

APPROVAL SHEET

RFANT Series – RoHS Compliance

MULTILAYER CERAMIC ANTENNA

Halogens Free Product

2.4 GHz/ 5GHz Full Band Working Frequency

Part Number:

RFANT6050110L0T

RFANT6050110L1T

*Contents in this sheet are subject to change without prior notice.

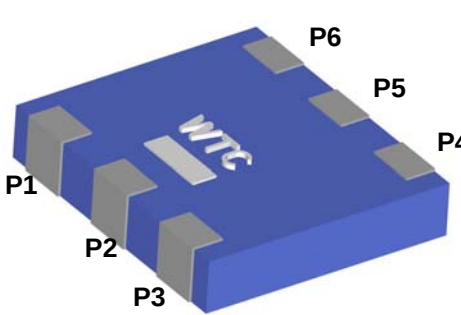
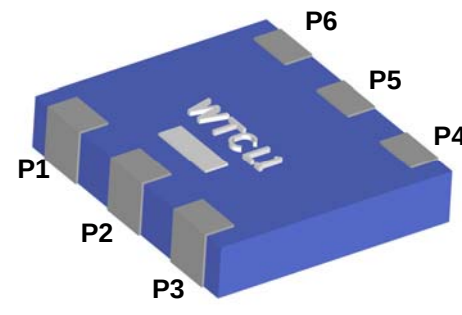
FEATURES

1. Combo application for IEEE 802.11b/g/a, broadband high frequency design cover with 2.4GHz , 5.2GHz, and 5.8GHz
2. SMD antenna requires least space and lowest assembly cost.
3. Embedded Antenna with a smallest dimension of $5.9 \times 5.1 \times 1.1 \text{ mm}^3$ meets to miniaturization trend.
4. Broad bandwidth design with the less sensitive characteristics to the GND pad and external environment deviation.
5. LTCC (Low Temperature Co-fired Ceramic) Multi-Layer technology to beautify the housing / outlook of the final product.

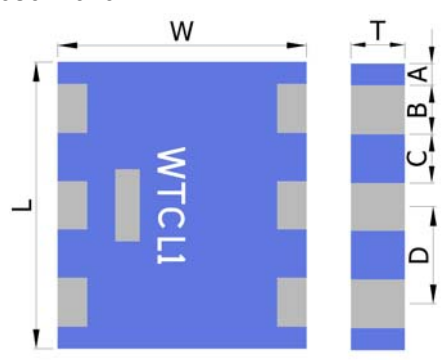
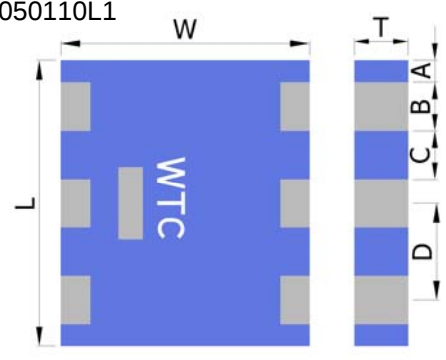
APPLICATIONS

1. Wireless LAN 802.11a/ b/ g combo application.

CONSTRUCTION

RFANT6050110L0T	RFANT6050110L1T	PIN	Connection
		P1	GND
		P2	RF Feeding
		P3	GND
		P4	Soldering
		P5	Soldering
		P6	Soldering

DIMENSIONS

Figure	Symbol	Dimension (mm)
RFANT6050110L0T 	L	5.90 ± 0.30
	W	5.10 ± 0.30
	T	1.10 ± 0.10
	A	0.45 ± 0.20
RFANT6050110L1 	B	1.00 ± 0.20
	C	1.00 ± 0.20
	D	2.00 ± 0.20

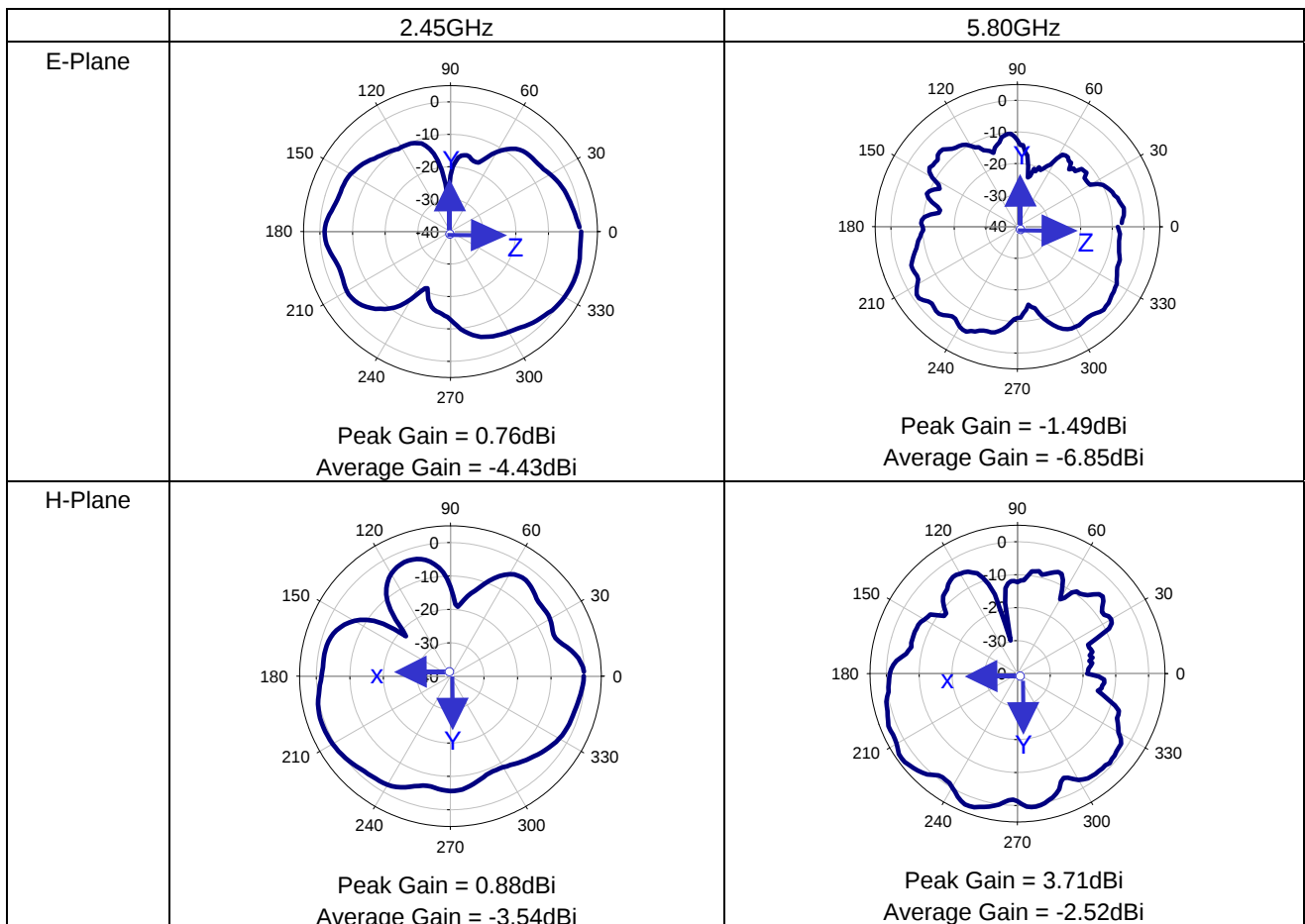
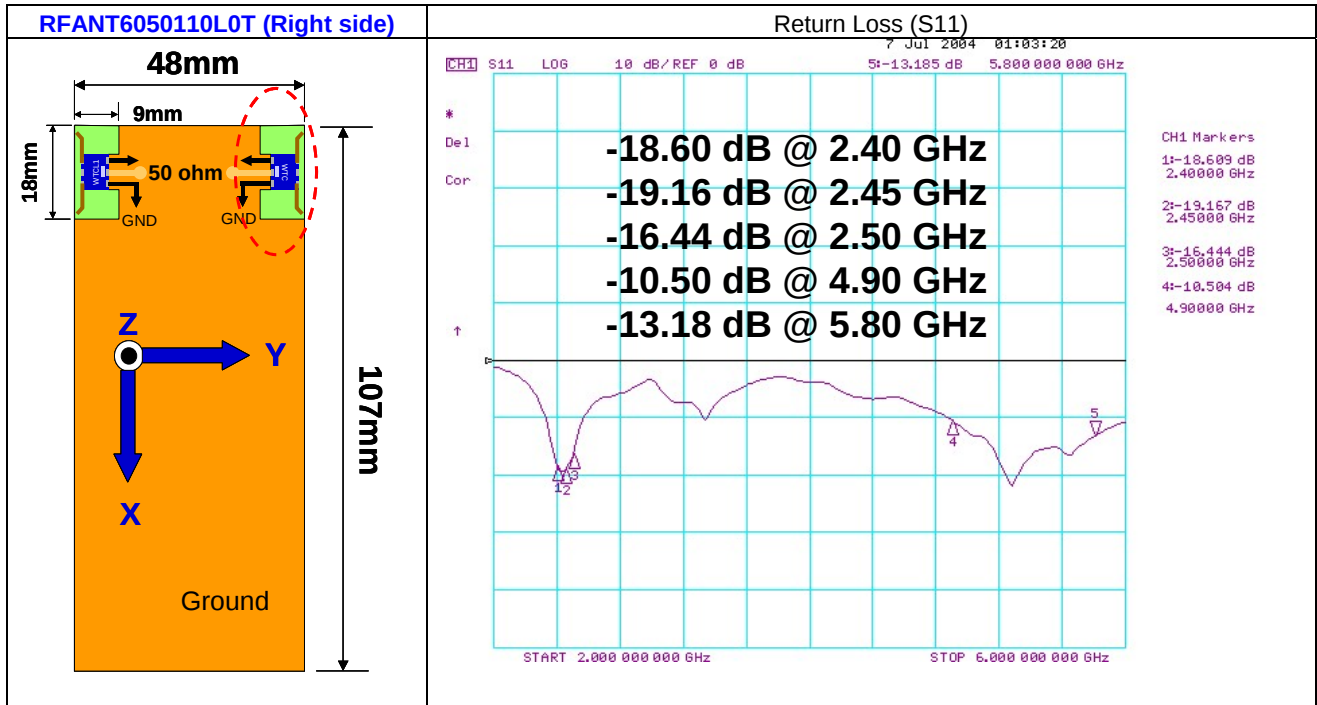
Item	Specification		
Central frequency	2.45GHz	5.25GHz	5.85GHz
Bandwidth (Typical)	100 MHz	200 MHz	100 MHz
Peak Gain (Typical)	4 dBi	4 dBi	4 dBi
VSWR	2 max.		
Polarization	Linear		
Impedance	50Ω		

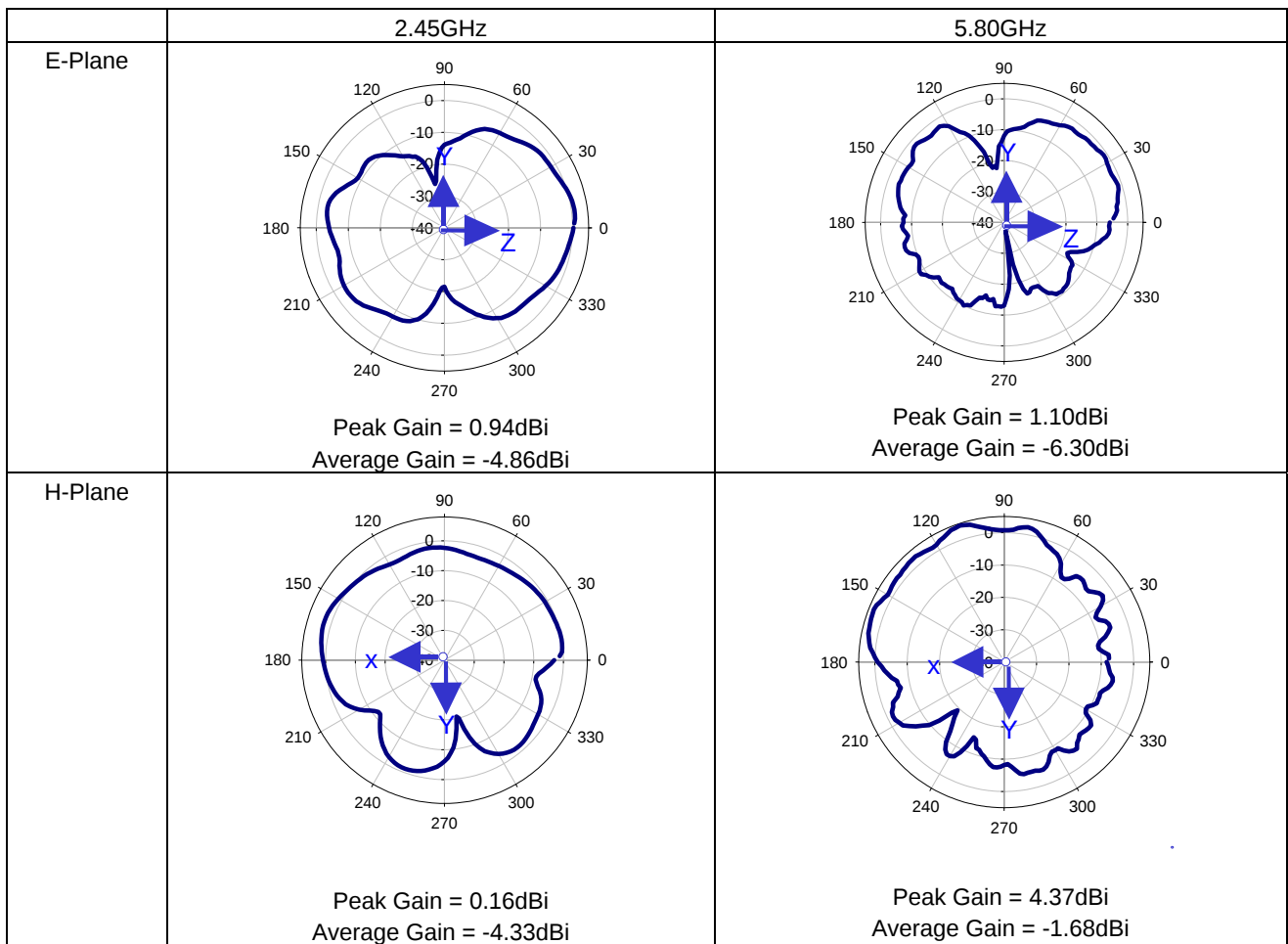
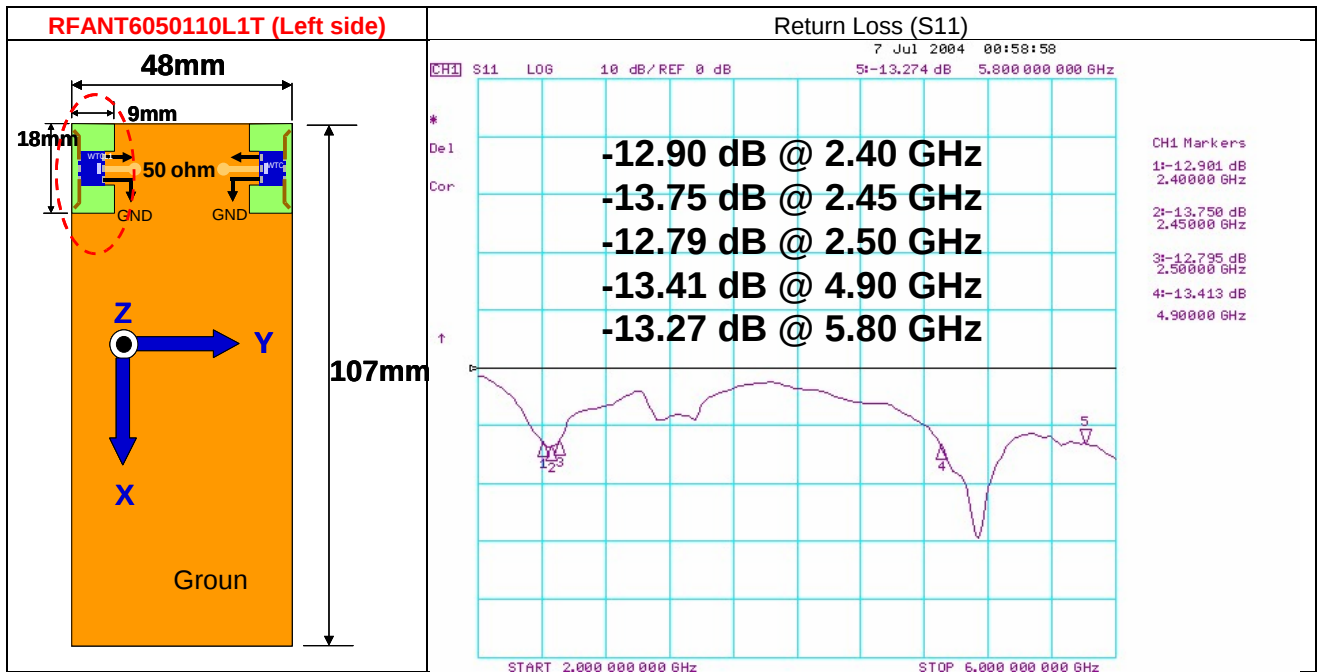
Remark: For RFANT6050110L0T, the mark is “WTC”
For RFANT6050110L1T, the mark is “WTC L1”

[illegible]

RADIATION PATTERN

Radiation Pattern and Gain were dependent on measurement board design. The specification of RFANT6050110L0T/ RFANT6050110L1T Combo antenna were measured based on the PCB size and installation position with housing was included.





RELIABILITY TEST

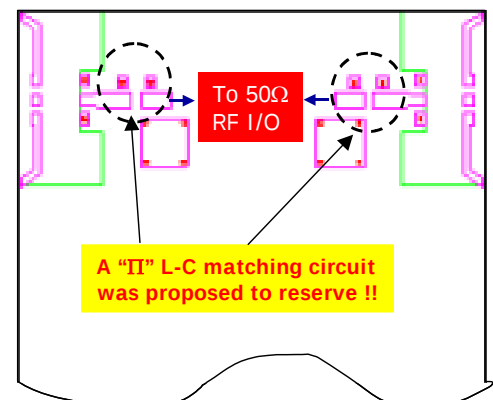
Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : $235 \pm 5^{\circ}\text{C}$ *Immersion time : 2 ± 0.5 sec Solder : Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Leaching (Resistance to dissolution of metallization) IEC 60068-2-58	*Solder bath temperature : $260 \pm 5^{\circ}\text{C}$ *Leaching immersion time : 30 ± 0.5 sec Solder : SN63A	Loss of metallization on the edges of each electrode shall not exceed 25%.
Resistance to soldering heat JIS C 0050-5.4	*Preheating temperature : $120\sim 150^{\circ}\text{C}$, 1 minute. *Solder temperature : $270 \pm 5^{\circ}\text{C}$ *Immersion time : 10 ± 1 sec Solder : Sn3Ag0.5Cu for lead-free Measurement to be made after keeping at room temperature for 24 ± 2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within $-40 \sim 85^{\circ}\text{C}$. Loss of metallization on the edges of each electrode shall not exceed 25%.
Drop Test JIS C 0044 Customer's specification.	*Height : 75 cm *Test Surface : Rigid surface of concrete or steel. *Times : 6 surfaces for each units : 2 times for each side.	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within $-40 \sim 85^{\circ}\text{C}$.
Vibration JIS C 0040	*Frequency : 10Hz~55Hz~10Hz(1min) *Total amplitude : 1.5mm *Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within $-40 \sim 85^{\circ}\text{C}$.
Adhesive Strength of Termination JIS C 0051- 7.4.3	*Pressurizing force : 5N(≤ 0603) ; 10N(>0603) *Test time : 10 ± 1 sec	No remarkable damage or removal of the termination.
Bending test JIS C 0051- 7.4.1	The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 1mm/s and then pressure shall be maintained for 5 ± 1 sec. Measurement to be made after keeping at room temperature for 24 ± 2 hours	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within $-40 \sim 85^{\circ}\text{C}$.

Temperature cycle JIS C 0025	30±3 minutes at -40°C±3°C, 10~15 minutes at room temperature, 30±3 minutes at +85°C±3°C, 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
High temperature JIS C 0021	*Temperature : 85°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Humidity (steady conditions) JIS C 0022	*Humidity : 90% to 95% R.H. *Temperature : 40±2°C *Time : 1000+24/-0 hrs. Measurement to be made after keeping at room temperature for 24±2 hrs ※ 500hrs measuring the first data then 1000hrs data	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.
Low temperature JIS C 0020	*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40 ~ 85°C.

The installation for the two antennas could be arranged as RFANT6050110L0T located on RIGHT side and RFANT605010L1T located on LEFT side to have the best antenna coverage.

The performance of embedded ceramic antenna is sensitive influenced by customer's ground area, PC board size, thickness, material, mechanical design and the material of housing for end product. The performance is guaranteed based on the installation as shown in above, to reserve a "II" network is suggested for final matching if the housing included.

Walsin engineers have significant expertise on embedded antenna designs and applications. We can work closely with you to ensure the requirements are met, and optimise the Walsin antenna performance when installing on your application.



SOLDERING CONDITION

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2

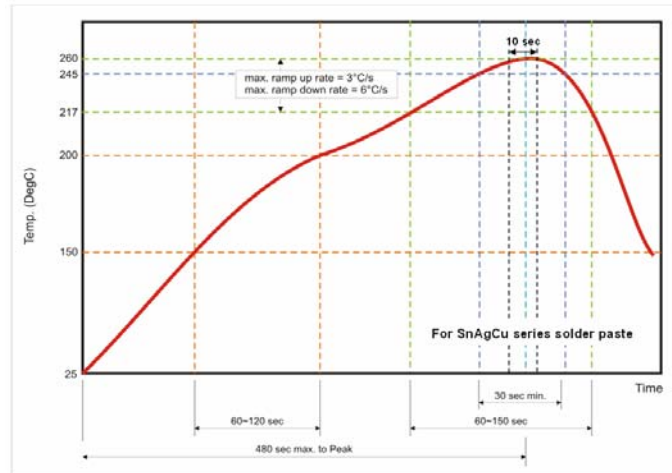


Fig 2. Infrared soldering profile

ORDERING CODE

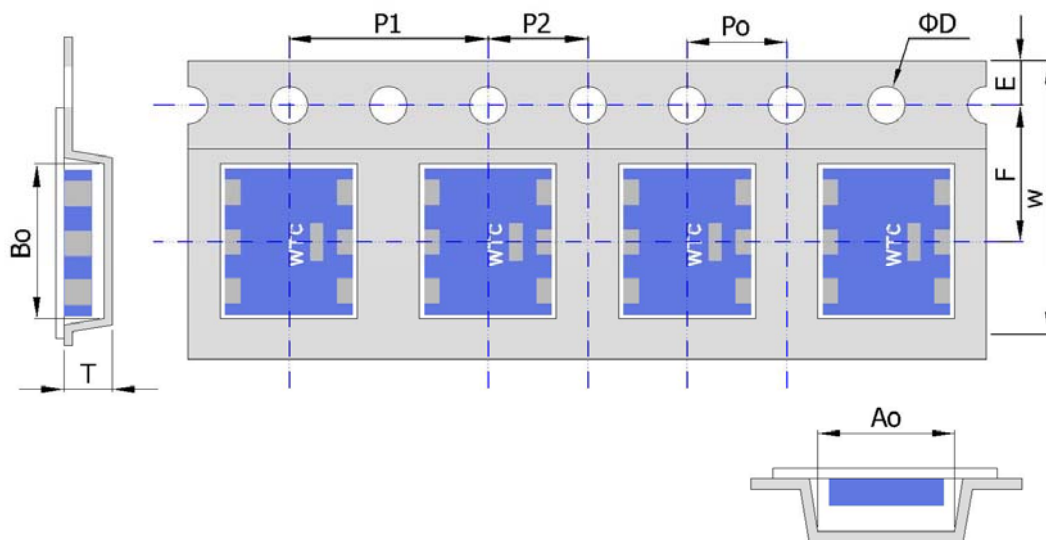
RF	ANT	605011	0	L	x	T
Walsin RF device	Product code ANT : Antenna	Dimension code Per 2 digits of Length, Width, Thickness : e.g. : 605011 = Length 60, Width 50, Thickness 11	Unit of dimension 0 : 0.1 mm 1 : 1.0 mm	Application L: 2.4GHz/ 5.2GHz/ 5.8GHz application	Specification Design Code	Packing T : 7" Reeled

Minimum Ordering Quantity: 1000 pcs per reel.

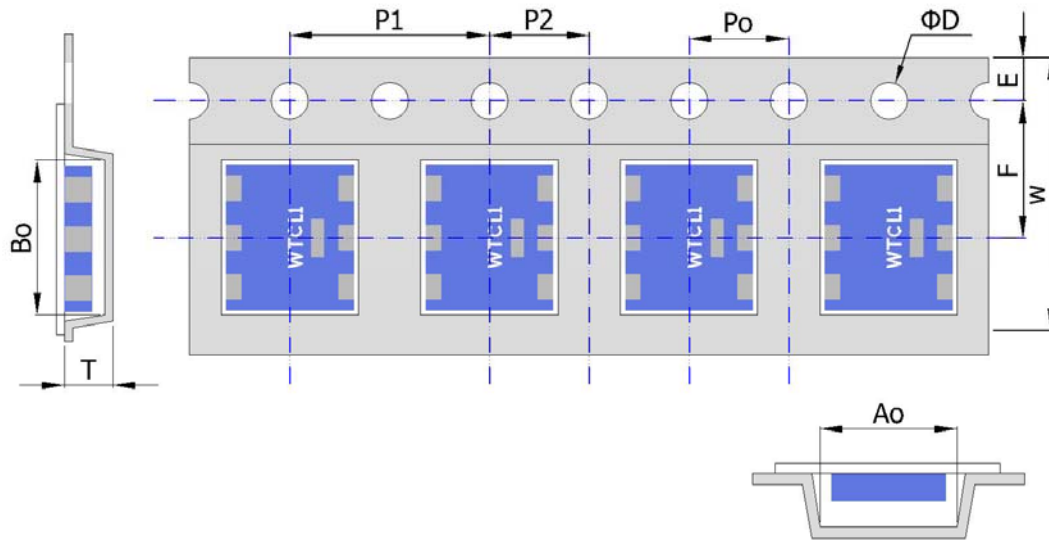
PACKAGING

Plastic Tape specifications (unit :mm)

(1). RFANT6050110L0T

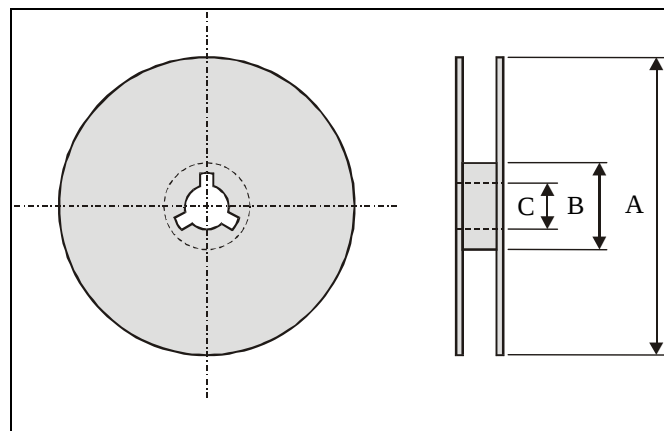


(2). RFANT6050110L1T



Index	Ao	Bo	ΦD	T	W
Dimension (mm)	5.45 ± 0.10	6.20 ± 0.10	1.55 ± 0.05	1.50 ± 0.10	12.0 ± 0.30
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	5.50 ± 0.05	4.00 ± 0.10	8.00 ± 0.10	2.00 ± 0.10

Reel dimensions



Index	A	B	C
Dimension (mm)	Φ178	Φ60.0	Φ13.5

Typing Quantity: 1000 pieces per 7" reel

CAUTION OF HANDLING

Limitation of Applications

Please contact us before using our products for the applications listed below which require especially high reliability for the prevention of defects, which might directly cause damage to the third party's life, body or property.

- (1) Aircraft equipment
- (2) Aerospace equipment
- (3) Undersea equipment
- (4) Medical equipment
- (5) Disaster prevention / crime prevention equipment
- (6) Traffic signal equipment
- (7) Transportation equipment (vehicles, trains, ships, etc.)
- (8) Applications of similar complexity and /or reliability requirements to the applications listed in the above.

Storage condition

- (1) Products should be used in 6 months from the day of WALSIN outgoing inspection.
- (2) Storage environment condition.
 - Products should be storage in the warehouse on the following conditions.
 - Temperature : +5 to +40°C
 - Humidity : 30 to 70% relative humidity
 - Don't keep products in corrosive gases such as sulfur. Chlorine gas or acid or it may cause oxidization of electrode, resulting in poor solderability.
 - Products should be storage on the palette for the prevention of the influence from humidity, dust and so on.
 - Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.