

Part No. A9001157

Automotive GPS / GLONASS SMT Patch Antenna

1575 MHz, 1610 MHz

Supports: GPS, GLONASS, GNSS systems, Global antenna embedded systems, Satellite positioning systems



KYOCERA AVX A-series of GPS / GLONASS SMT Patch Antennas deliver on the key needs of device designers for higher functionality and performance in embedded designs for automotive applications.

KYOCERA AVX has completed rigorous testing to qualify the A-series antennas for automotive applications. Although the AEC-Q200 standard does not include antenna products, all testing has been done following applicable AEC-Q200 requirements and procedures as closely as possible.

Best in Class Performance

SMT patch antennas are designed to maintain high efficiency in a variety of device configurations while allowing automation during the assembly process. High selectivity eliminates the need for additional filters and frees up board space.

Automotive GPS / GLONASS SMT Patch Antenna

1563 - 1610 MHz

KEY BENEFITS

Reduced Costs and Time-to-Market

Standard antenna eliminates design fees and cycle time associated with a custom solution; getting products to market faster.

Quicker Time-to-Market

By optimizing antenna size, performance and emissions, customer and regulatory specifications are more easily met.

Environmental Compliance

Products are the latest RoHS version compliant.

APPLICATIONS

- Embedded design
- Telematics
- Tracking
- Automotive
- IoT, Industrial devices
- Smart Grid
- Navigation

Electrical Specifications

Typical Characteristics, on 70 x 70 mm ground plane

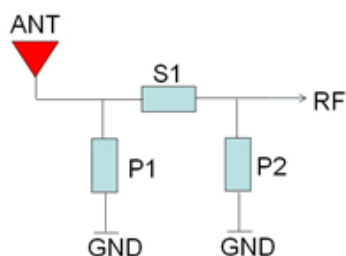
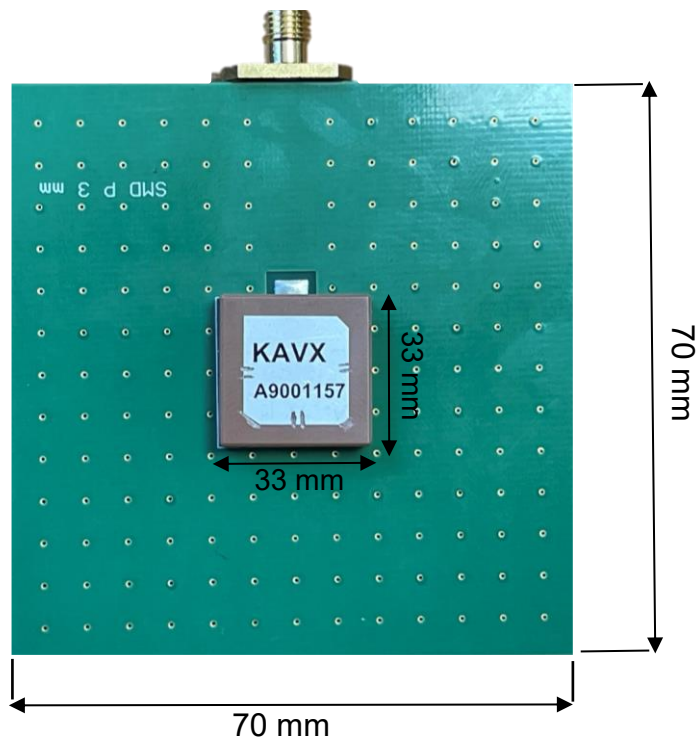
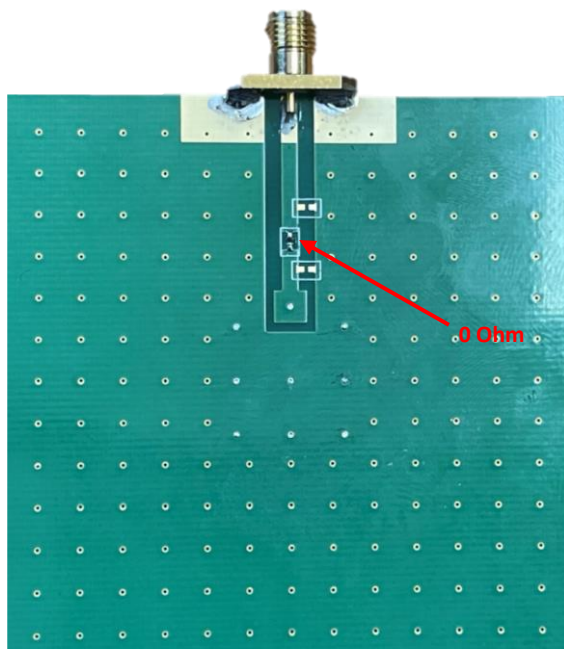
Frequency (MHz)	1563 – 1587	1593 - 1610
Peak Gain	3.7 dBi	4.4 dBi
Average Efficiency	50%	69%
Return Loss	< - 3 dB	< - 5 dB
Gain @ Zenith	3.7 dBi	4.2 dBi
Polarization	Elliptical	
Power Handling	2 Watt	
Feed Point Impedance	50 Ω unbalanced	
Radiation Pattern	Directional	

Mechanical Specifications & Ordering Part Number

Ordering Part Number	A9001157
Size (mm)	18.0 x 18.0 x 4.0
Mounting (mm)	SMT
Weight (grams)	6
Packaging	Packing in T&R
Demo Board	A9001157-01

Automotive GPS / GLONASS SMT Patch KYOCERA AVX Antenna Specifications.
KYOCERA AVX produces a wide variety of standard and custom antennas to meet user needs.

Antenna on EVB



Matching Pi Network (Demo Board)

Component	Value
P1	N/A
S1	0 Ohm
P2	N/A

*Actual matching values depend on customer design

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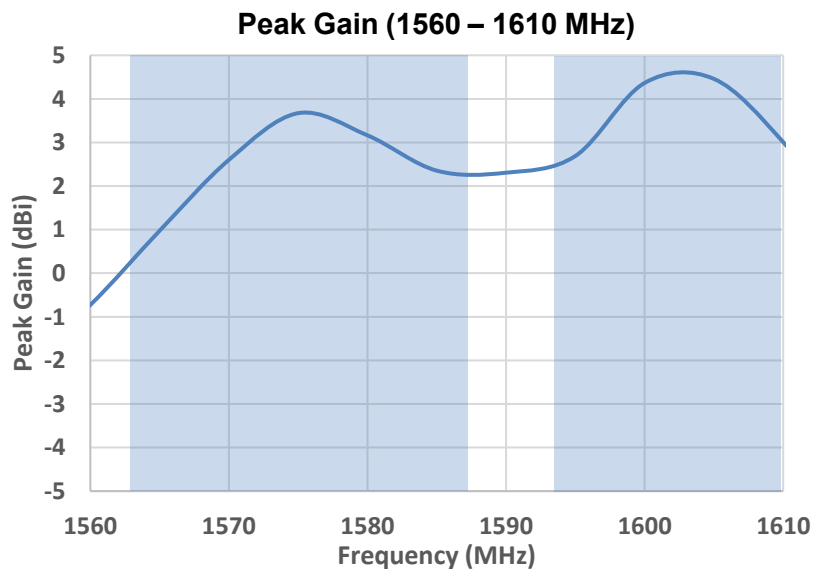
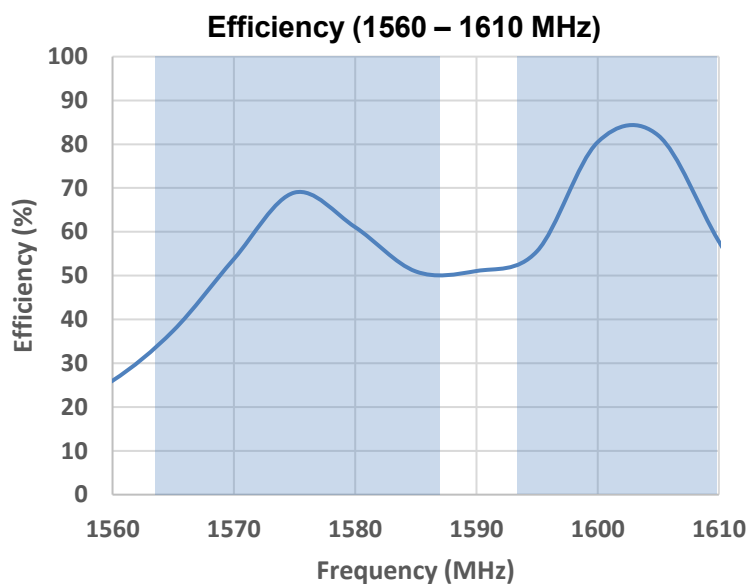
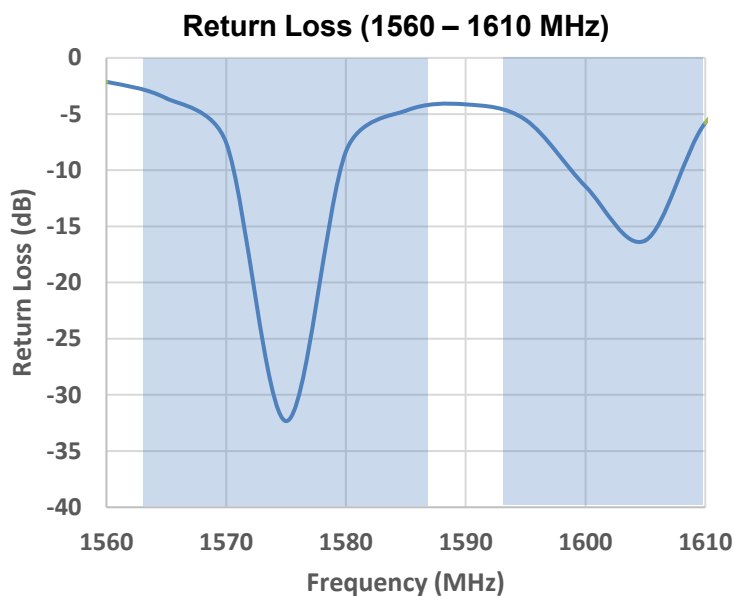
Test Setup



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Return Loss, Efficiency and Peak Gain Plots

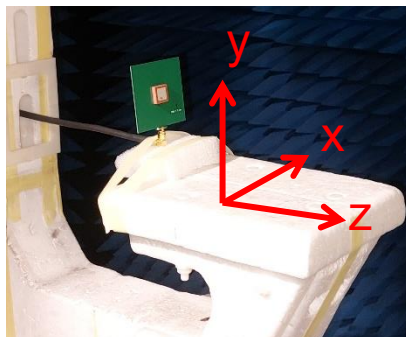
Typical Characteristics, on 70 x 70 mm ground plane



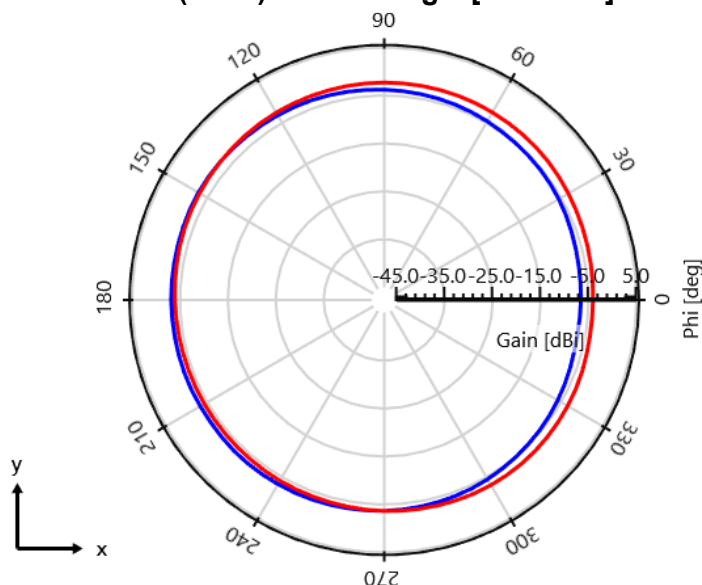
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Antenna Radiation Patterns

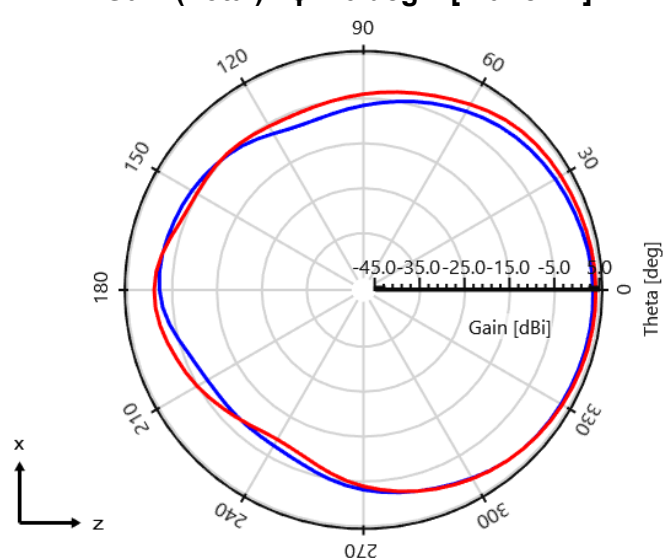
Measured at 1575 MHz and 1600 MHz



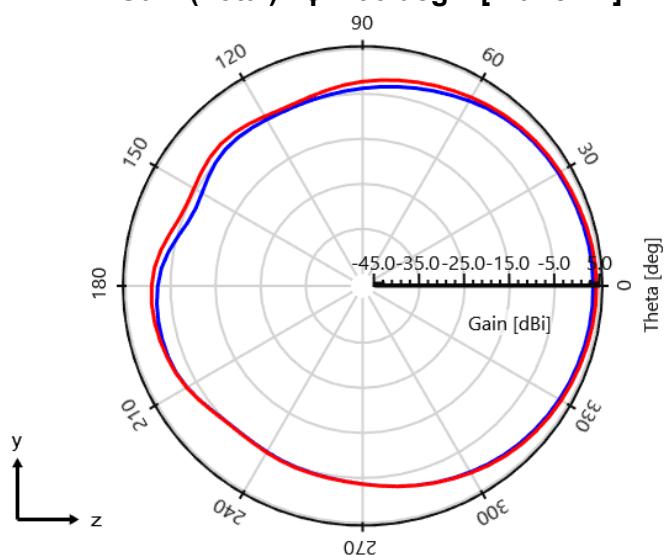
Gain (Total) - $\Theta = 90$ deg - [Plane XY]



Gain (Total) - $\phi = 0$ deg - [Plane XZ]



Gain (Total) - $\phi = 90$ deg - [Plane YZ]

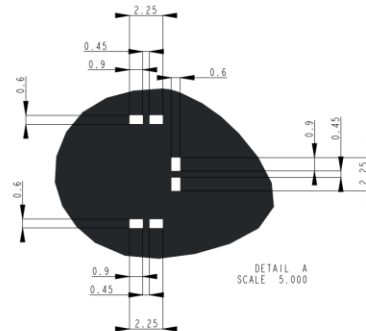
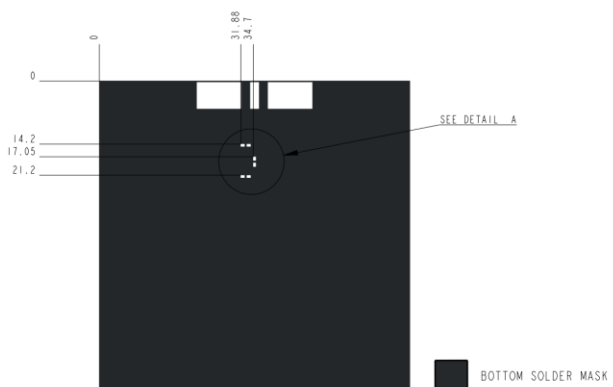
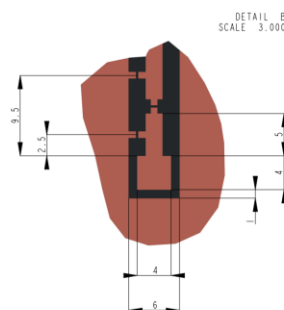
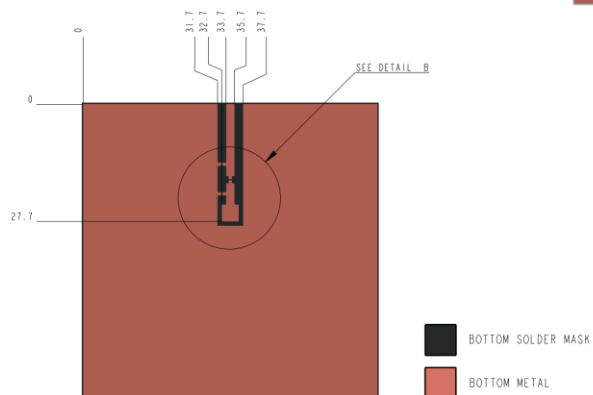
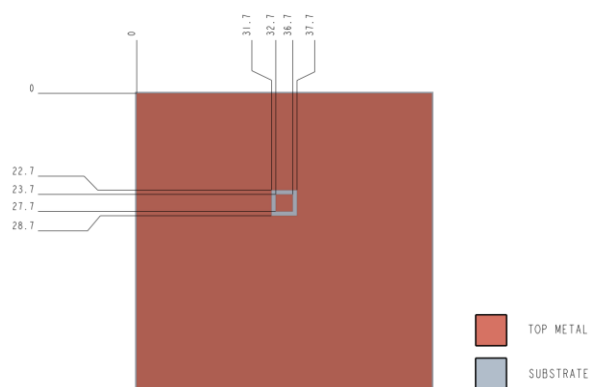
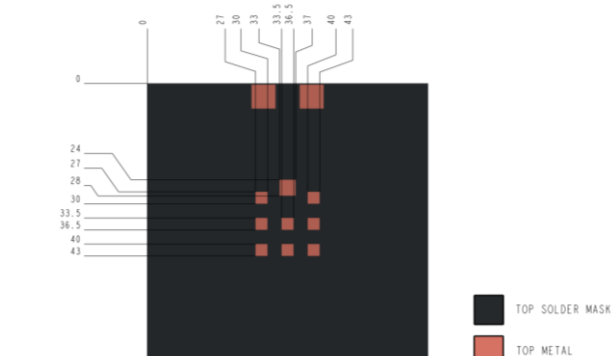
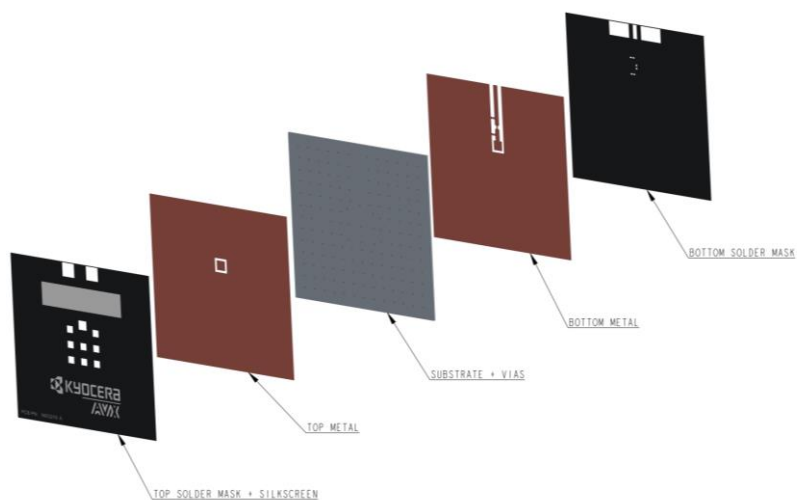


— 1575 MHz
— 1600 MHz

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Antenna Layout

Typical Layout Dimensions (mm)

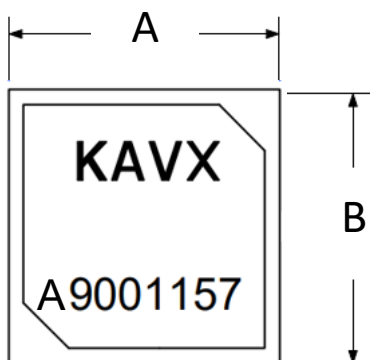


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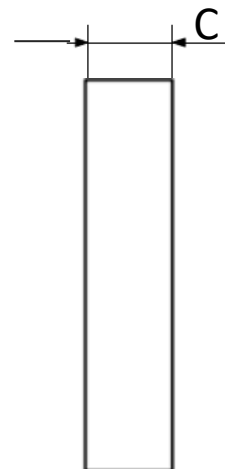
Mechanical Dimensions

Typical antenna dimensions, in mm.

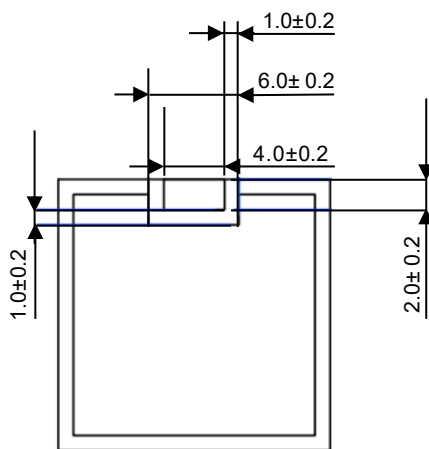
Part Number	A	B	C
A9001157	18.0 ± 0.2	18.0 ± 0.2	4.00 ± 0.2



Top View



Side View



Bottom View

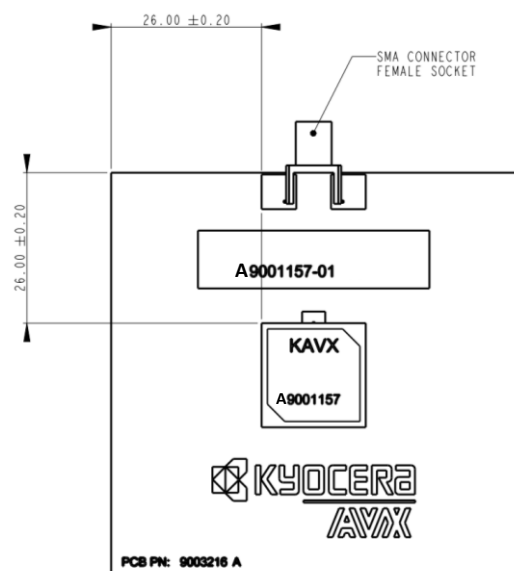
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Antenna Demo Board (A9001157-01)

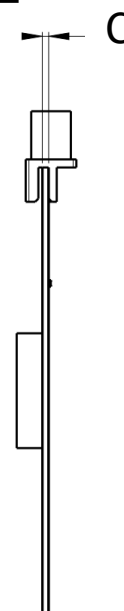
Demo Board Front/Back View (mm)

Part Number	A	B	C
A9001157-01	70.0	70.0	1.0

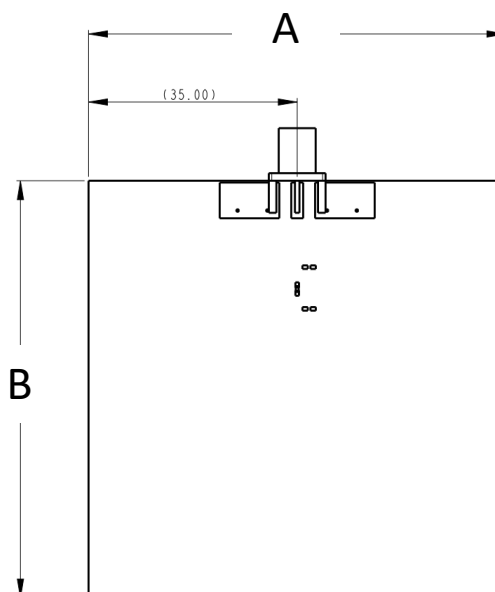
Top View



Side View



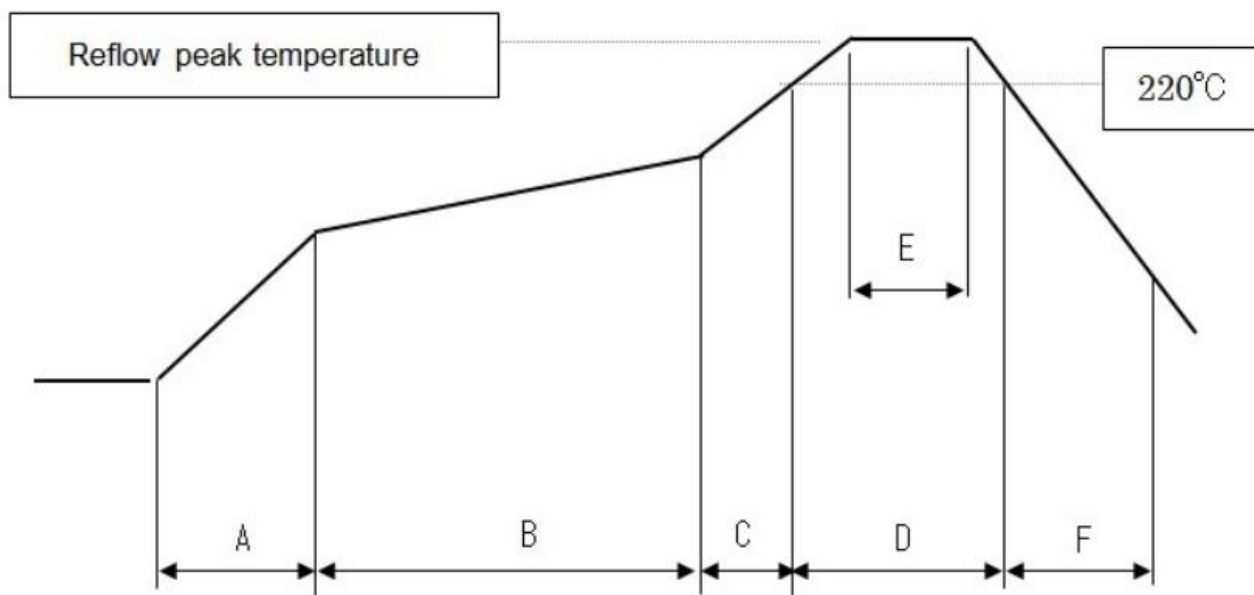
Bottom View



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Recommended Reflow Soldering Profile

The recommended method for soldering the antenna to the board is forced convection reflow soldering. The following suggestions provide information on how to optimize the reflow process for the Chip antenna:



	Reflow	Requirement
A	Heating (inclination coefficient)	4C/second (max.)
B	Pre-heating	150C to 190C: 120 seconds
C	Heating (inclination coefficient)	4C/second (max.)
D	Reflow temperature and period	220C or above: 60 seconds
E	Reflow peak temperature	250C (max.): 10 seconds
F	Cooling (inclination confident)	3C/second (max.)

*** The thickness of Solder should be controlled to be higher than 0.1 mm.**