

**2JE08a**  
**(Alpha Micro Part No. AMC2JE08a)**  
GNSS ceramic surface mount antenna

**Features**

- GPS/Galileo/QZSS/GLONASS/BeiDou
  - 1561 – 1606MHz
- Surface mount
- Easy to integrate
- Ceramic material
- Ground plane dependent
- Compact size – 8 x 1 x 1.7mm



## 1. Antenna and Electrical Specifications

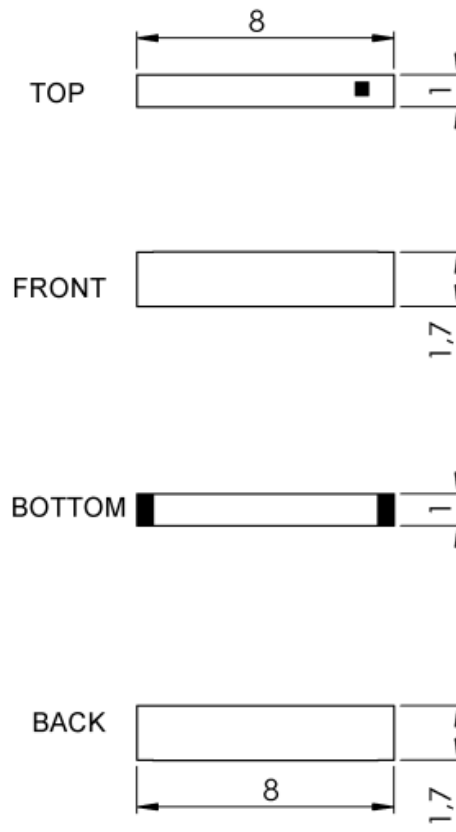
Parameters	Ceramic Surface Mount Antenna		
Standards	BeiDou	GPS/QZSS/Galileo	GLONASS
Band (MHz)	1561	1575	1602
Frequency (MHz)	1561.098	1575.42	1598 - 1606
Return Loss (dB)	~-12.1	~-14.5	~-12.5
VSWR	~1.7:1	~1.5:1	~1.6:1
Efficiency (%)	~55.5	~56.9	~55.8
Peak Gain (dBi)	~1.0	~1.1	~1.3
Average Gain (dB)	~-2.6	~-2.5	~-2.5
Impedance (Ohms)	50		
Polarization	Linear		
Radiation Pattern	Hemispherical		

### Measurement Conditions:

- Mounted on 50mm x 90mm ground plane
- Free space
- Measured in certified CTIA 3D anechoic chamber

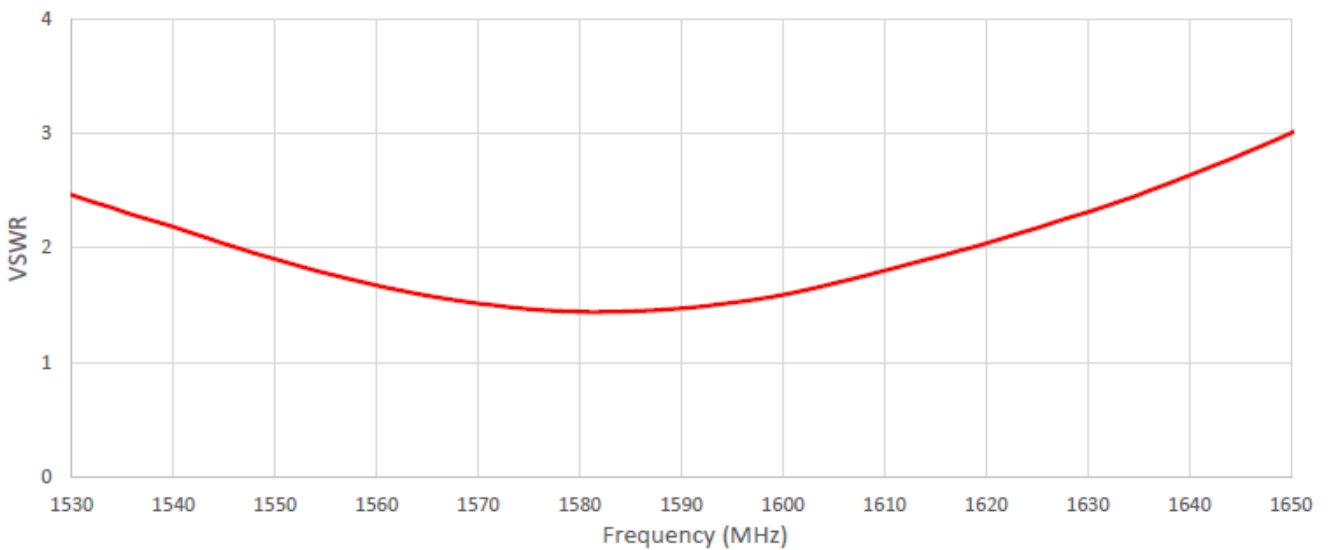
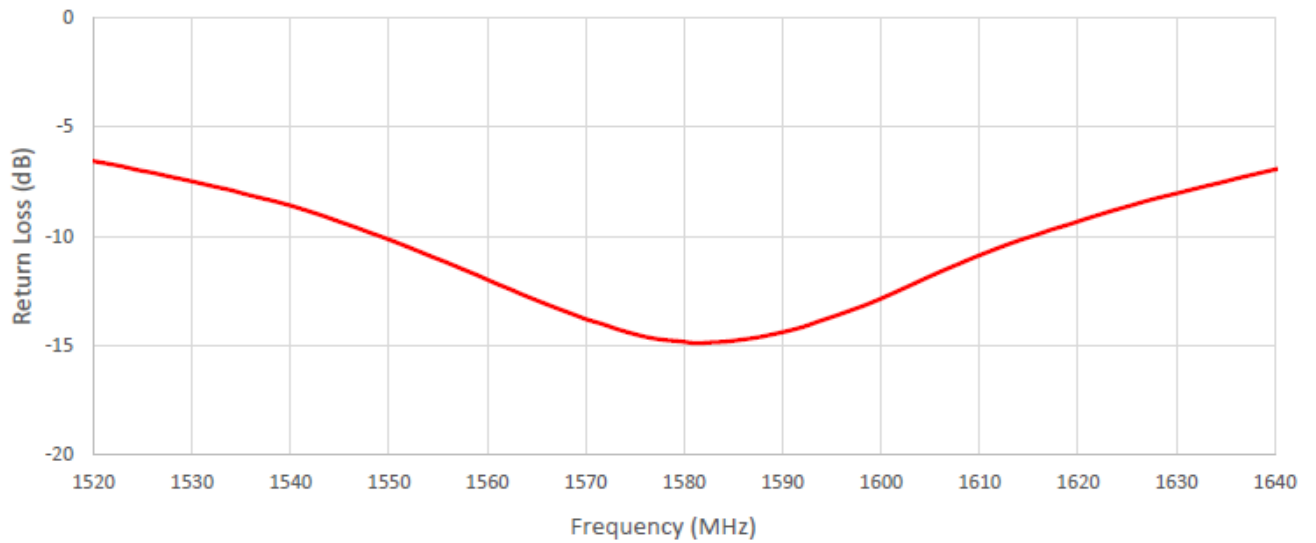
## 2. Mechanical and Environmental Specifications

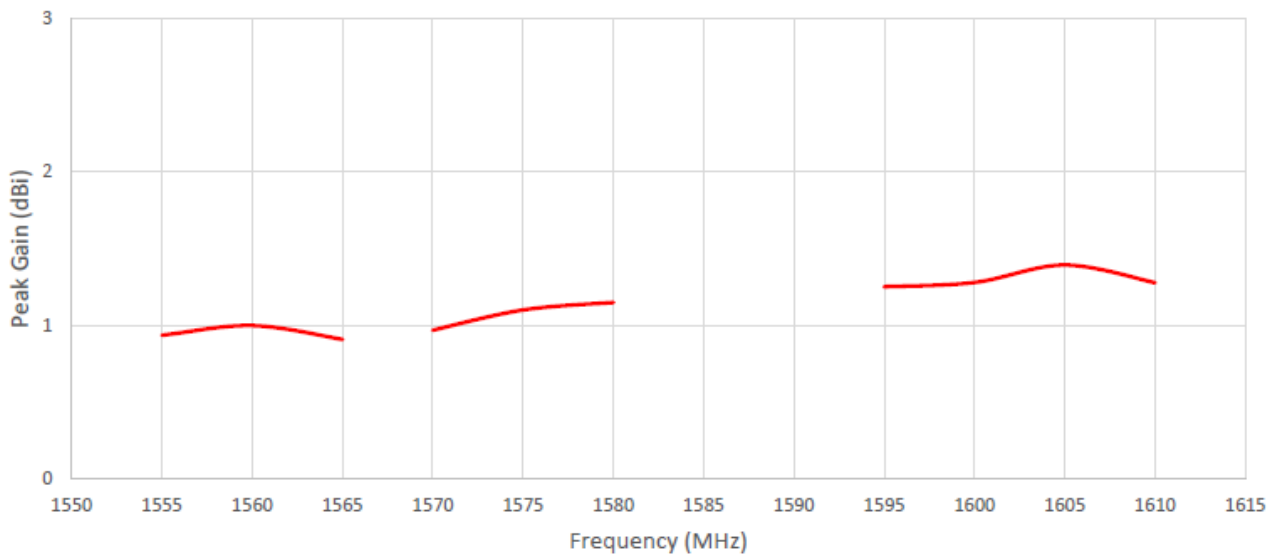
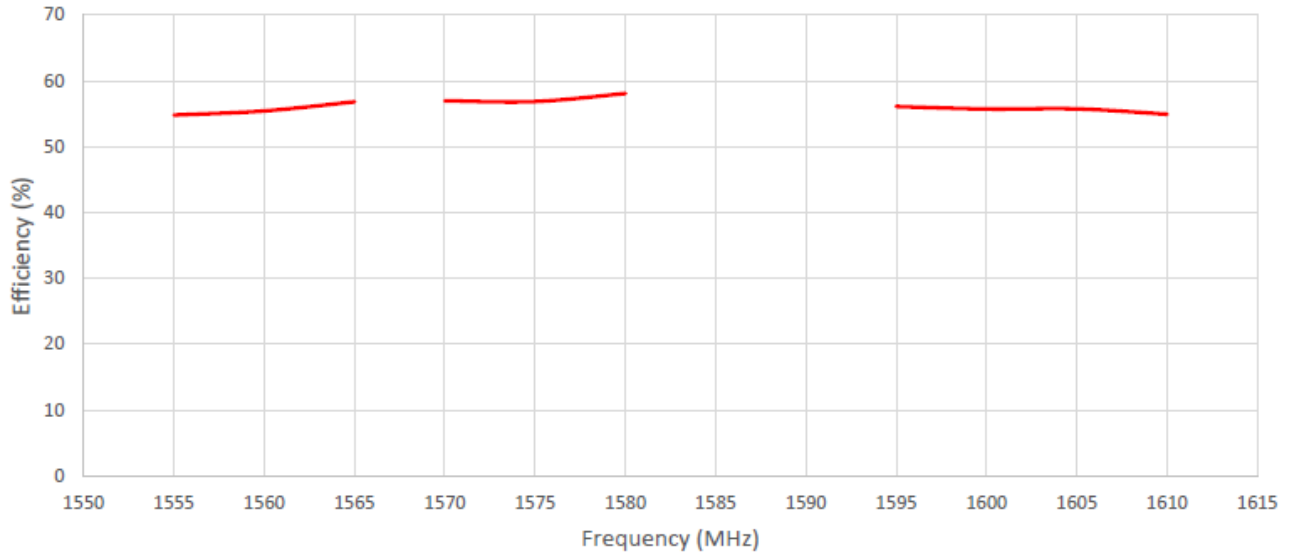
<b>Mounting Type</b>	Surface mount
<b>Dimensions (mm)</b>	8 x 1 x 1.7
<b>Operating Temperature (°C)</b>	-40 to +85
<b>Storage Temperature (°C)</b>	-40 to +85
<b>Substance Compliance</b>	RoHS

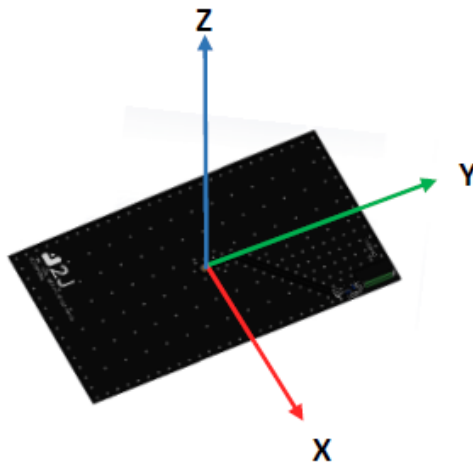
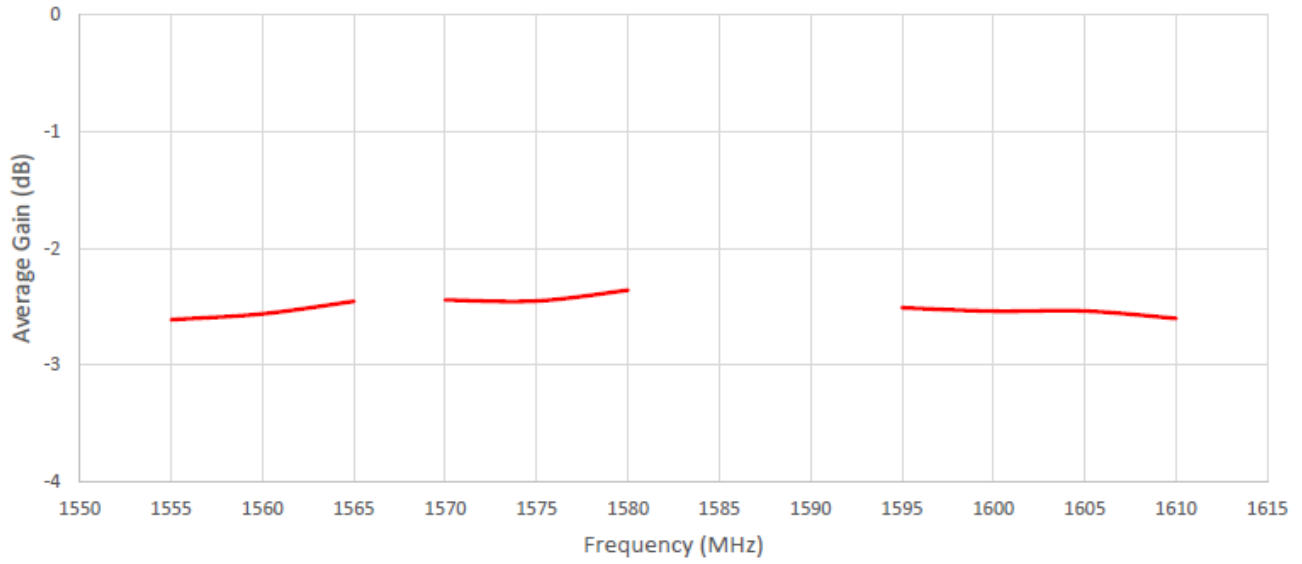


ceramic antenna body (mm)

### 3. Antenna Parameters

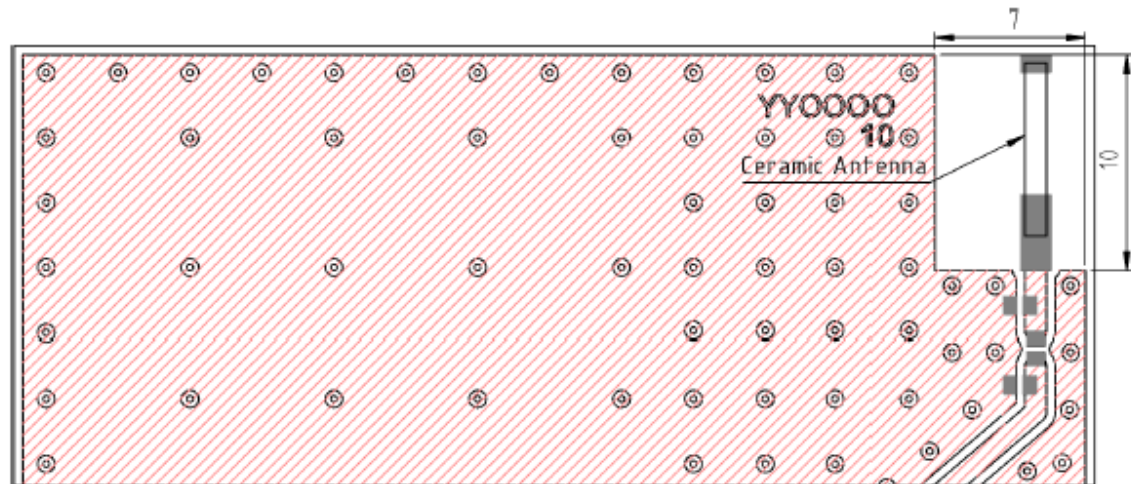






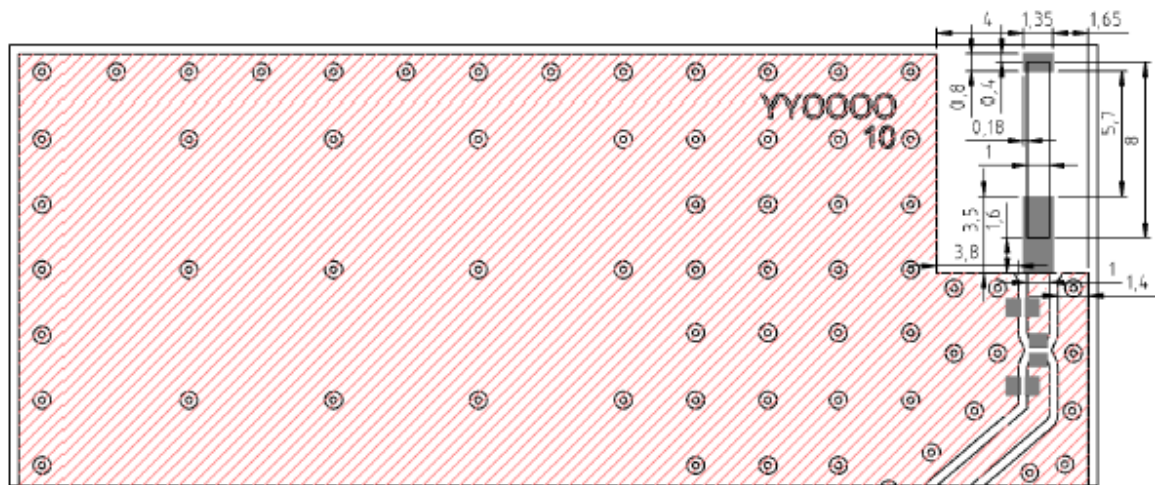
RADIATION PATTERN REFERENCE

#### 4. PCB Layout



Minimum area required for antenna integration (7mm x 10mm)

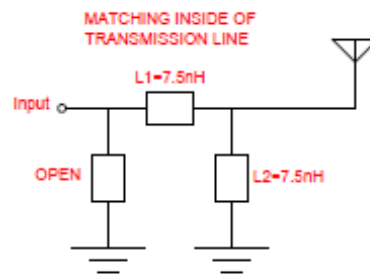
- Solder Region
- Copper Region
- Copper-Free Region



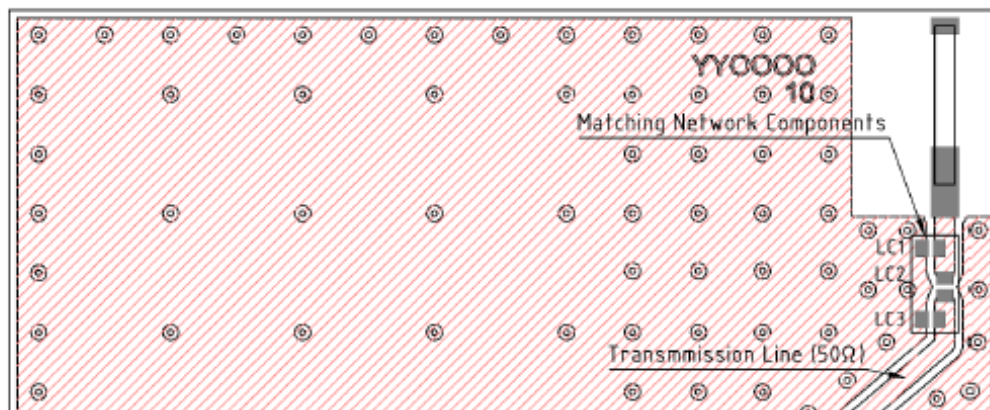
Layout dimensions for antenna integration (mm)

- Solder Region
- Copper Region
- Copper-Free Region

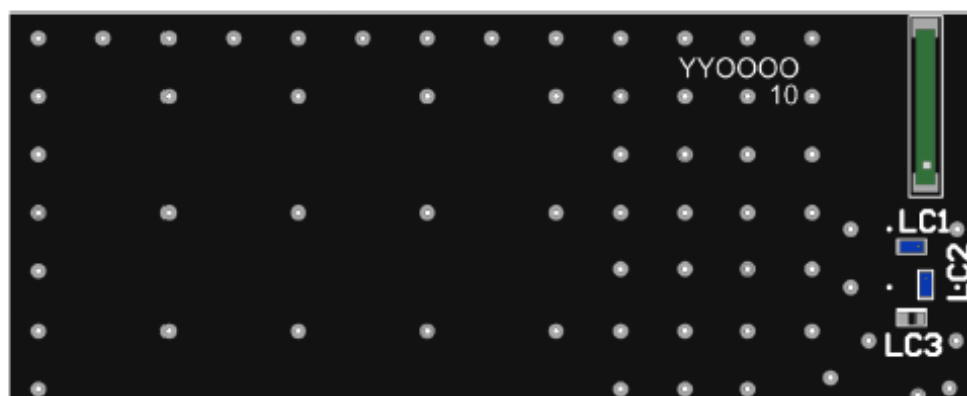
## 5. Matching Components



Matching Network Schematic



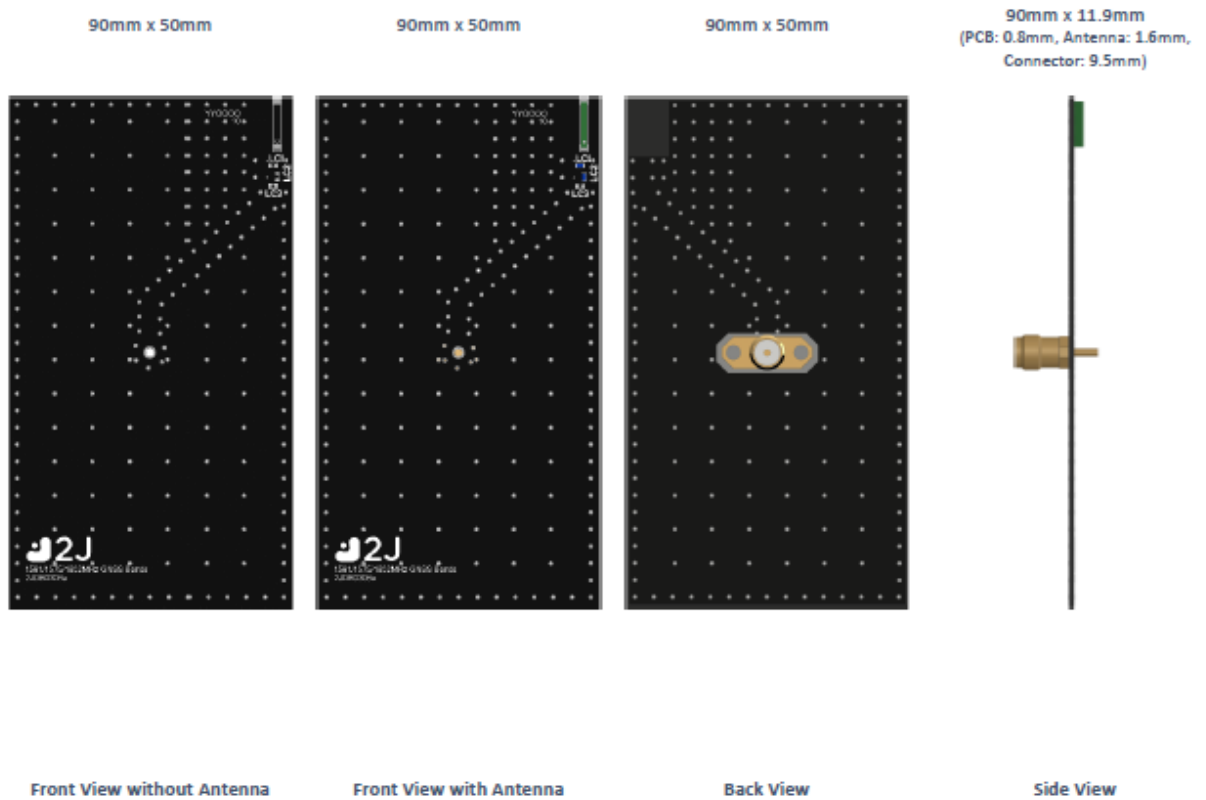
Matching network drawing (LC1=7.5nH, LC2=7.5nH, LC3=OPEN)



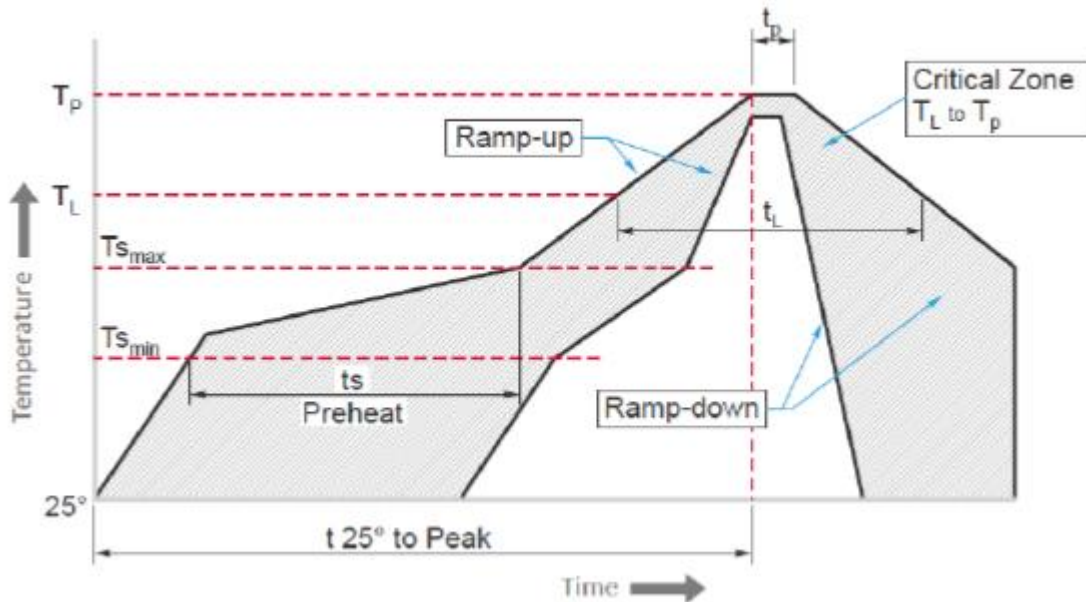
3D View of matching components and recommended values (LC1=7.5nH, LC2=7.5nH, LC3=OPEN)



## 6. Evaluation Board

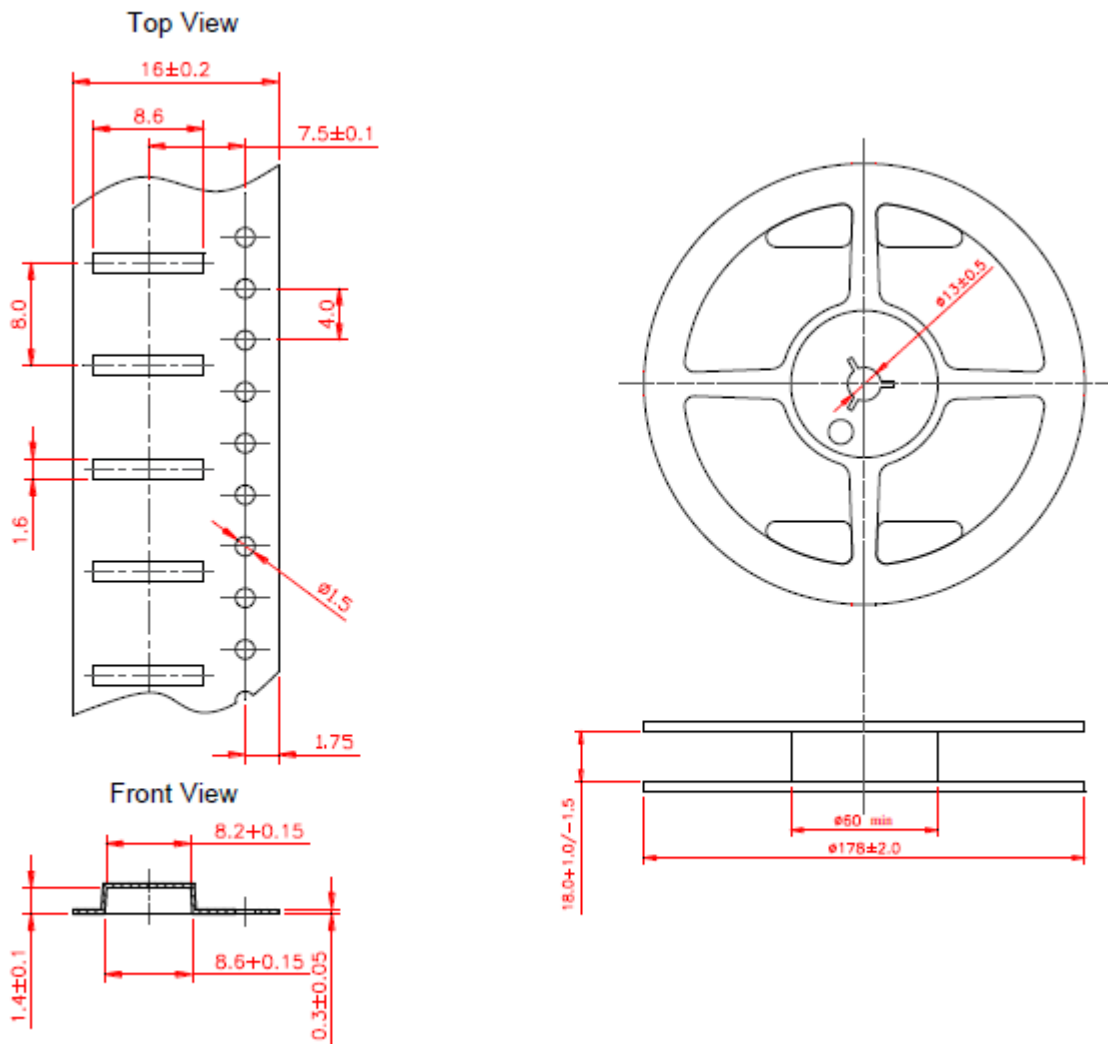


## 7. Reflow Temperature Profile



Phase	Profile Features	Sn-Pb Assembly	Pb-Free Assembly (SnAgCu)
Ramp-Up	Avg. ramp-up rate ( $T_{S_{max}}$ to $T_P$ )	3°C/second (max)	3°C/second (max)
Pre-heat	- Temperature Min Rate ( $T_{S_{min}}$ )	100°C	100°C
	- Temperature Max Rate ( $T_{S_{min}}$ )	150°C	150°C
	- Time ( $T_{S_{min}}$ to $T_{S_{max}}$ )	60 – 120 seconds	60 – 120 seconds
Reflow	- Temperature ( $T_L$ )	183°C	217°C
	- Total Time above $T_L$ ( $t_L$ )	60 – 150 seconds	60 – 150 seconds
Peak	- Temperature ( $T_P$ )	235°C	260°C
	- Time ( $t_p$ )	10 – 30 seconds	20 – 40 seconds
Ramp-Down	Rate	6°C/second (max)	6°C/second (max)
Time from 25°C to Peak Temperature		6 minutes (max)	8 minutes (max)

## 8. Tape and Reel Information



Tape and Reel Specifications

## 9. Packaging

<b>Packaging Specification</b>	
<b>Reel</b>	
Quantity per reel	6,000
<b>Reel Box</b>	
Reels per Box	1
Reel Box Dimensions (cm)	18.5 x 18.5 x 3
Reel Box Weight (Kg)	0.27
<b>Carton</b>	
Reel Boxes per Carton	10
Max Quantity per Carton	60,000
Carton Dimensions (cm)	33 x 21 x 21
Carton Weight (Kg)	3.1

### Storage Conditions

- Storage temperature range: -40°C to +85°C
- Oxidizable material: Store for 12 months in vacuum sealed bag
- Re-pack material after use by re-sealing package