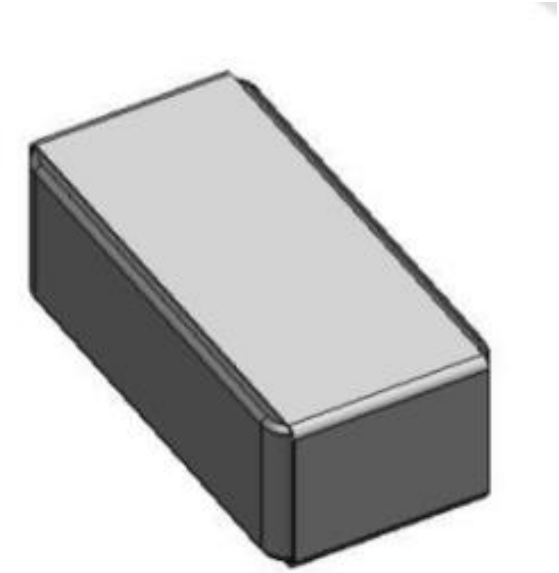
TECHNICAL DATA SHEET

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

Issue: 2523

RoHS COMPLIANT

For more information:

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

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

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

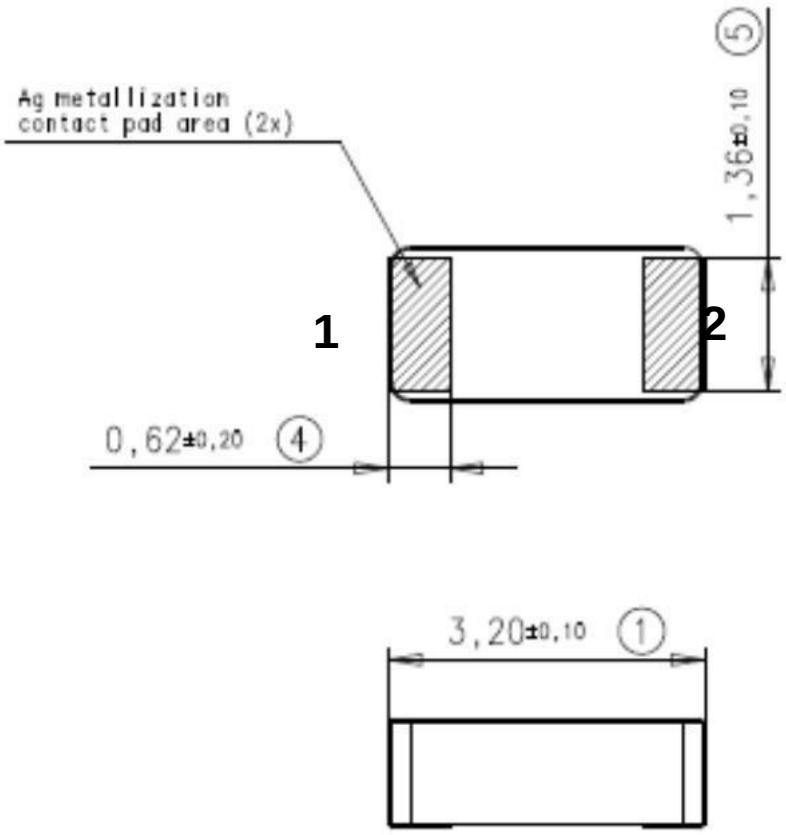
Pulse (Suzhou) Wireless Products Co, Inc.
99 Huo Ju Road(#29 Bldg,4th Phase
Suzhou New District
Jiangsu Province, Suzhou 215009 PR China
Tel: 86 512 6807 9998

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

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

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		

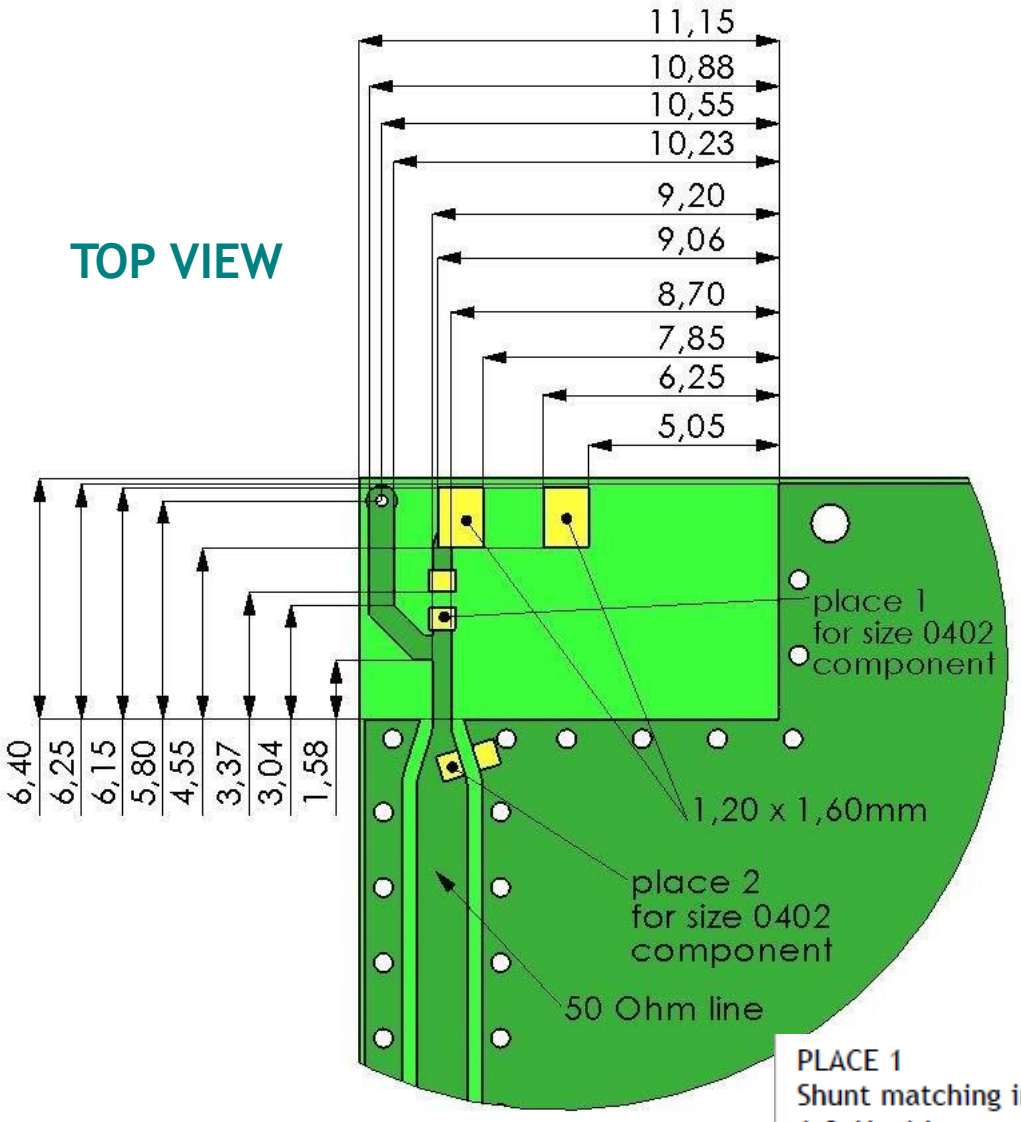
Description: Dualband WLAN Antenna – WiFi 6E

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

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

TOP VIEW



PLACE 1
Shunt matching inductor,
6.8nH with presented setup.

PLACE 2
Serial matching inductor,
10nH with presented setup.

Exact inductor value depends on specific application.

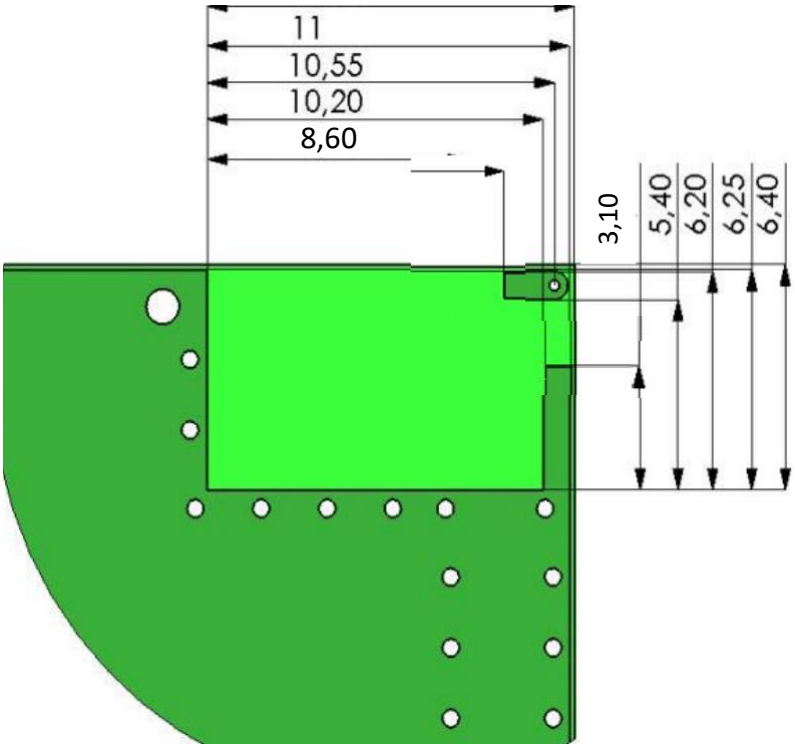
RoHS COMPLIANT

Description: Dualband WLAN Antenna – WiFi 6E

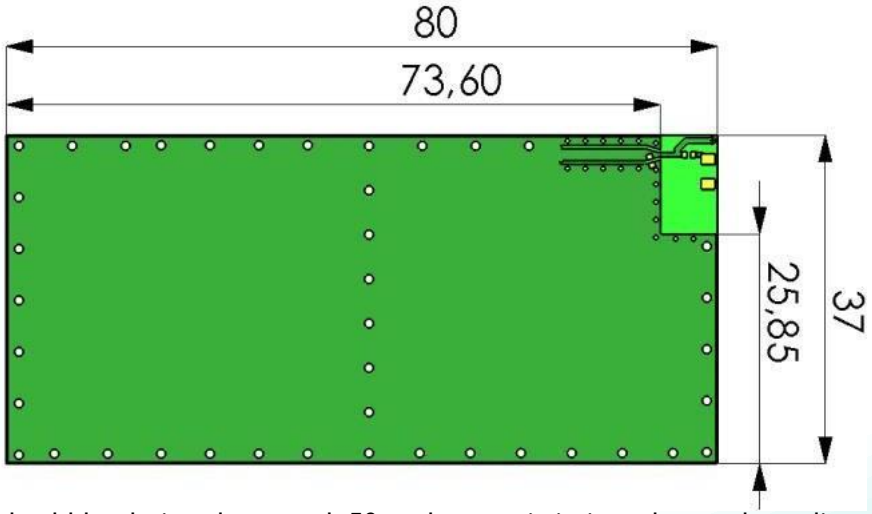
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

BOTTOM VIEW



LAYOUT PLACEMENT ON GROUND PCB CORNER



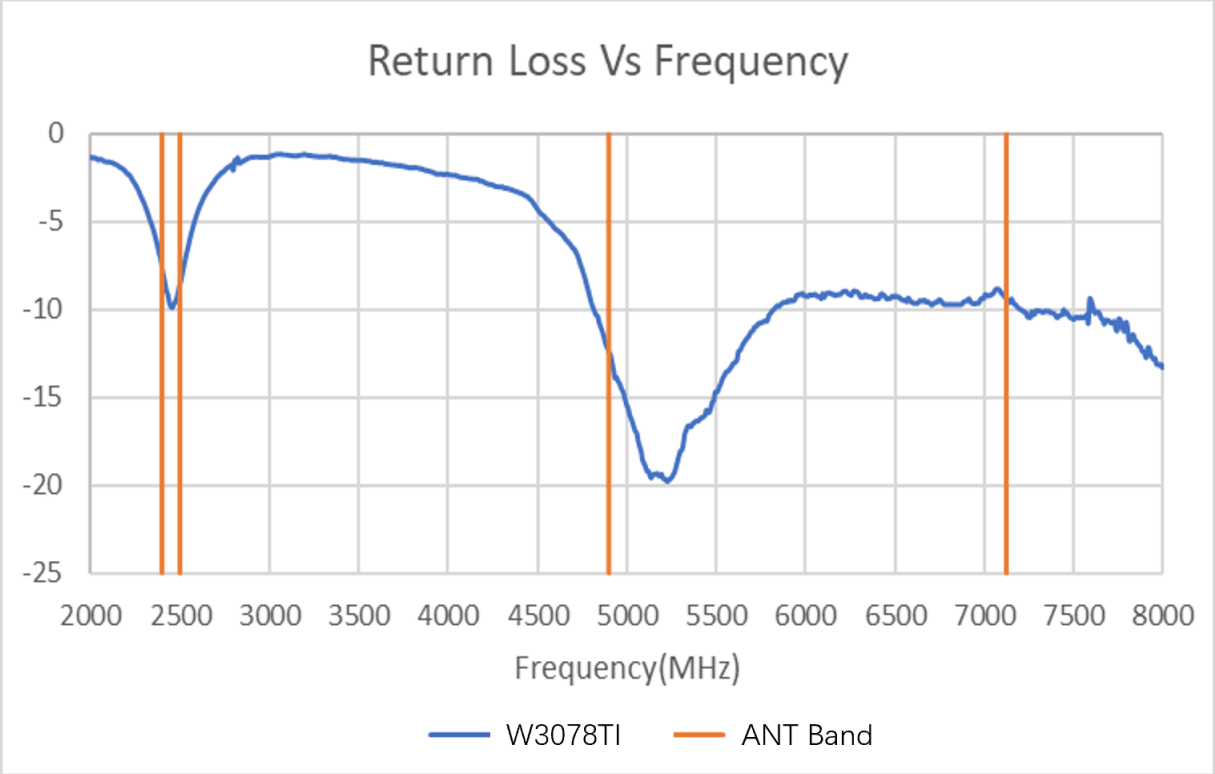
PCB

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

CHARTS

Typical Electrical Characteristics (T=25 °C)

Typical Return Loss S11, measured on the test board



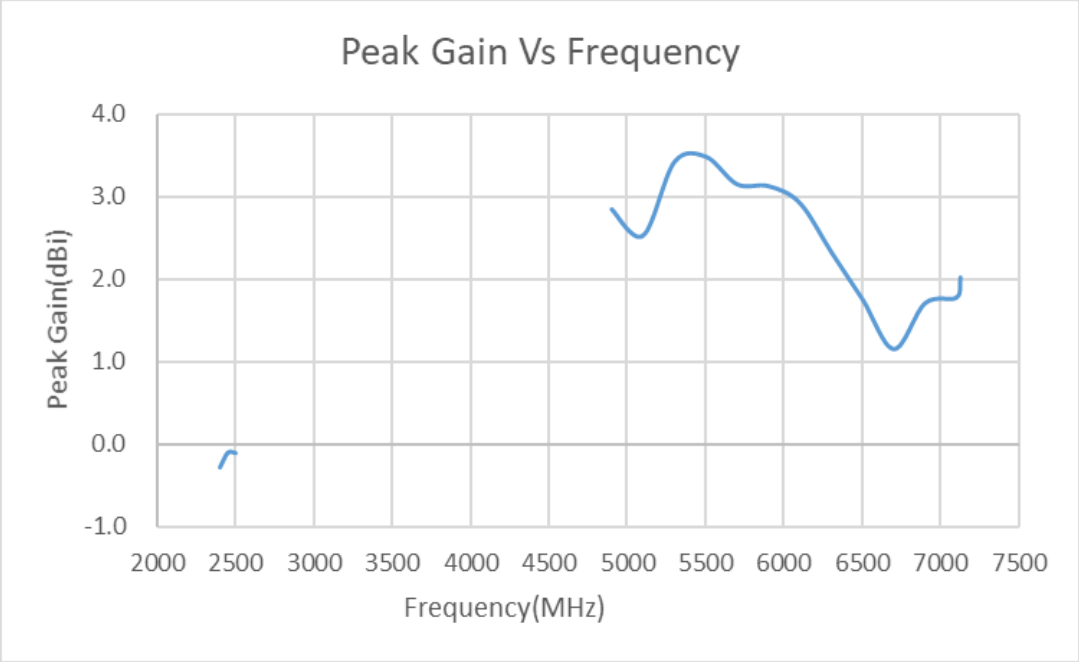
Description: Dualband WLAN Antenna – WiFi 6E

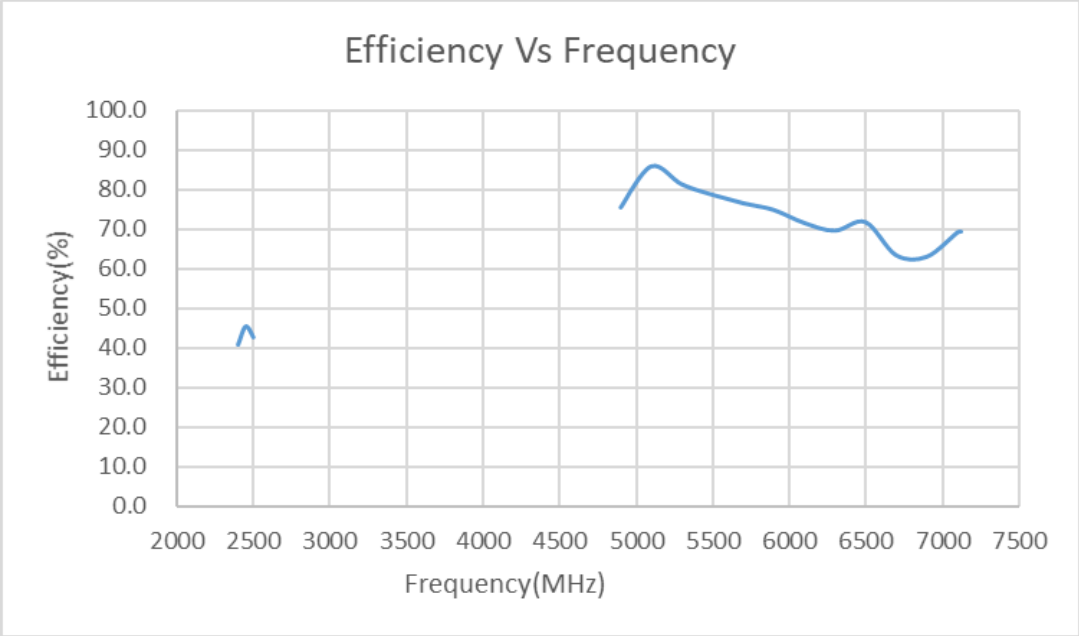
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

CHARTS

Free space efficiency and maximum gain





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

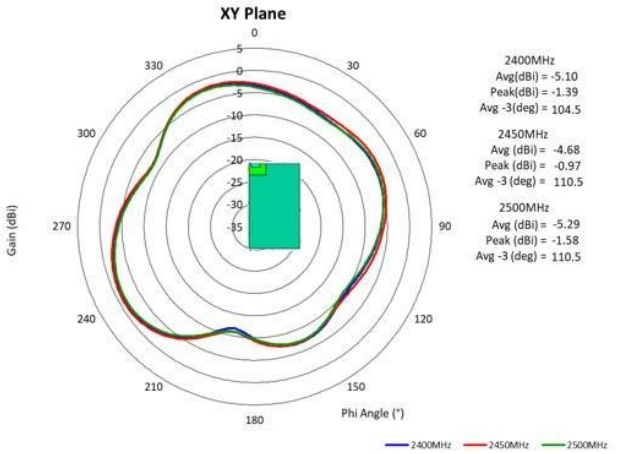
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

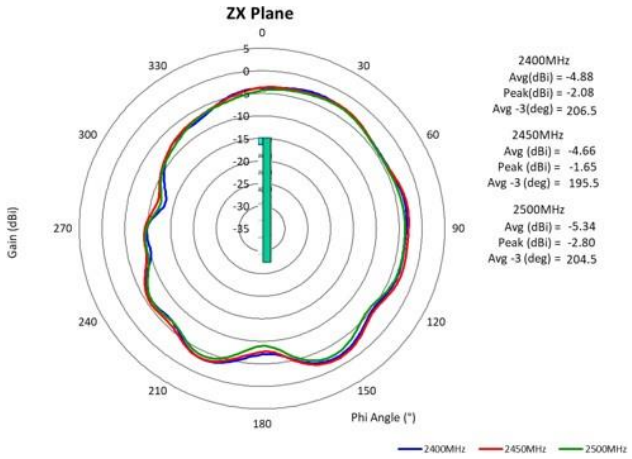
CHARTS

2.4-2.5 GHz Typical Free space Radiation Patterns

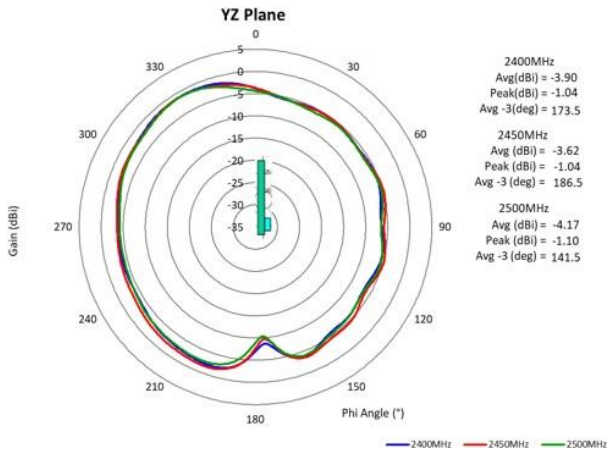
XY-PLANE

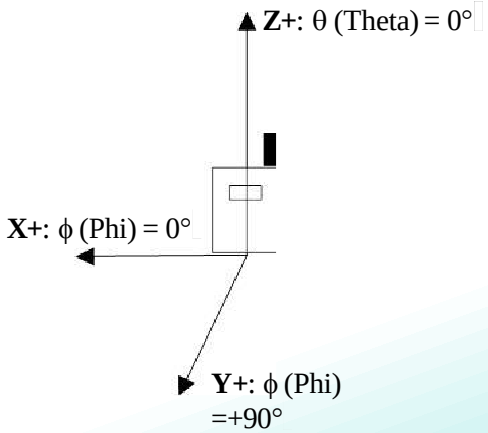


ZY-PLANE



ZX-PLANE





Issue: 2523

RoHS COMPLIANT

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

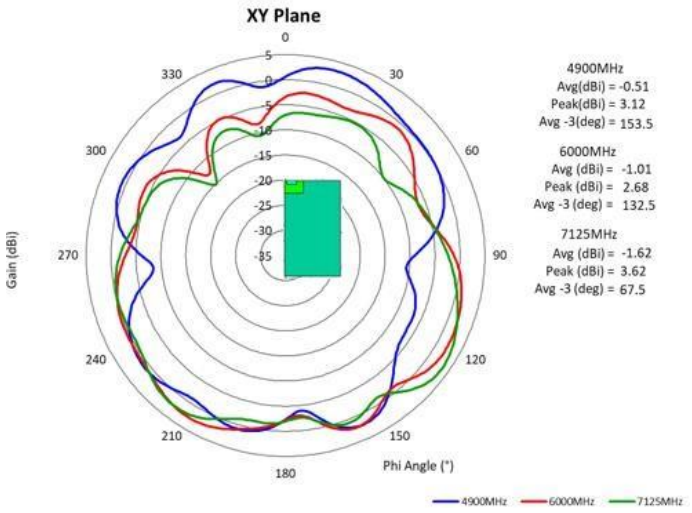
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

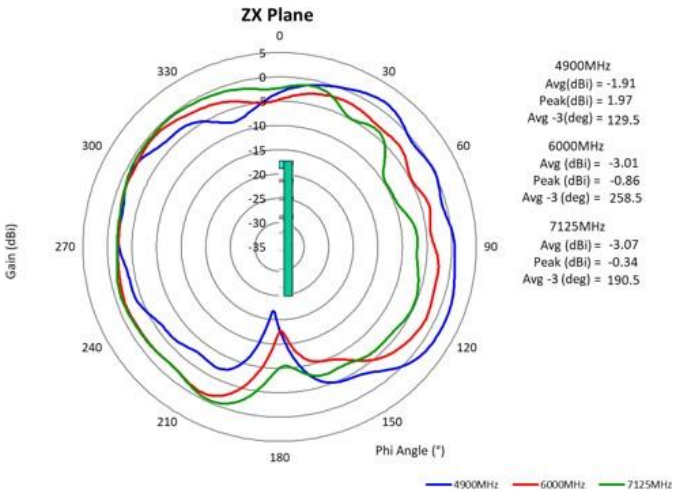
CHARTS

4.9-7.125 GHz Typical Free space Radiation Patterns

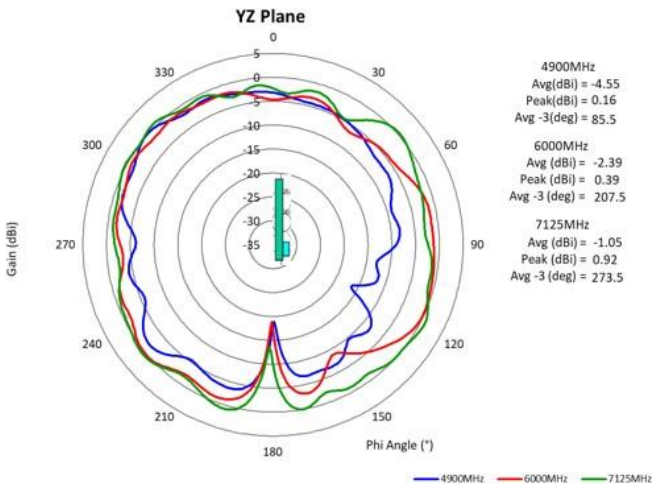
XY-PLANE

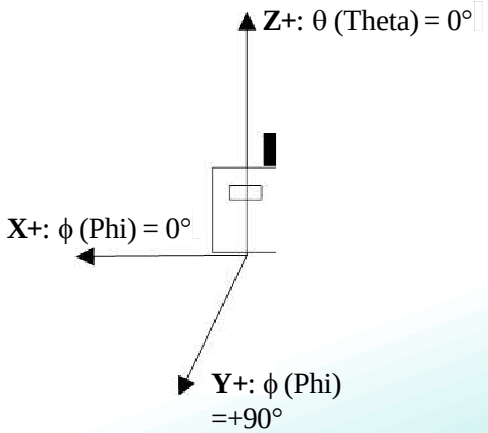


ZY-PLANE



ZX-PLANE





Issue: 2523

RoHS COMPLIANT

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

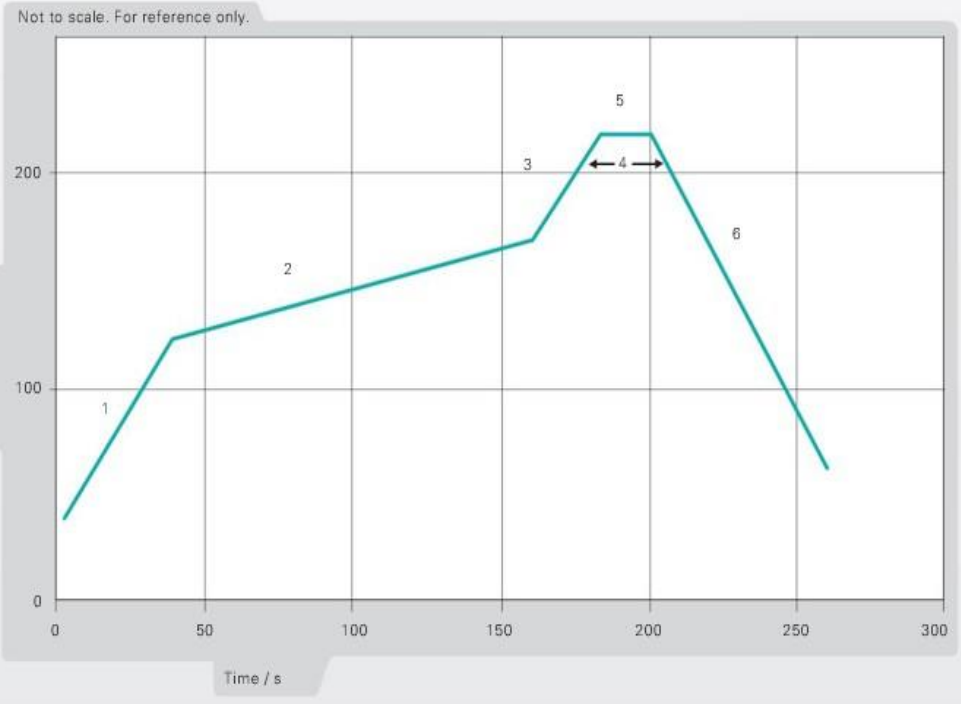


Figure 1. Minimum temperature profile recommendation for reflow soldering process

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

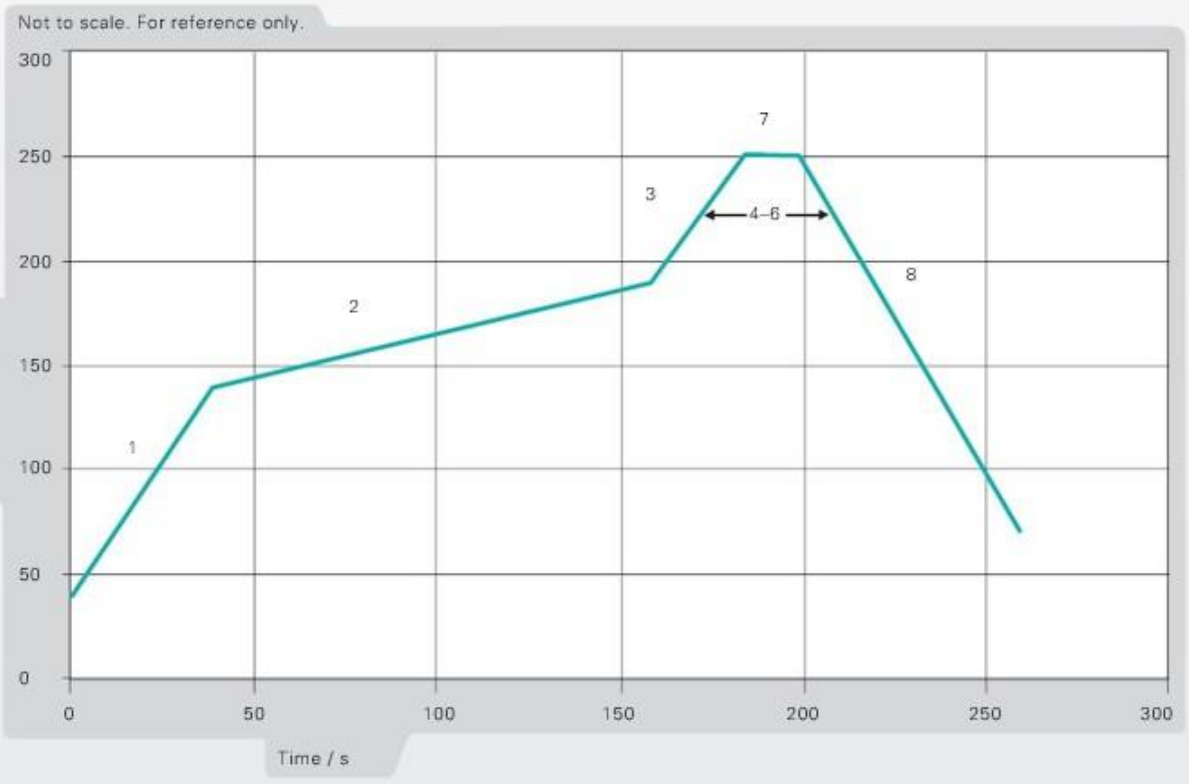


Figure 2. Maximum temperature profile recommendation for reflow soldering process

Description: Dualband WLAN Antenna – WiFi 6E

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

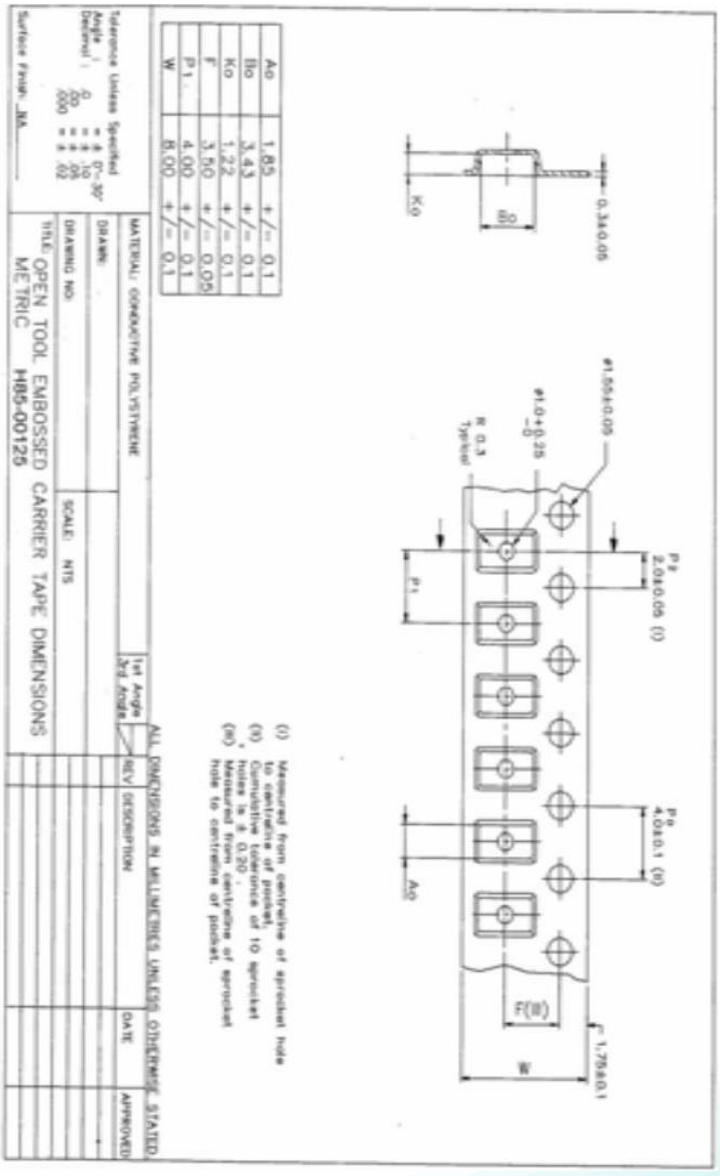
PACKAGING

W3078TI Antenna Packing

General

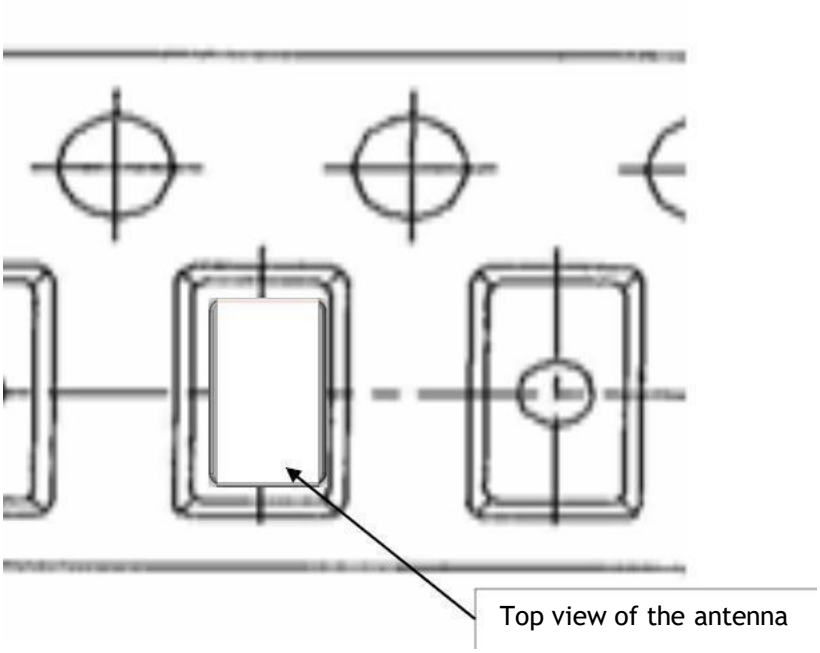
Tape and reel packing is used. Carrier tape, reel and box dimensions are presented in following pictures.

Carrier tape



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**

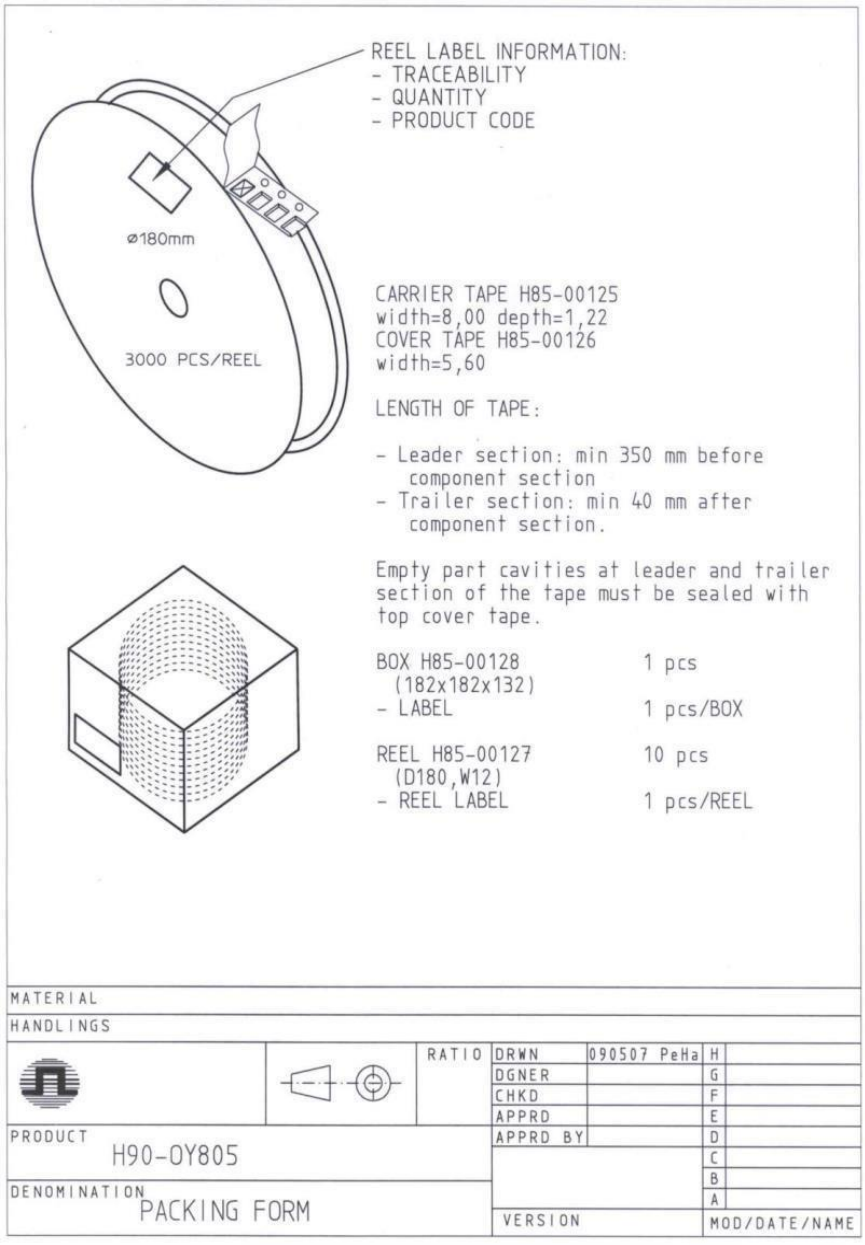
Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

PACKAGING

W3078TI Antenna Packing

***Reel and packing information*:**



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

Series: Ceramic Chip Antenna

PART NUMBER: W3078TI

ASSEMBLY

W3078TI Antenna Mechanical Outline