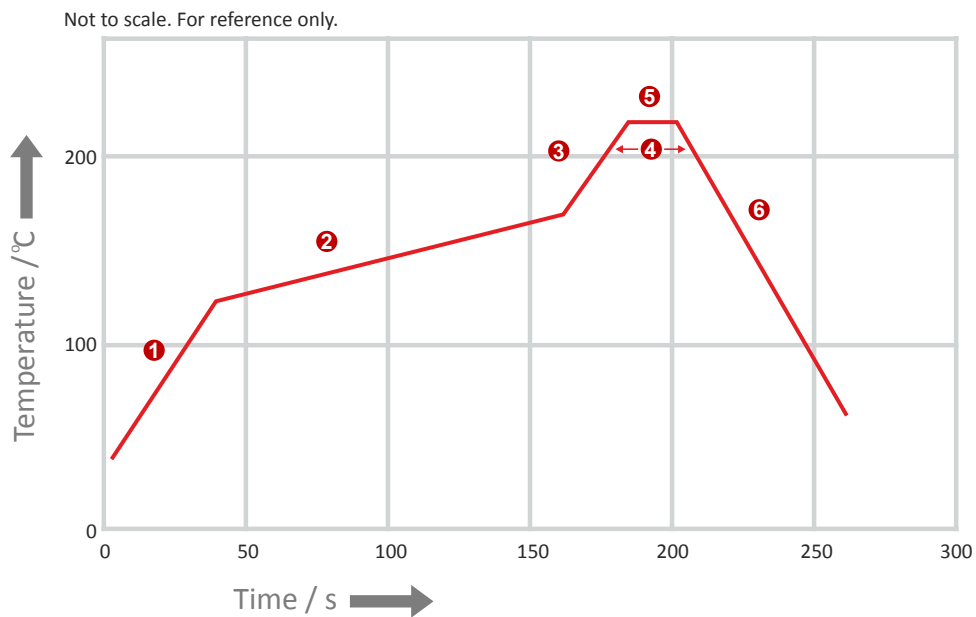


Tape and Reel Specifications

## REFLOW TEMPERATURE PROFILE

Minimum Recommended Reflow Profile

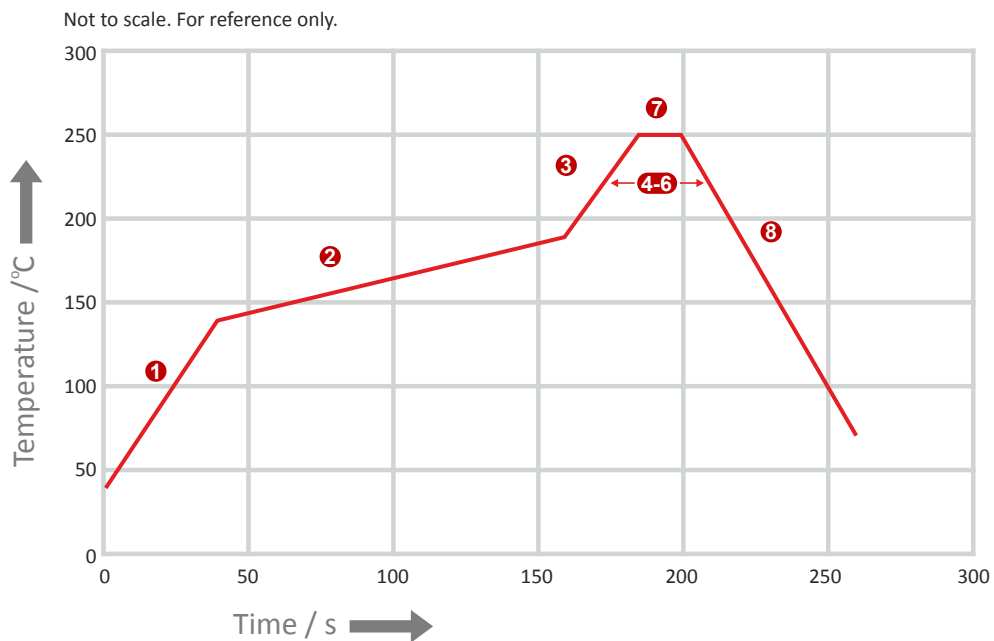
|   | Method of heat transfer                    | Controlled hot air convection |
|---|--|-------------------------------|
| 1 | Average temperature gradient in preheating | 2.5 °C/s                      |
| 2 | Soak time                                  | 2-3 minutes                   |
| 3 | Max temperature gradient in reflow         | 3 °C/s                        |
| 4 | Time above 217 °C                          | Max 30 sec                    |
| 5 | Peak temperature in reflow                 | 230 °C for 10 seconds         |
| 6 | Temperature gradient in cooling            | Max -5 °C/s                   |



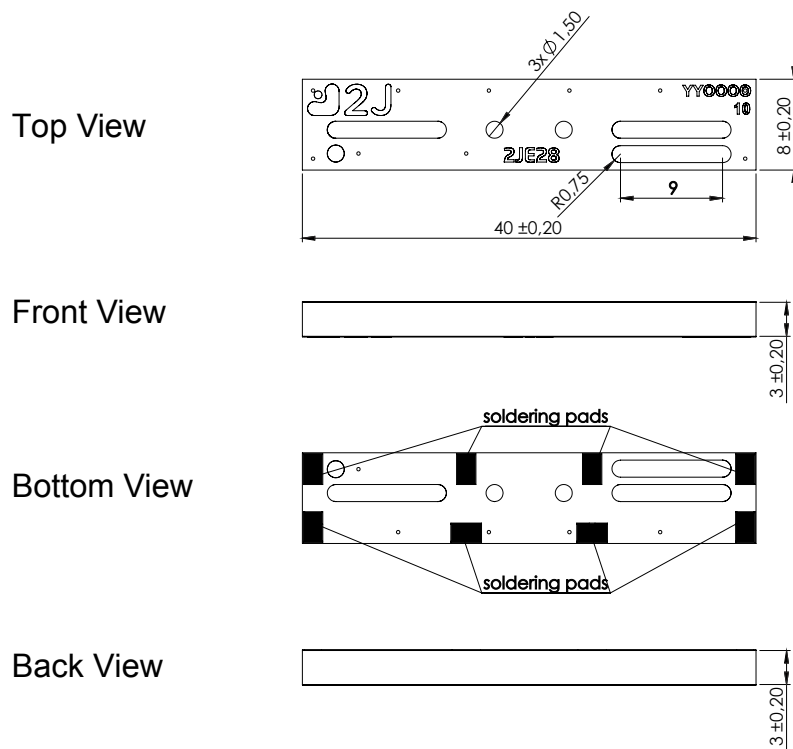
## REFLOW TEMPERATURE PROFILE

Maximum Recommended Reflow Profile

|   | Method of heat transfer                    | Controlled hot air convection |
|---|--|-------------------------------|
| 1 | Average temperature gradient in preheating | 2.5 °C/s                      |
| 2 | Soak time                                  | 2-3 minutes                   |
| 3 | Max temperature gradient in reflow         | 3 °C/s                        |
| 4 | Time above 217 °C                          | Max 60 sec                    |
| 5 | Time above 230 °C                          | Max 50 sec                    |
| 6 | Time above 250 °C                          | Max 10 sec                    |
| 7 | Peak temperature in reflow                 | 260 °C for 5 seconds          |
| 8 | Temperature gradient in cooling            | Max -5 °C/s                   |



## 9. Antenna drawings



Dimensions for fiberglass antenna  $40 \times 8 \times 3$  mm  $\pm 0,2$ mm

## 10. Antenna Images

