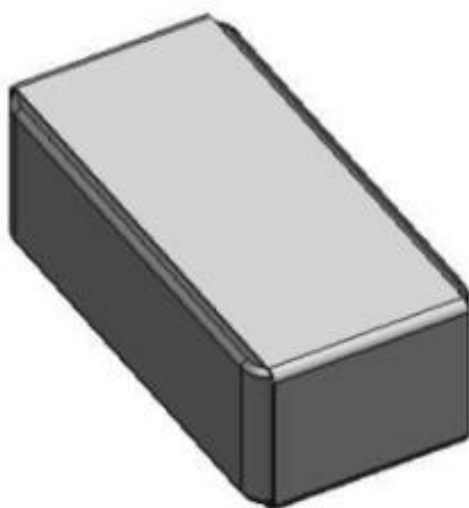


### Description: Dualband WLAN Antenna – WiFi 6E

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI



### Features:

- Omnidirectional radiation
- Compact size WxLxH (3,2 x 1,6 x 1.1 mm)
- Low weight (33 mg)
- Fully SMD compatible
- Lead free soldering compatible
- Tape and reel packing
- RoHS Compliant Product
- Single feed point
- MSL 1

### Applications:

- IEEE 802.11a/b/g/n/x
- WiFi 6E
- 2.4/5/6 GHz WLAN
- 2.4 GHz ISM Band Systems
- ZigBee IEEE 802.15.4

#### Dualband WLAN

Typical performance (testboard size 80x37 mm, PWB ground clearance area 11.15 x 6.40 mm)  
One shunt and one serial inductors are used for impedance matching.

Frequency Range [MHz]	Max Gain [dBi]	Efficiency [%] / [dB]	Return loss min. [dB]	Impedance [Ω]	Operating Temperature [°C]
2400 – 2500	0.1 (peak) -0.3 (band edges)	45 / -3.5 (peak) 42 / -3.6 (band edges)	-8	50	-40 to +85
4900 – 7125	3.5 (peak) 2.4 (band edges)	85 / -0,8 (peak) 75 / -1 (band edges)	-9	50	-40 to +85

### Electrical specifications @ +25 °C

Note: Electrical characteristics depend on test board (GP) size and antenna positioning on GP and Ground Clearance area size.

All dimensions are in mm / inches

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Pulse Worldwide Headquarters  
15255 Innovation Drive #100  
San Diego, CA 92128  
USA  
Tel: 1-858-674-8100

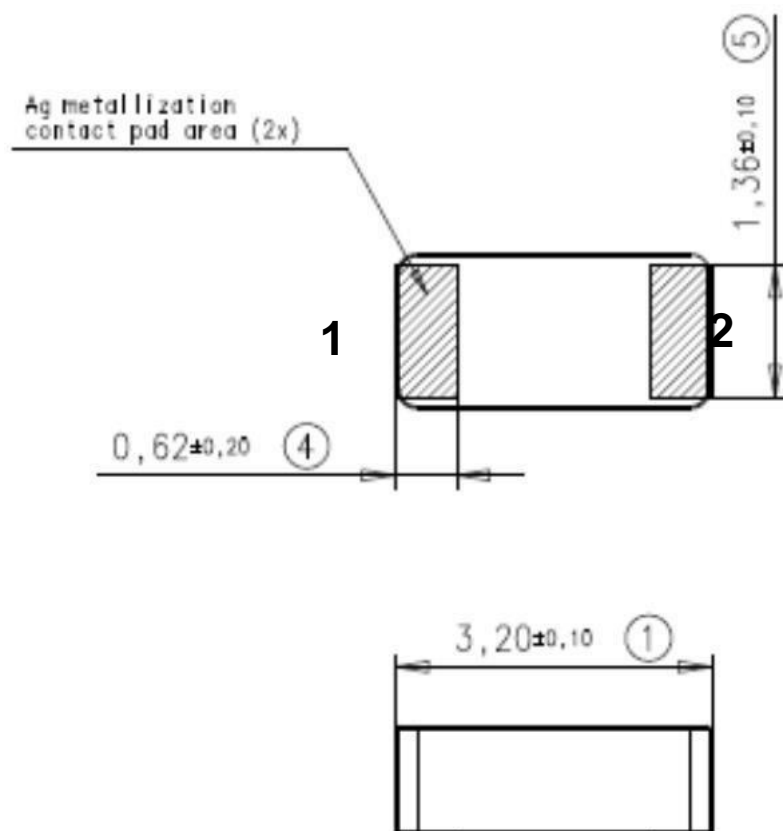
Pulse/Larsen Antennas  
18110 SE 34<sup>th</sup> St Bldg 2 Suite 250  
Vancouver, WA 98683  
USA  
Tel: 1-360-944-7551

Europe Headquarters  
Pulse GmbH & Co, KG  
Zeppelinstrasse 15  
Herrenberg, Germany  
Tel: 49 7032 7806 0

Pulse (Suzhou) Wireless Products Co, Inc.  
99 Huo Ju Road(#29 Bldg, 4<sup>th</sup> Phase  
Suzhou New District  
Jiangsu Province, Suzhou 215009 PR China  
Tel: 86 512 6807 9998



## Antenna Terminal Configuration and Dimensions



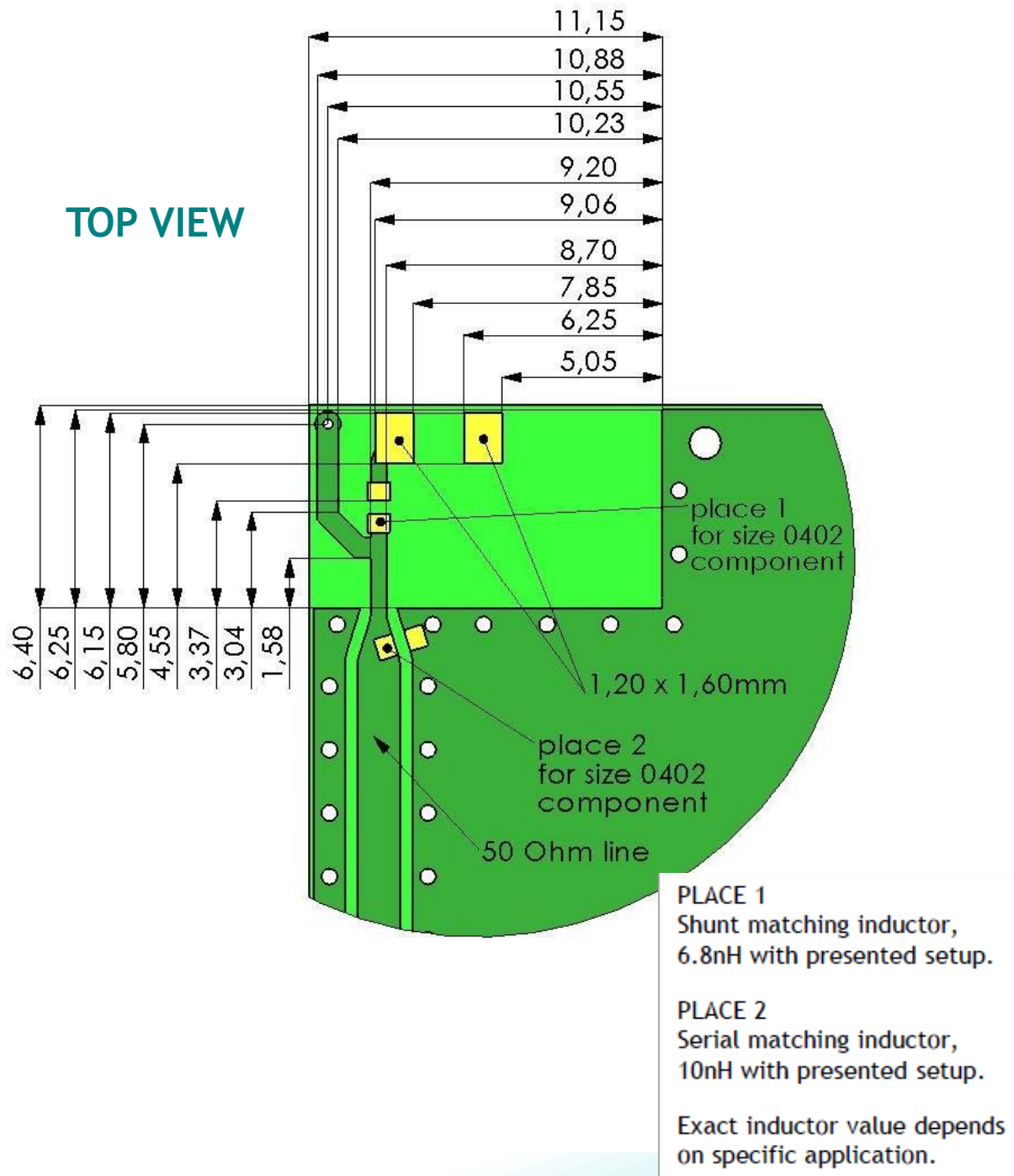
No.	Terminal Name	Terminal Dimensions
1	Feed / GND	0.62 x 1.36 mm
2	Feed / GND	0.62 x 1.36 mm
Antenna is symmetrical. Either of terminals 1 or 2 can be Feed / GND		

Description: Dualband WLAN Antenna – WiFi 6E

Series: Ceramic Chip Antenna

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Recommended test board layout for electrical characteristic measurement,  
test board outline size 80 x 37mm



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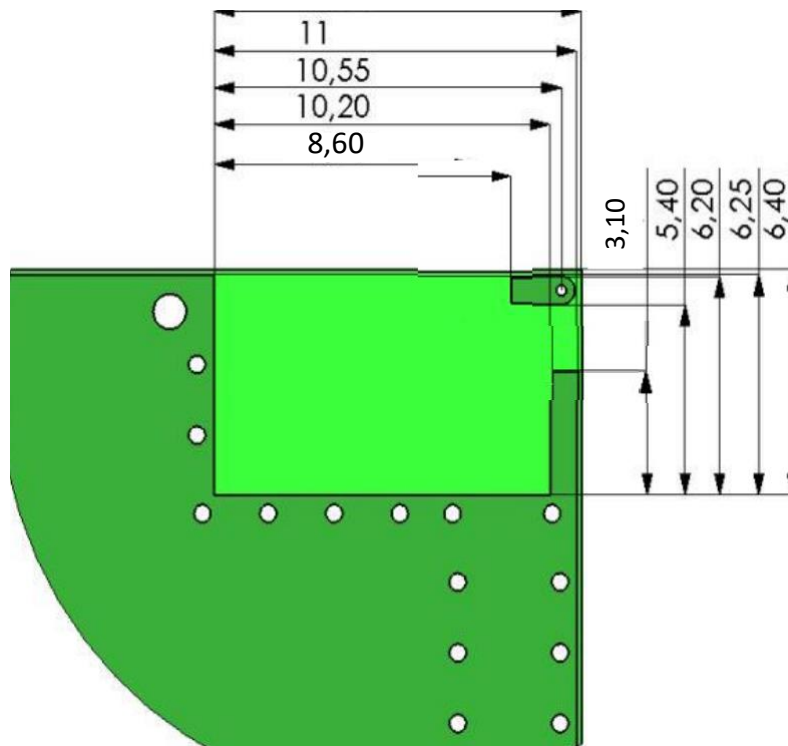
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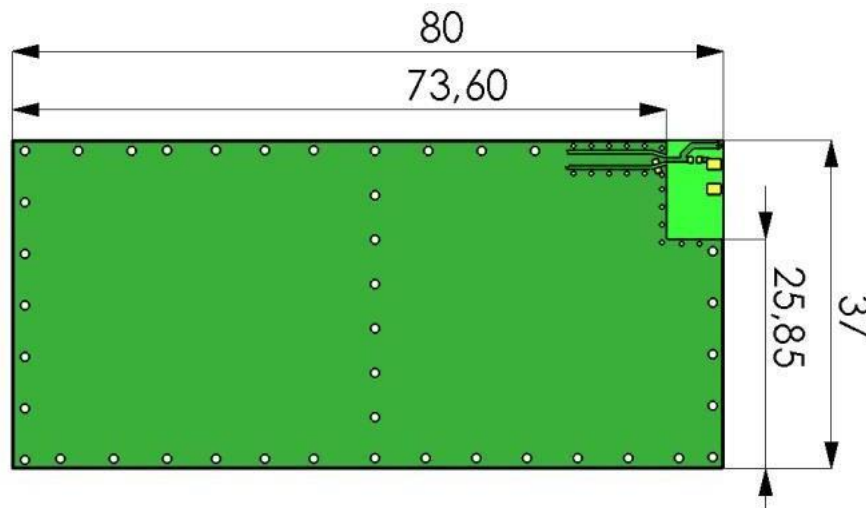
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

BOTTOM VIEW



LAYOUT PLACEMENT ON GROUND PCB CORNER



PCB

Feed line should be designed to match 50  $\Omega$  characteristic impedance, depending on PWB material and thickness.

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**Description: Dualband WLAN Antenna – WiFi 6E**

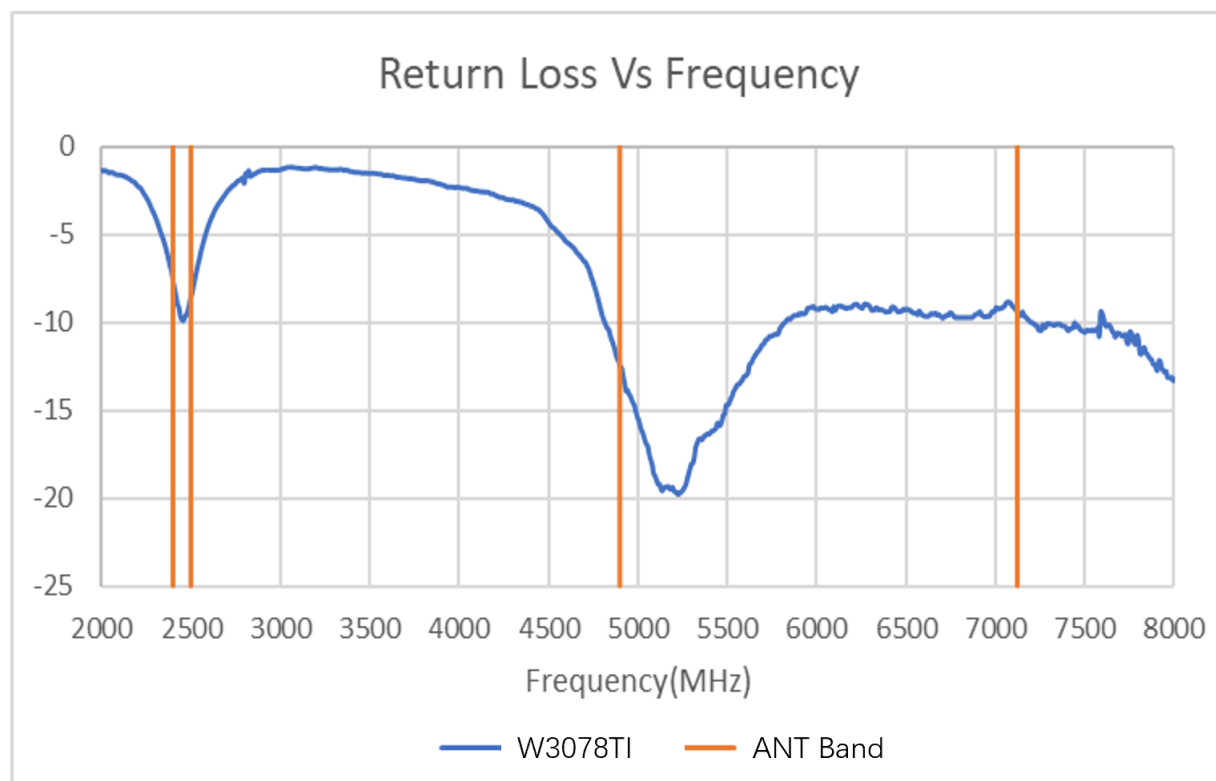
**Series: Ceramic Chip Antenna**

**PART NUMBER: W3078TI**

**CHARTS**

**Typical Electrical Characteristics (T=25 °C)**

**Typical Return Loss S11, measured on the test board**



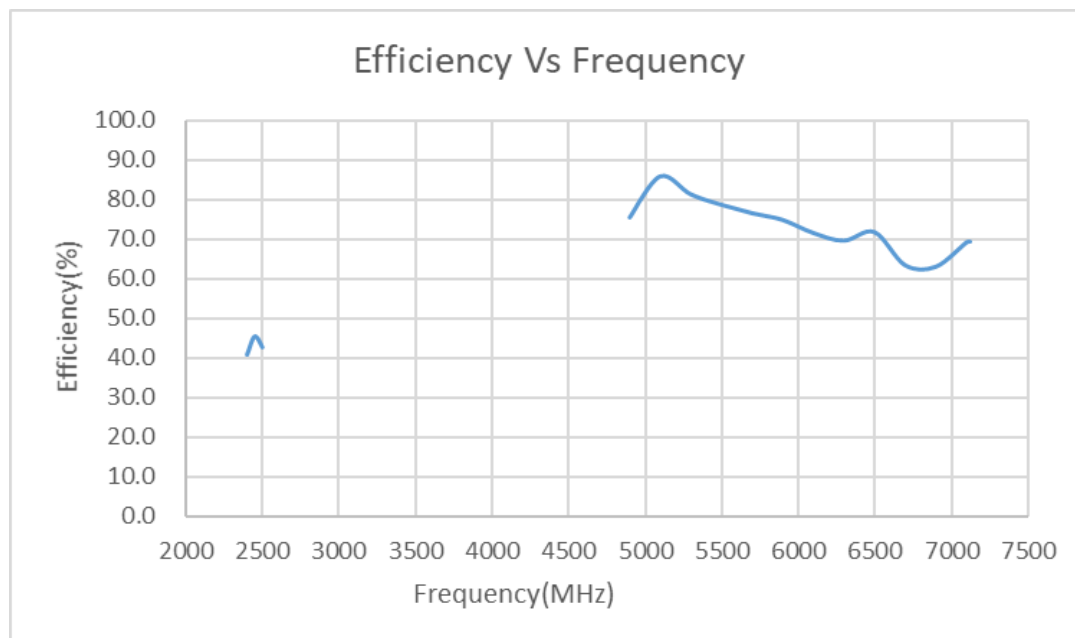
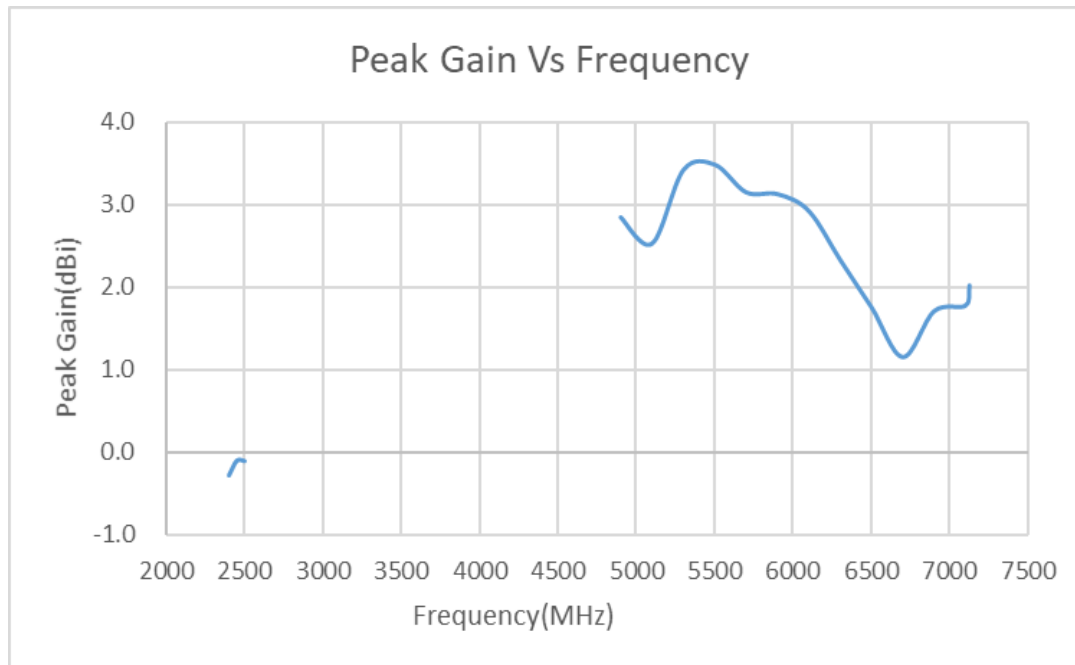
**Description: Dualband WLAN Antenna – WiFi 6E**

**Series: Ceramic Chip Antenna**

**PART NUMBER: W3078TI**

**CHARTS**

**Free space efficiency and maximum gain**



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### Description: Dualband WLAN Antenna – WiFi 6E

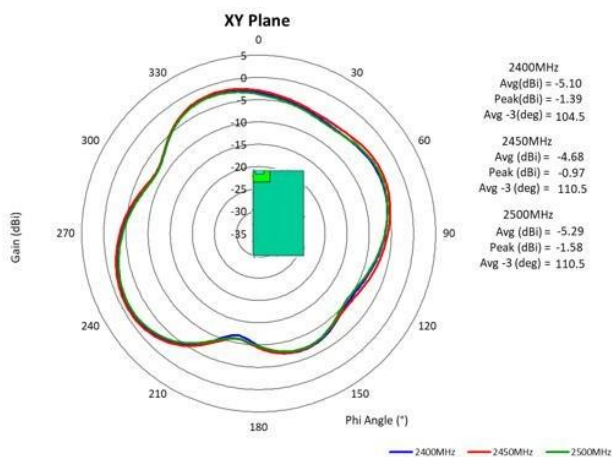
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

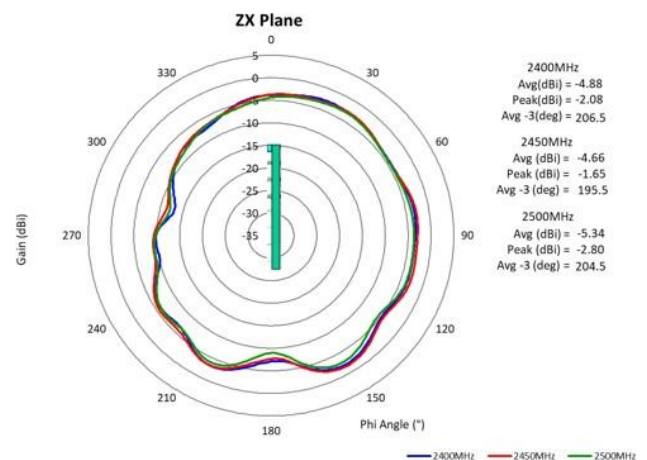
## CHARTS

### 2.4-2.5 GHz Typical Free space Radiation Patterns

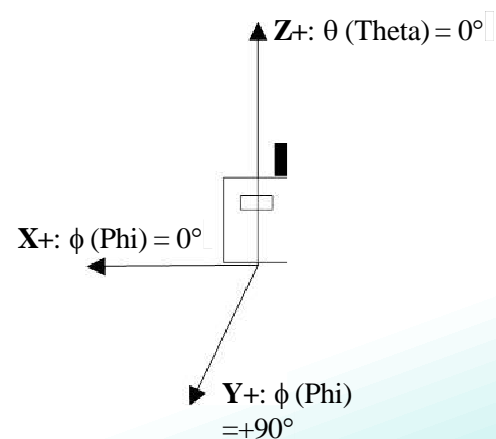
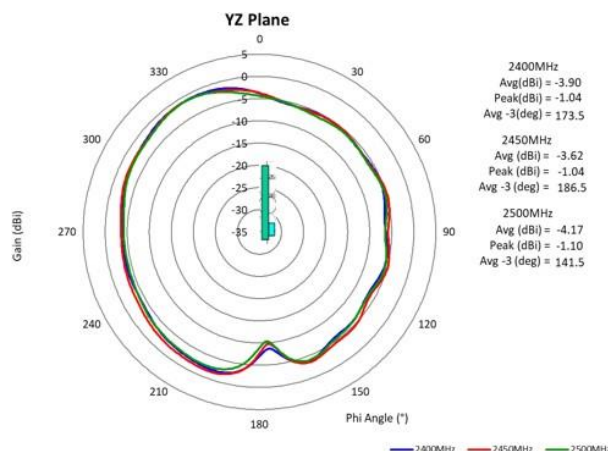
XY-PLANE



ZY-PLANE



ZX-PLANE



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# Description: Dualband WLAN Antenna – WiFi 6E

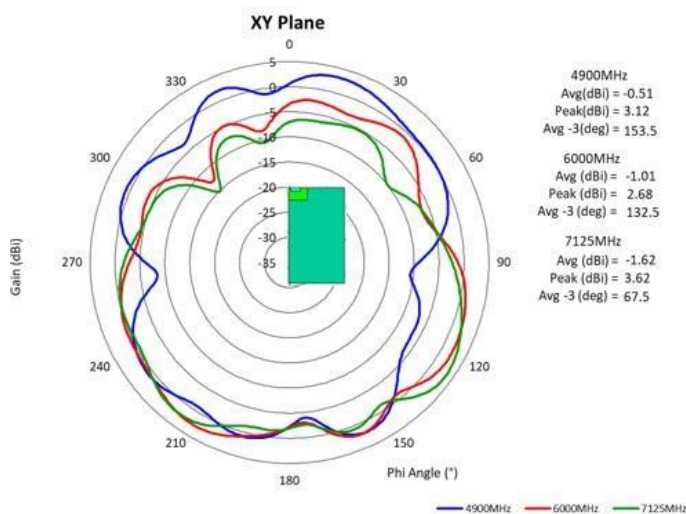
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

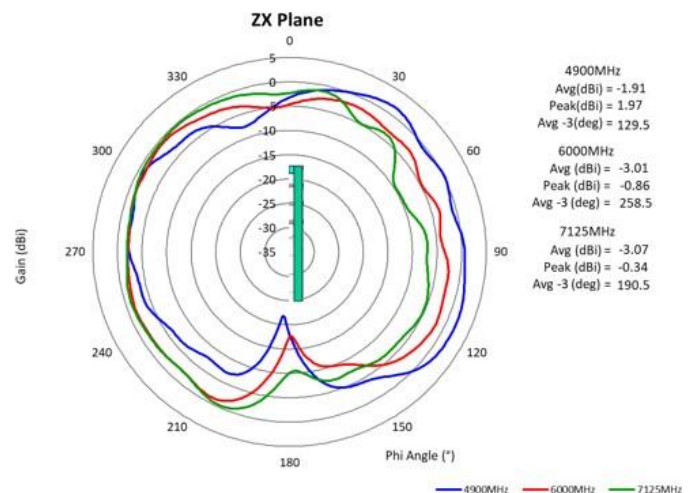
## CHARTS

### 4.9-7.125 GHz Typical Free space Radiation Patterns

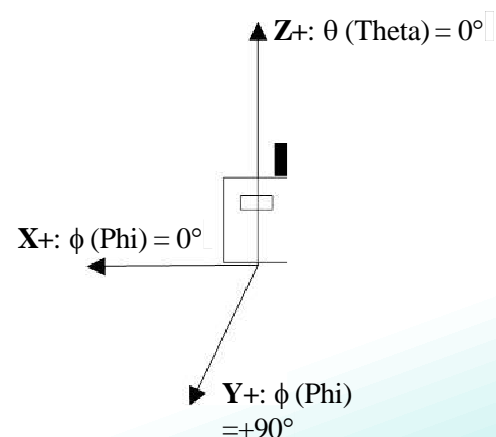
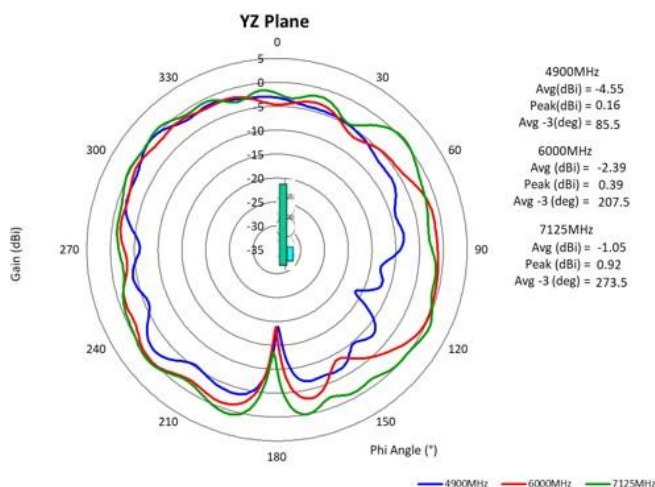
XY-PLANE



ZY-PLANE



ZX-PLANE



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## Description: Dualband WLAN Antenna – WiFi 6E

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

### ASSEMBLY

## Recommendations For Soldering

### Recommendation for reflow soldering process

Printing stencil thickness 0,15 - 0,25 mm is recommended for the solder paste. The maximum soldering temperature should not exceed 260°C. The temperature profile recommendations for reflow soldering process is presented in the Figures 1 and 2. The reflow profile

presented in figure 1 describes minimum reflow temperatures. The reflow profile presented in figure 2 describes maximum reflow temperatures. located at the center of the coverage area.

	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

Not to scale. For reference only.

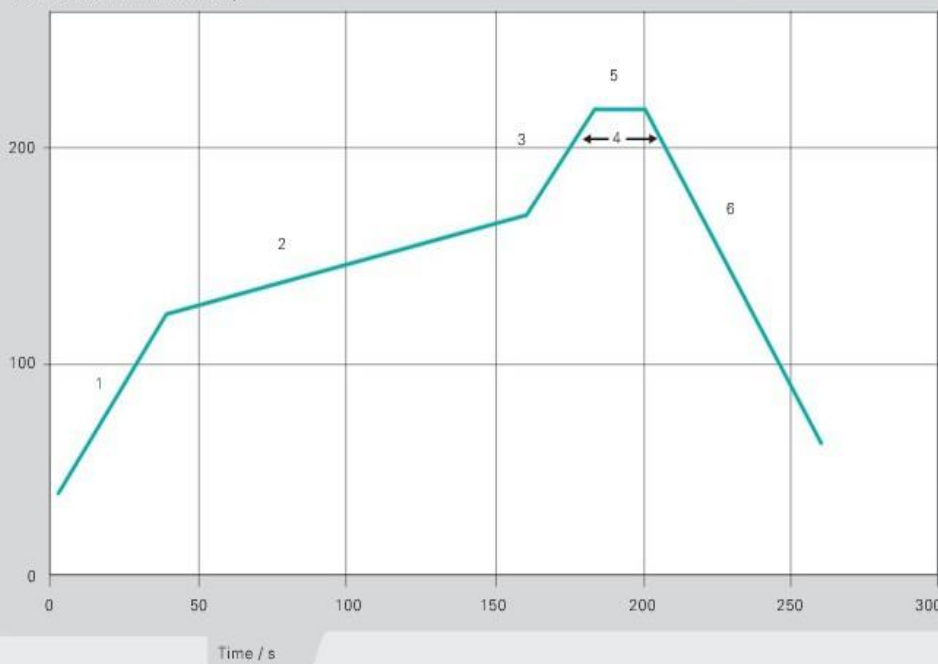


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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### Description: Dualband WLAN Antenna – WiFi 6E

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

## ASSEMBLY

	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

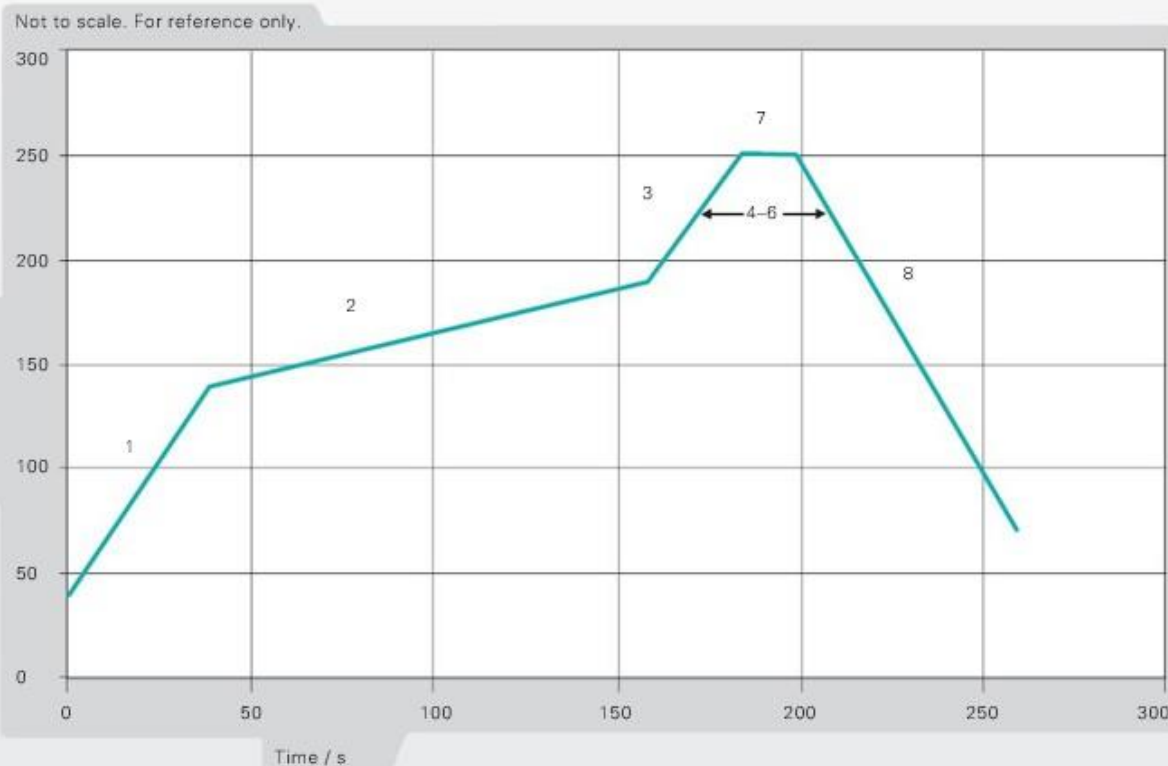


Figure 2. Maximum temperature profile recommendation for reflow soldering process

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## Series: Ceramic Chip Antenna

**PART NUMBER: W3078TI**

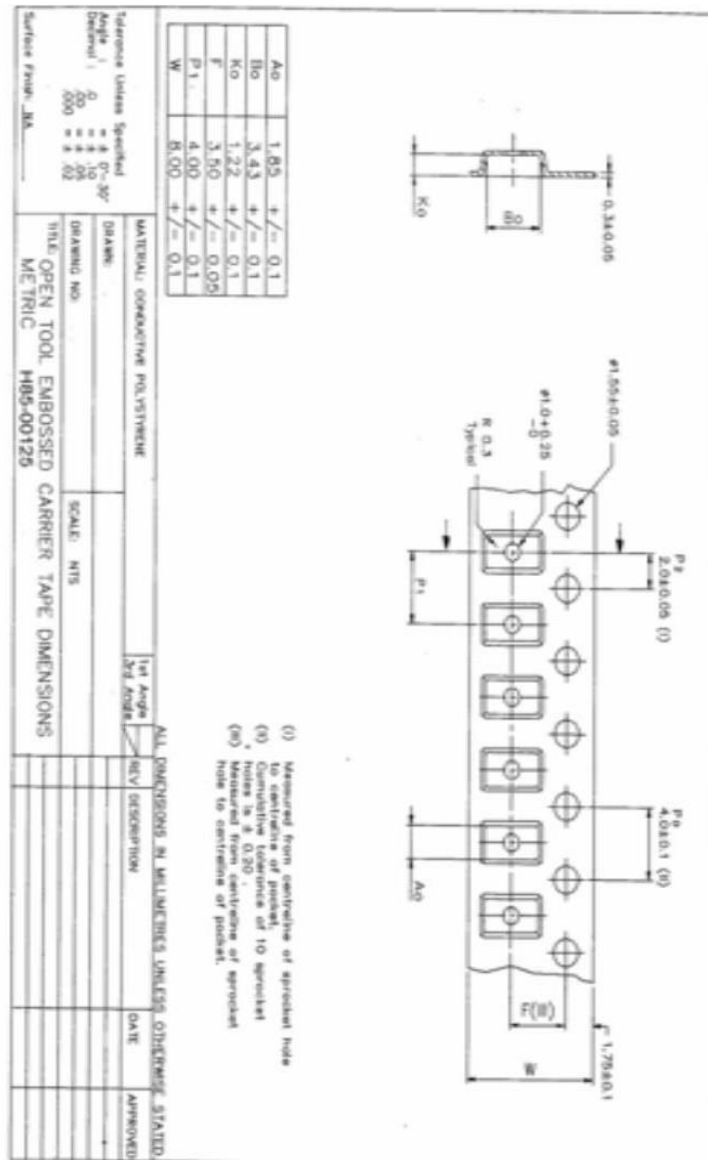
## PACKAGING

## W3078TI Antenna Packing

## General

Tape and reel packing is used. Carrier tape, reel and box dimensions are presented in following pictures.

## Carrier tape



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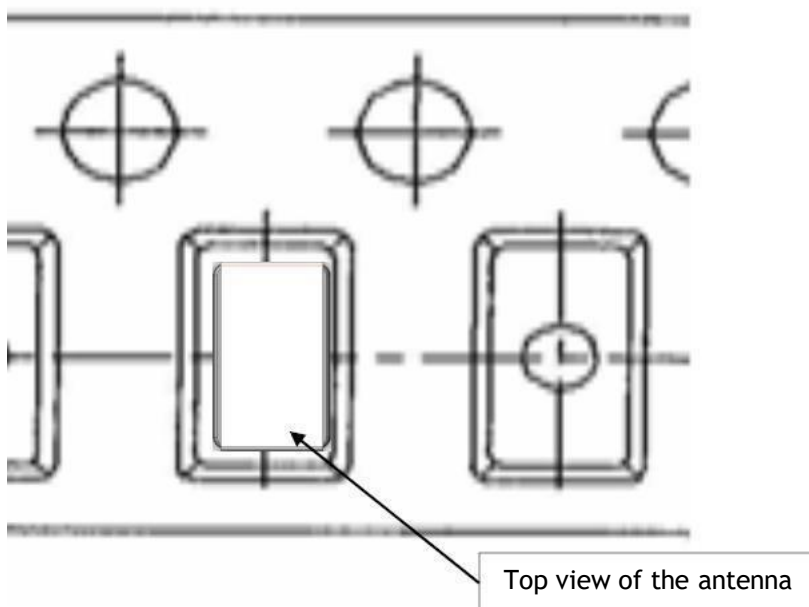
**Description: Dualband WLAN Antenna – WiFi 6E**

**Series: Ceramic Chip Antenna**

**PART NUMBER: W3078TI**

**PACKAGING**

**Block orientation:** soldering pads facing down to the bottom of the carrier tape.



Top view of the carrier tape

### Description: Dualband WLAN Antenna – WiFi 6E

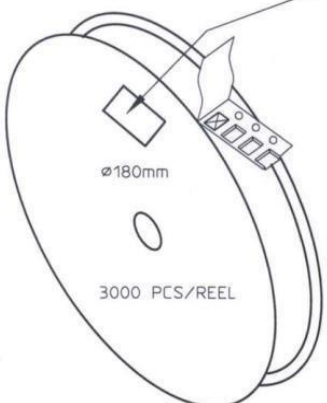
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

## PACKAGING

### W3078TI Antenna Packing

#### Reel and packing information:



REEL LABEL INFORMATION:

- TRACEABILITY
- QUANTITY
- PRODUCT CODE

ø180mm

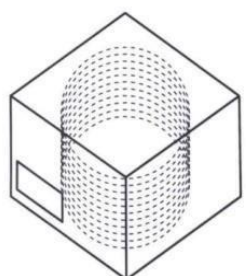
3000 PCS/REEL

CARRIER TAPE H85-00125  
width=8,00 depth=1,22  
COVER TAPE H85-00126  
width=5,60

LENGTH OF TAPE:

- Leader section: min 350 mm before component section
- Trailer section: min 40 mm after component section.

Empty part cavities at leader and trailer section of the tape must be sealed with top cover tape.


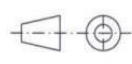


BOX H85-00128 1 pcs  
(182x182x132)

- LABEL 1 pcs/BOX

REEL H85-00127 10 pcs  
(D180, W12)

- REEL LABEL 1 pcs/REEL

MATERIAL			
HANDLINGS			
		RATIO	DRWN 090507 PeHa H
			DGNER
			CHKD
			APPRD
			APPRD BY
PRODUCT H90-OY805			C
DENOMINATION			B
PACKING FORM			A
		VERSION	MOD/DATE/NAME

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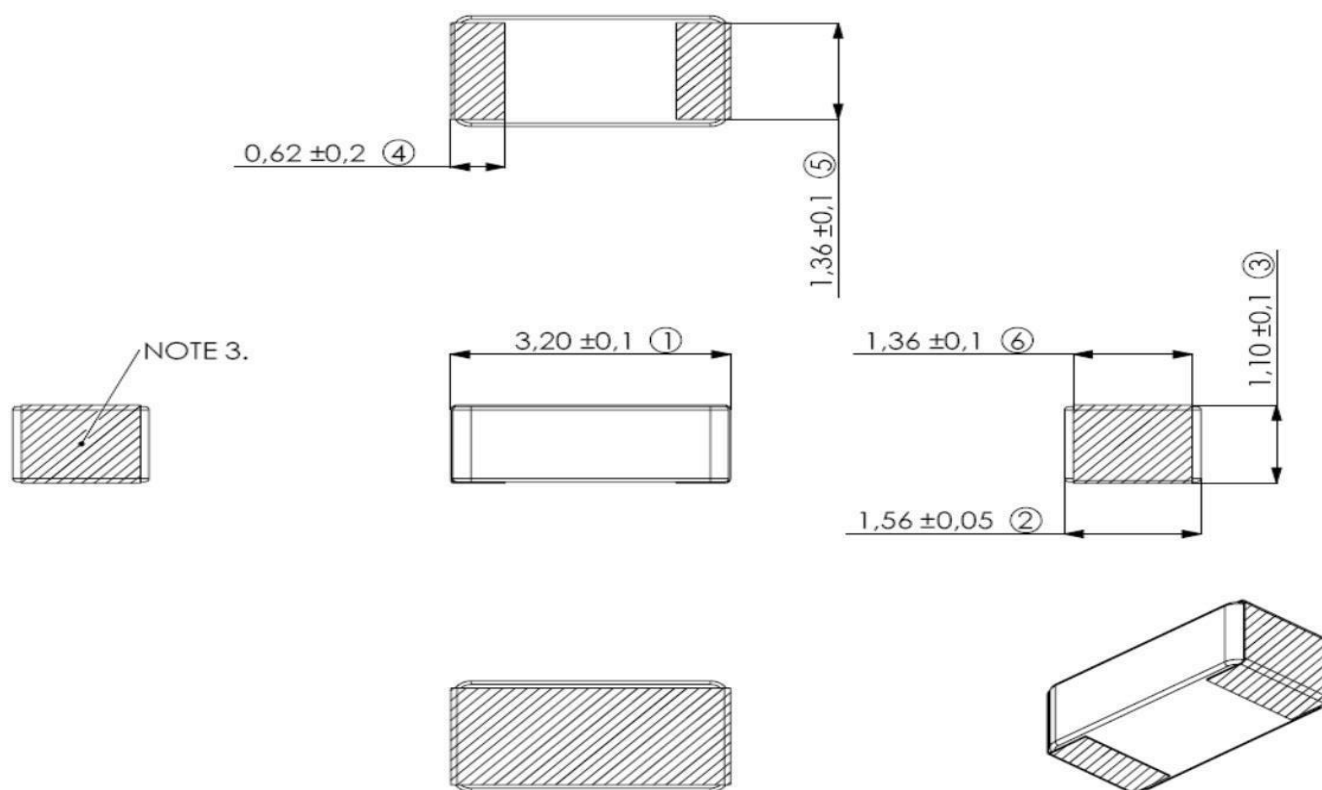
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ASSEMBLY

W3078TI Antenna Mechanical Outline



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