

APPROVAL SHEET

RFANT Series – RoHS Compliance

MULTILAYER CERAMIC ANTENNA

Halogens Free Product

6240 – 8500 MHz Working Frequency

P/N : RFANT3216110Y0T

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

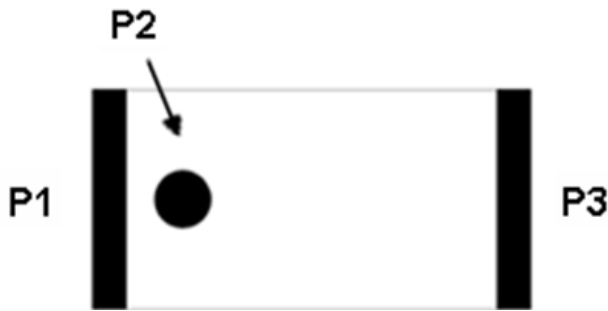
FEATURES

1. Surface Mounted Devices with a small dimension of 3.2 X 1.6 X1.1 mm³ meet future miniaturization trend.
2. LTCC process
3. High stability in Temperature / Humidity Change
4. Multilayer ceramic antenna (chip antenna)

APPLICATIONS

1. 6240 – 8500 MHz working Frequency

CONSTRUCTION



PIN	Connection
1	Feeding
2	Identification Mark
3	Soldering terminal

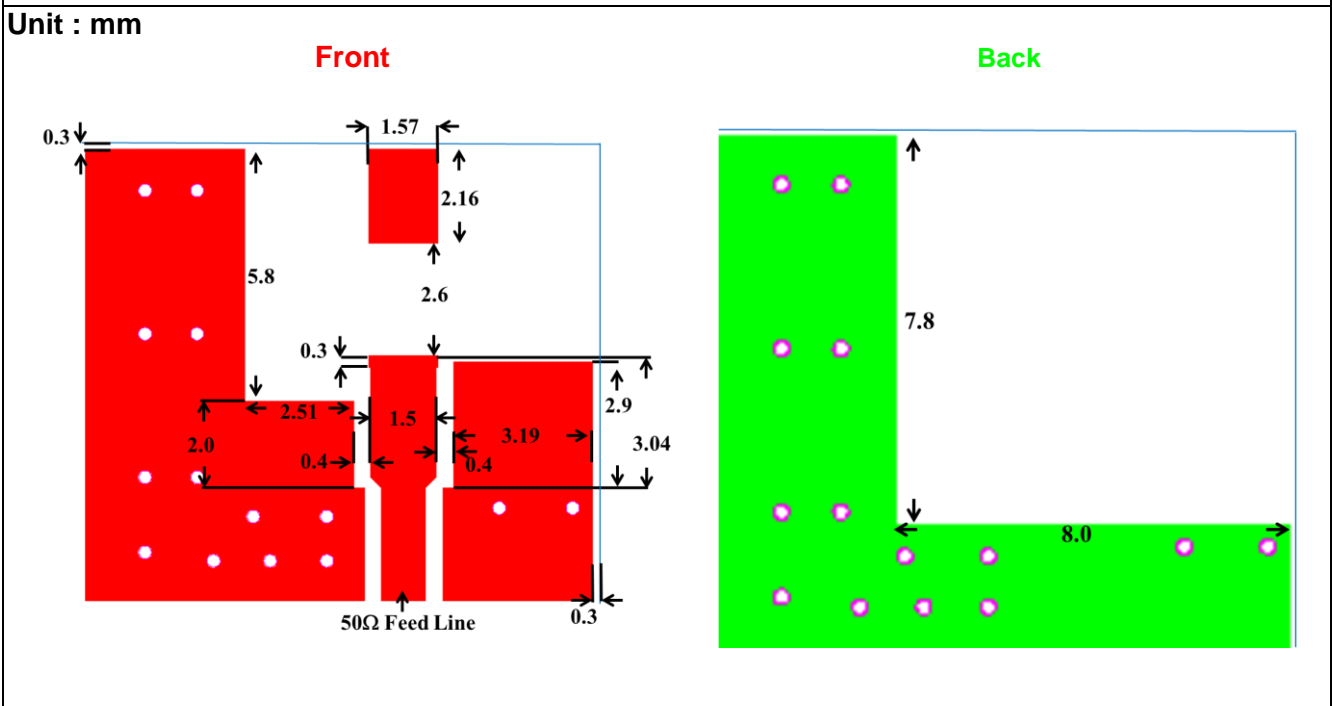
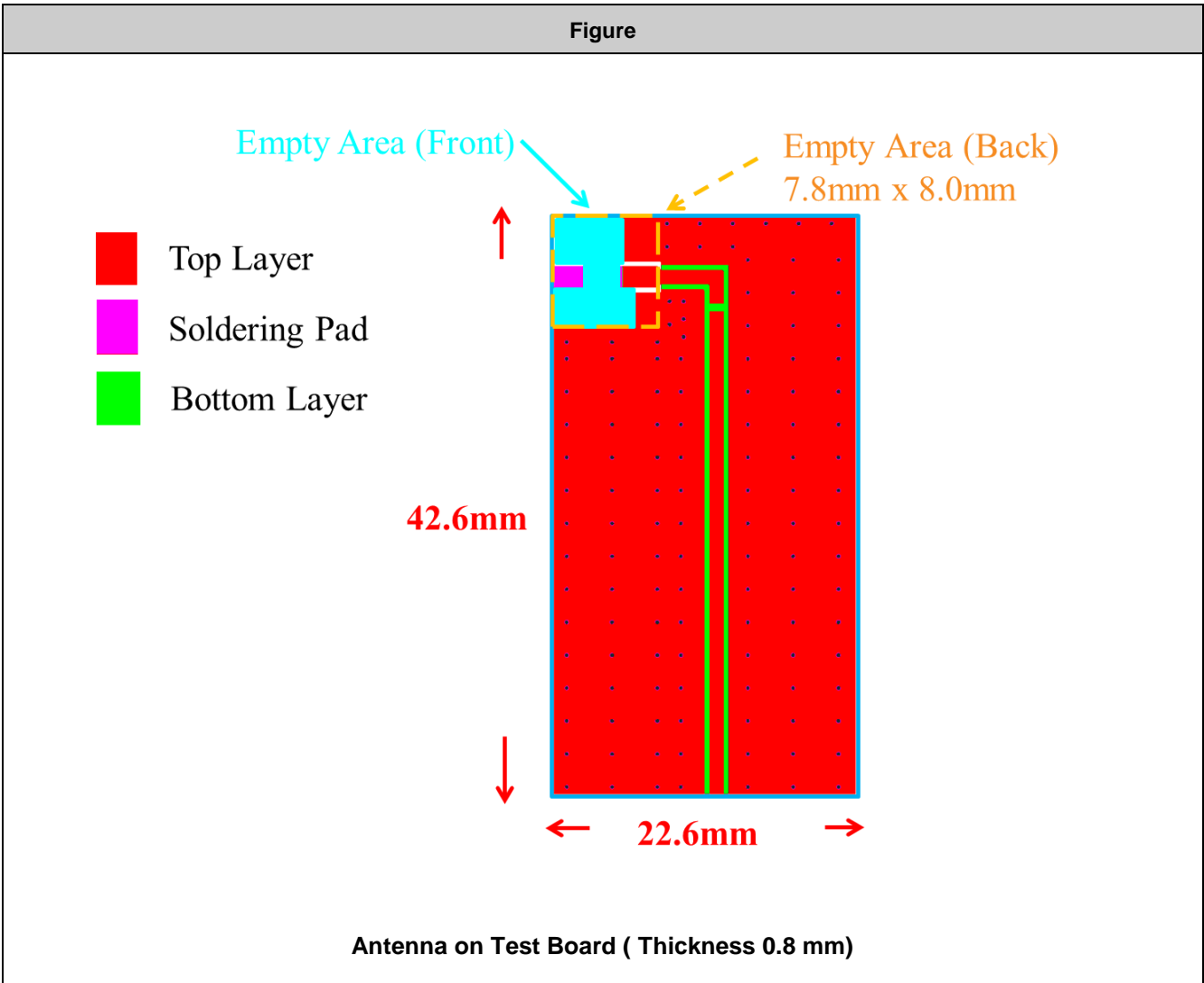
DIMENSIONS

Figure	Symbol	Dimension (mm)
	L	3.20 ± 0.20
	W	1.60 ± 0.10
	T	1.10 ± 0.10
	A	0.25 ± 0.15

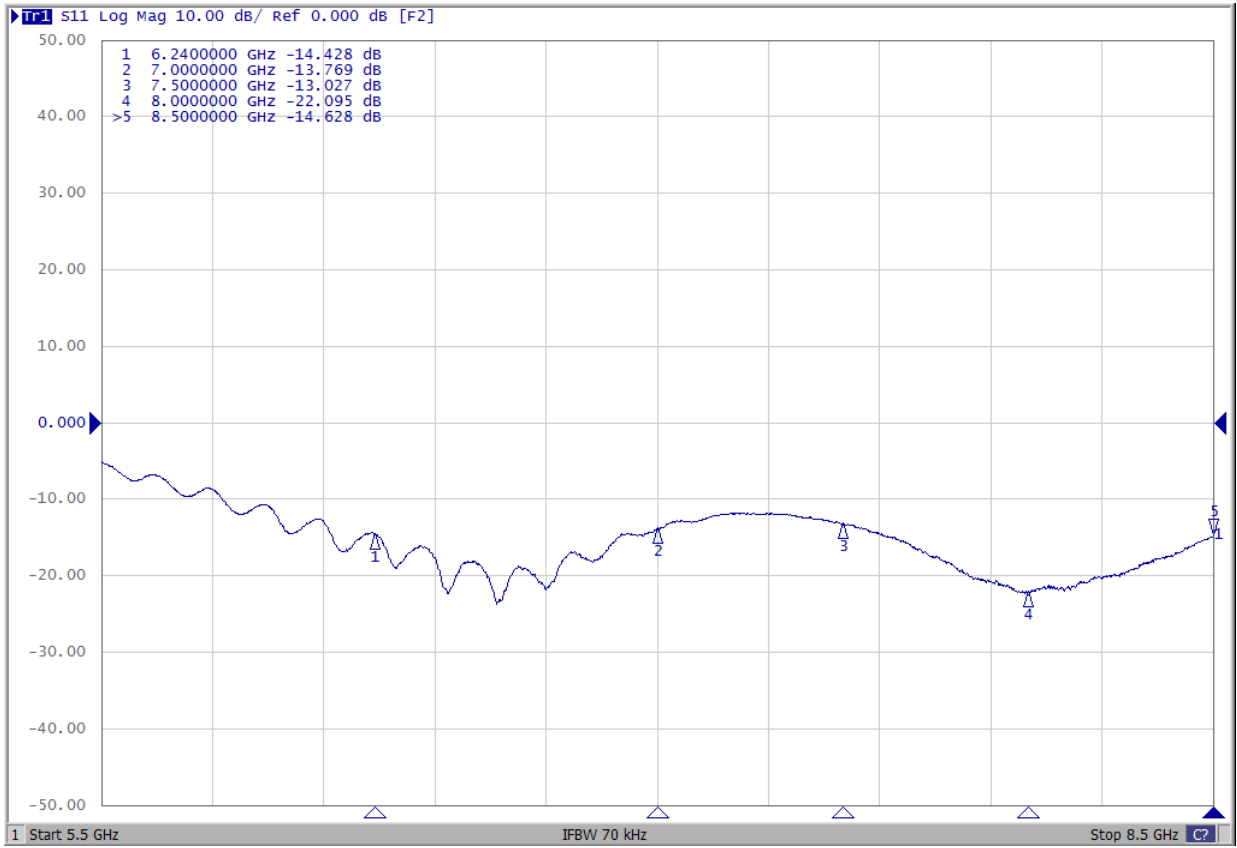
ELECTRICAL CHARACTERISTICS

RFANT3216110Y1T	Specification
Working Frequency Range	6240 - 8500 MHz
Fc	7370 MHz
VSWR	2 max.
Gain	3 – 4.5 dBi
Efficiency	70 – 80 %
Power Capacity	3 W max.
Maximum Input Power	5 Watts for 5 minutes
Polarization	Linear
Azimuth Beamwidth	Omni - Directional
Moisture sensitivity levels	MSL is LEVEL 1 (Refer to : IPC/JEDEC J-STD-020)
HBM ESD	Pass 1KV on all pins (Base on AEC-Q200-002)
MM ESD	Pass 200V (Base on EIA/JESD22-A115)
Operating & Storage Condition (Component) Operation Temperature Range: - 40°C ~ +85°C Storage Temperature Range: - 40°C ~ +85°C	
Storage Condition before Soldering (Included packaging material) Storage Temperature Range: +5 ~ +40 °C Humidity: 30 to 70% relative humidity	

SOLDER LAND PATTERN DESIGN

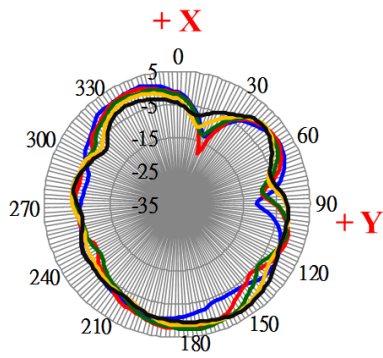
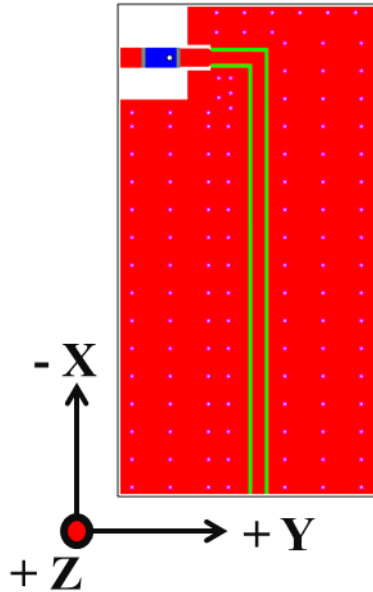


Antenna S11 on Test Board



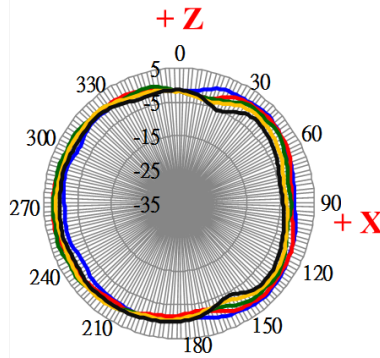
RADIATION PATTERNS

Radiation Pattern and Gain were dependent on measurement board design. The specification of RFANT3216110Y0T antenna was measured based on the PCB size and installation position as shown in the below figure Test Board.



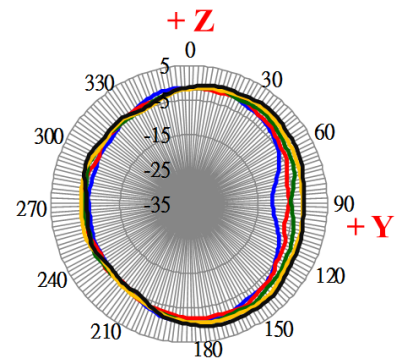
XY Plane

- 6240 MHz
- 7000 MHz
- 7500 MHz
- 8000 MHz
- 8500 MHz



ZX Plane

- 6240 MHz
- 7000 MHz
- 7500 MHz
- 8000 MHz
- 8500 MHz



ZY Plane

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.
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 : $10\text{Hz}\sim 55\text{Hz}\sim 10\text{Hz}(1\text{min})$ *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 (LGA terminal series) ; $5\text{N}(\leq 0603)$; 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	<ol style="list-style-type: none"> 1. 30±3 minutes at -40°C±3°C, 2. 10~15 minutes at room temperature, 3. 30±3 minutes at +85°C±3°C, 4. 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.

SOLDERING CONDITION

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2
This product could sustain by reflow process three times, and the temperature below 260°C .

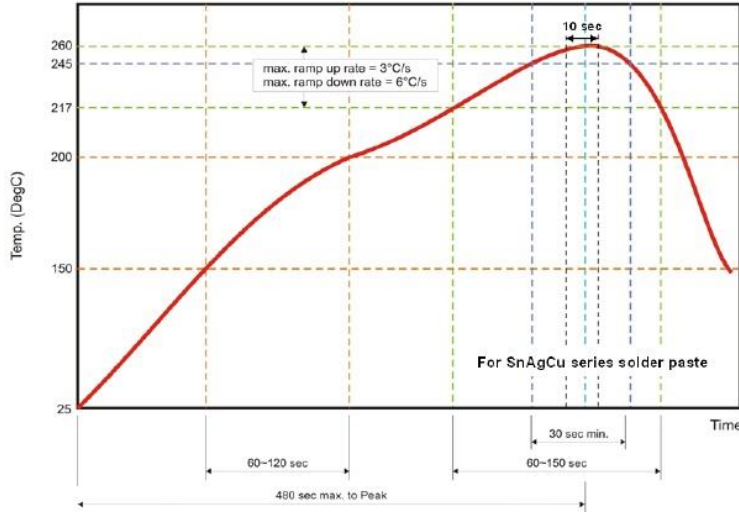


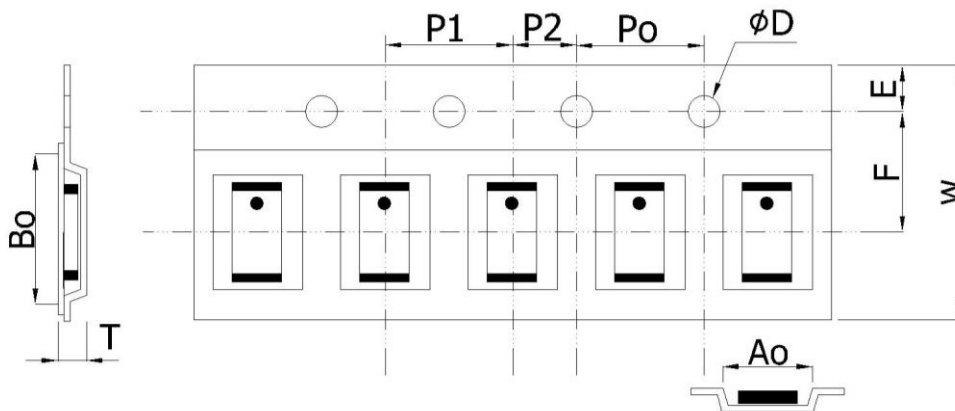
Fig 2. Infrared soldering profile

ORDERING CODE

RF	ANT	321611	0	Y	0	T
Walsin RF device	Product code ANT : Antenna	Dimension code Per 2 digits of Length, Width, Thickness : e.g. : 321611 = Length 32, Width 16, Thickness 11	Unit of dimension 0 : 0.1 mm 1 : 1.0 mm	Application Y : 6240 – 8500 MHz Band	Specification Design Code	Packing T : 7" Reeled

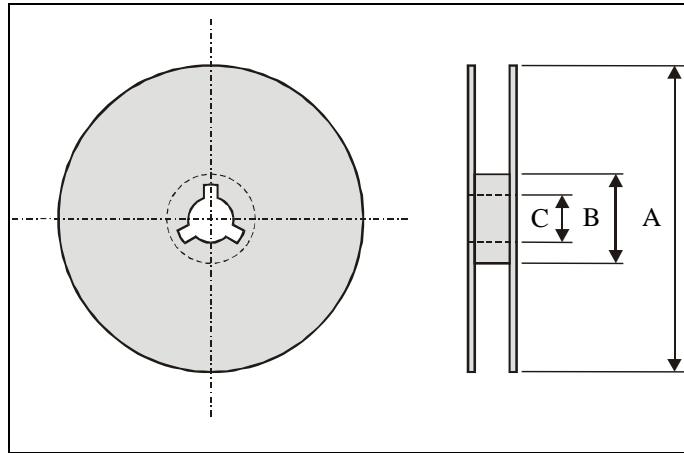
Minimum Ordering Quantity: 2000 pcs per reel.

PACKAGING



Plastic Tape specifications (unit :mm)

Index	Ao	Bo	φD	T	W
Dimension (mm)	1.81± 0.10	3.42 ± 0.10	1.55 ± 0.05	1.26 ± 0.10	8.20 ^{+0.10} -0.30
Index	E	F	Po	P1	P2
Dimension (mm)	1.75 ± 0.10	3.50 ± 0.05	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10

Reel dimensions


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

Typing Quantity: 2000 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 son on.
 - Products should be storage in the warehouse without heat shock, vibration, direct sunlight and so on.
 - Products should be storage under the airtight packaged condition.