



Dec. 2024 Ver.4.0
TDK Corporation

Multilayer Antenna

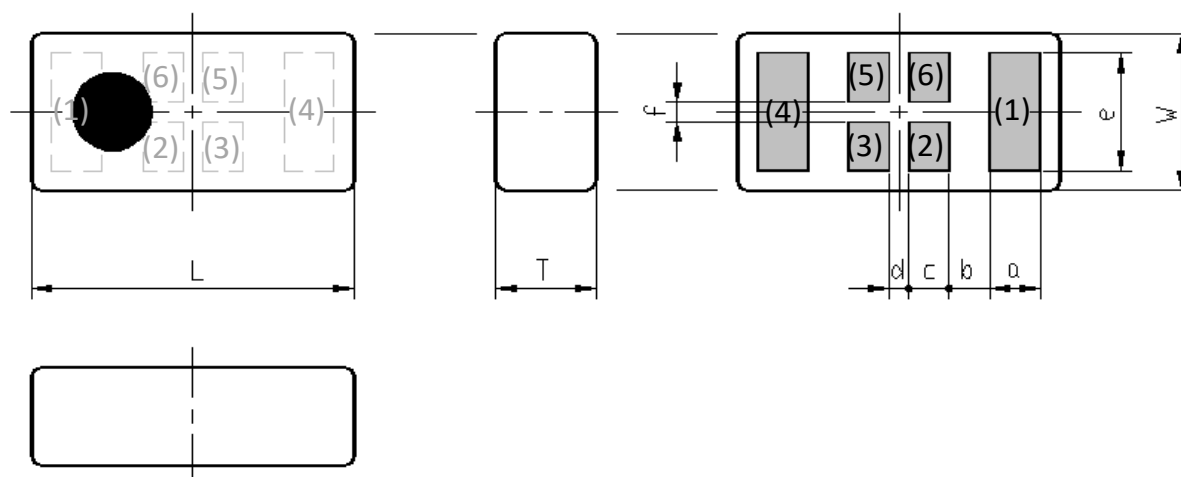
For 5GHz W-LAN,DSRC

ANT Series 1.6x0.8mm [EIA 0603] TYPE

P/N: **ANT165550ST-1003A1**

ANT165550ST-1003A1

SHAPES AND DIMENSIONS



Dimensions (mm)

L	W	T	a	b	c	d	e	f
1.60 +/-0.10	0.80 +/-0.10	0.40 Max	0.215 +/-0.10	0.25 +/-0.10	0.20 +/-0.10	(0.10)	0.63 +/-0.10	(0.10)

Terminal functions

(1)	Dummy pad
(2)	Feed point
(3)	Feed point
(4)	Radiator electrode
(5)	Feed point

(6)	Feed point
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*Terminal (2),(3),(5) and (6) :Connected in inner structure

TERMINATION FINISH

Material
Au plate

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ELECTRICAL CHARACTERISTICS

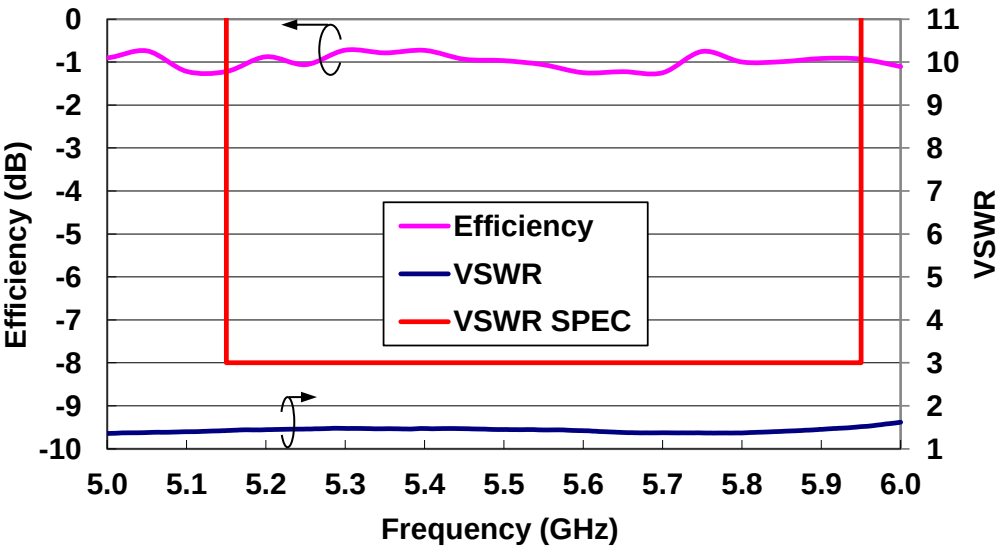
(Measurement)

Parameter	Frequency (MHz)	TDK Spec		
		Min.	Typ.	Max.
VSWR	5150 to 5950	-	1.6	3.0
Antenna Gain (dBi)**	5150 to 5950	-	2.6	-
Polarization		Linear		
PCB Size (mm)		25 x 10		
Antenna keep-out Area (mm)		6x2.5		
Characteristic Impedance (ohm)		50 (Nominal)		

* This is typical antenna performance with the standard PCB.
** Reference value

FREQUENCY CHARACTERISTICS

Note: Tested antenna has been soldered. Evaluation board size is 25x10x1 mm.



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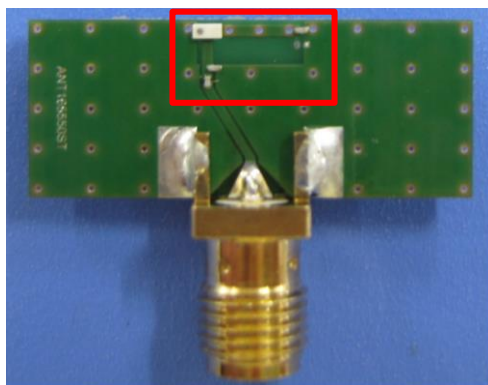
■ MAXIMUM RATINGS

Parameter	TDK Spec	Conditions
Operating temperature (°C)	−40 to +85 °C	
Storage temperature (°C)	−40 to +85 °C	
Power Handling (W) *1	0.8	CW
Human Body Model : HBM @Each Port (V)	+/-1000	100pF / 1500ohm
Machine Model : MM @Each Port (V)	+/-150	200pF / 0ohm
Charged Device Model : CDM @Each Port (V)	+/-500	Humidity : 60%RH max

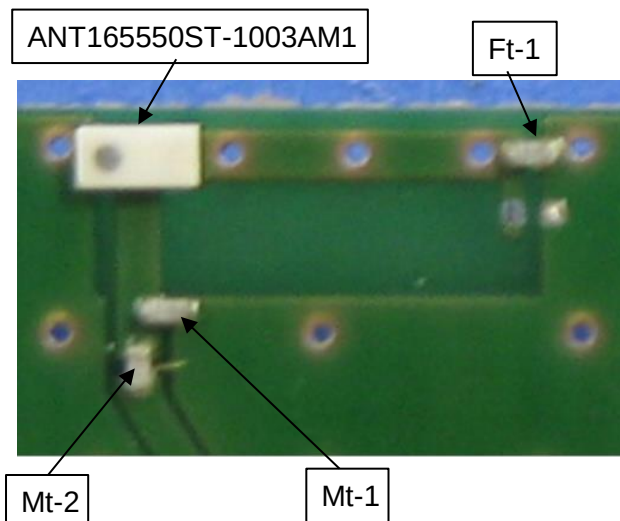
*1 : Refer to 3GPP TS 38.101-1 V15.2.0

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EVALUATION BOARD

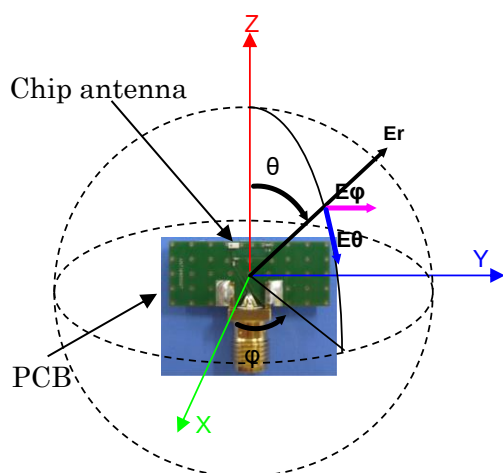


PCB size : 25mm x 10mm x 1mm
Antenna area : 6 x 2.5 mm



	Component P/N
Ft-1	0.9pF
Mt-1	0.1pF
Mt-2	0.5pF

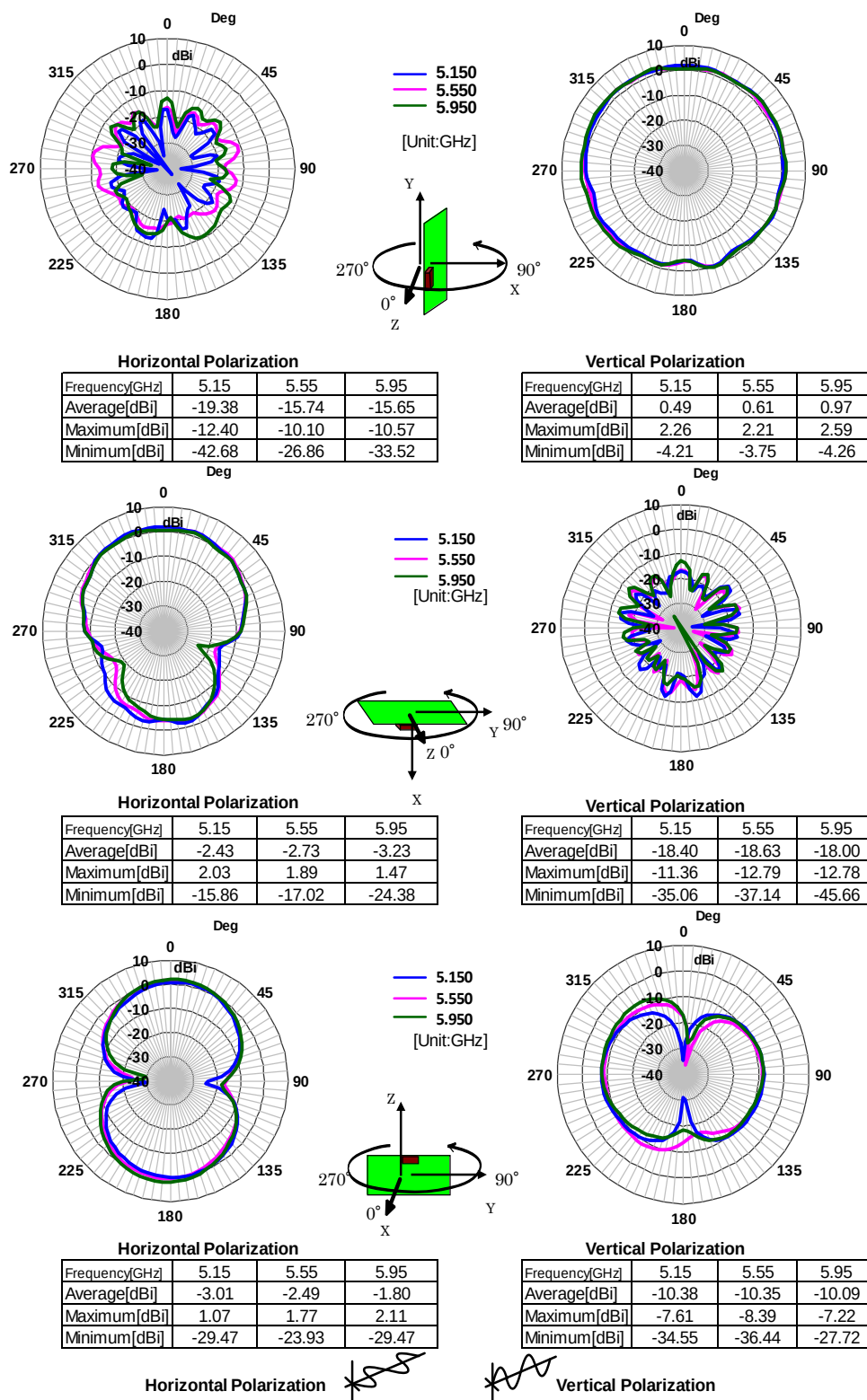
Measurement condition for Radiation Pattern



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Radiation Pattern

Note: Tested antenna has been soldered. Evaluation board size is 25x10x1 mm.
5GHz band



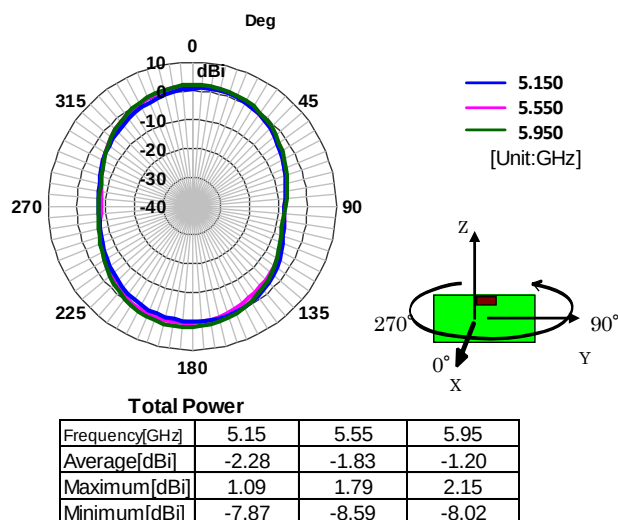
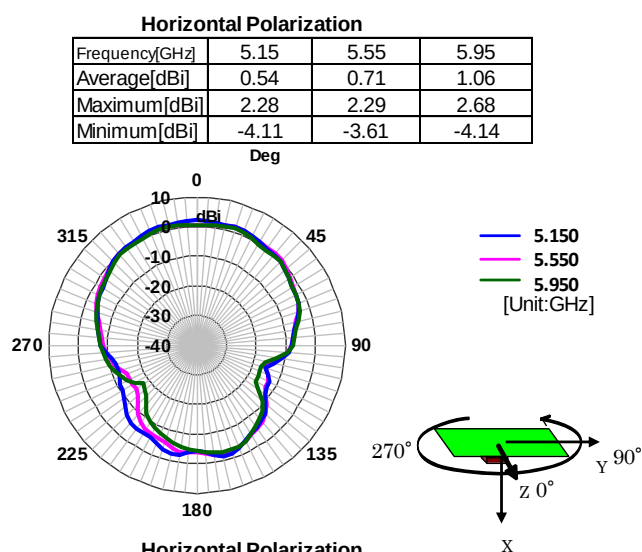
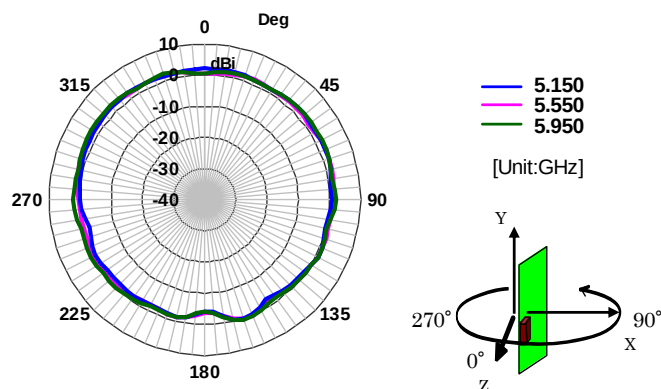
All specifications are subject to change without notice.

When using these products, be sure to request the delivery specifications.

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Radiation Pattern (Total Power)

Note: Tested antenna has been soldered. Evaluation board size is 25x10x1 mm.
5GHz Band

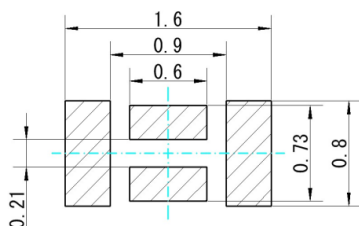


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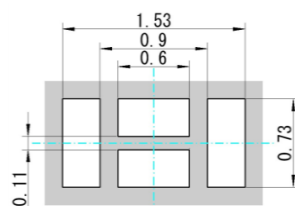
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ANT165550ST-1003A1**RECOMMENDED LAND PATTERN****Recommend land pattern and solder resist pattern**

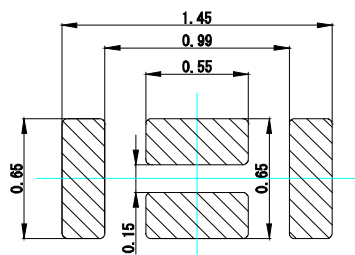
< Land pattern >



< Solder resist pattern >



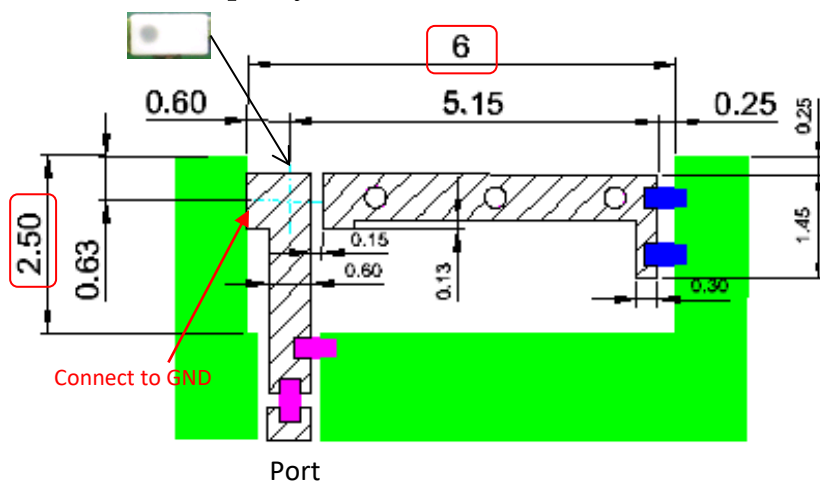
- Center line of Chip
- Land Pattern
- Resist Pattern

Recommend aperture size of metal mask for solder printing

- Center line of Chip
- Aperture of metal

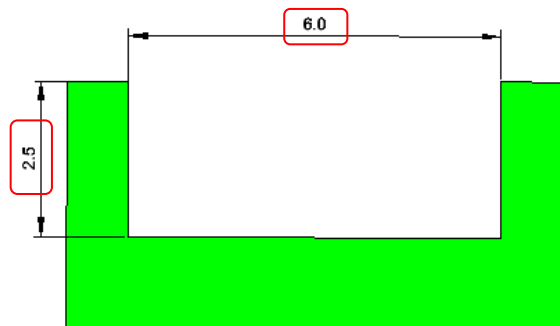
Example of Antenna pattern layout (TDK Standard PCB)

<Top Layer (Parts mounted side) >

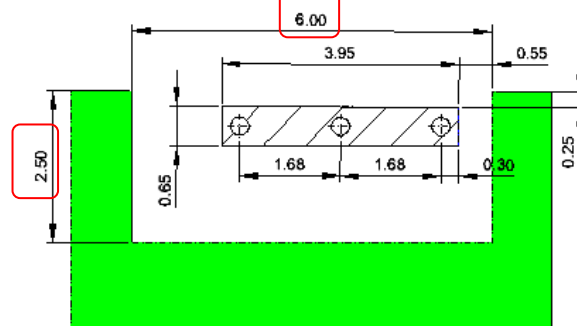


- Center line of Chip antenna
 - Antenna keep out area (All Layer GND off)
 - Ft : Frequency tuning component
 - Mt : Impedance matching component
 - Antenna Pattern
 - VIA : $\Phi 0.3\text{mm}$
 - GND
- [Unit : mm]

<Inner Layer >



<Bottom Layer >



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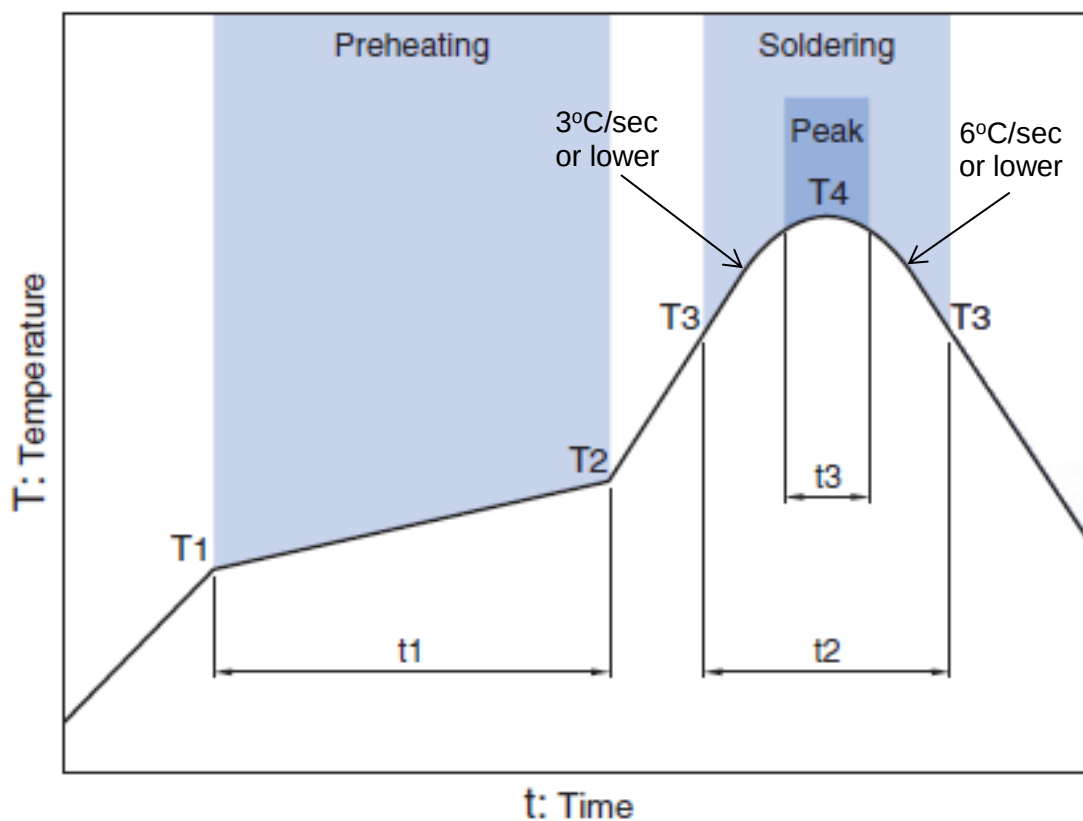
■ ENVIROMENT INFORMATION

RoHS Statement
RoHS Compliance

All specifications are subject to change without notice.

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RECOMMENDED REFLOW PROFILE



Preheating			Soldering			
			Critical zone (T3 to T4)		Peak	
Temp.		Time	Temp.	Time	Temp.	Time
T1	T2	t1	T3	t2	T4	t3 *
150°C	200°C	60 to 120sec	217°C	60 to 120sec	240 to 260°C	30 sec Max

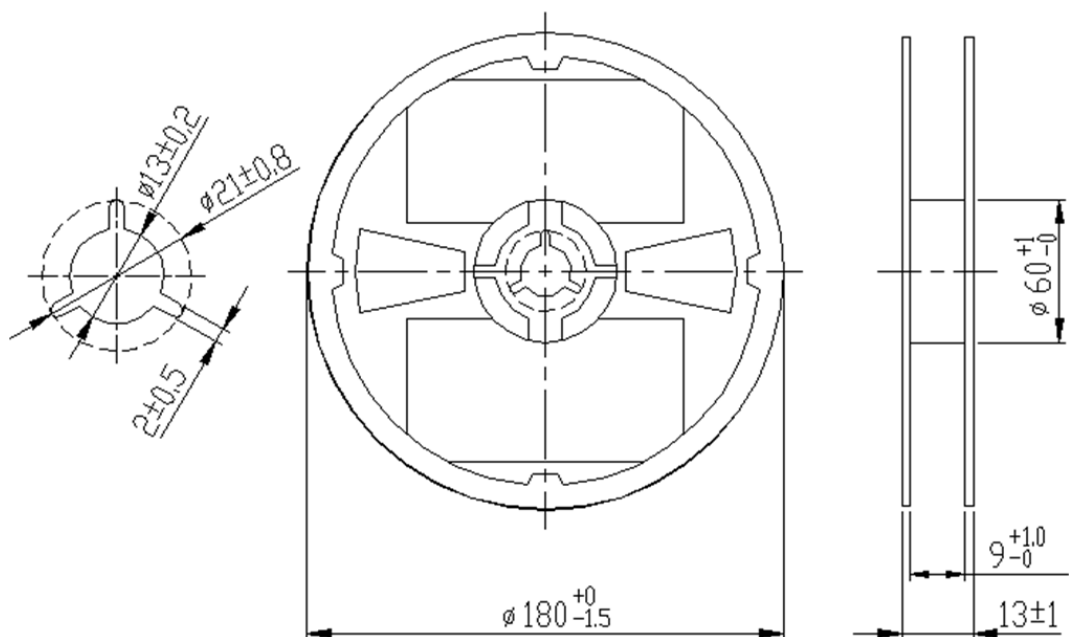
* t3 : Time within 5°C of actual peak temperature

The maximum number of reflow is 3.

Note: Lead free solder is recommended.
Recommended solder is Sn-3.0Ag-0.5Cu. (M705 by Senju Metal Industry)

ANT165550ST-1003A1**■ PACKAGING STYLE**

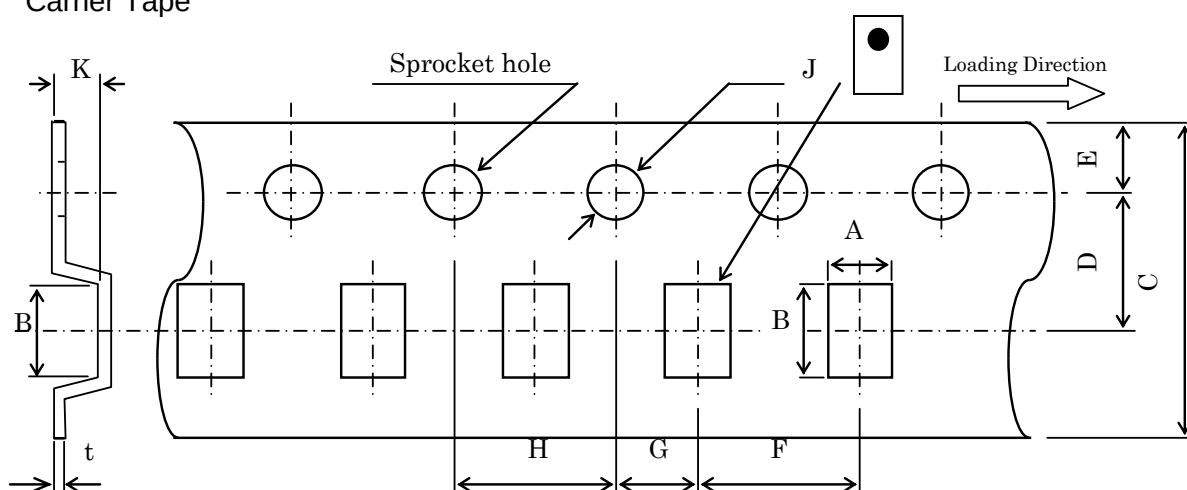
Reel Dimensions



Dimensions in mm

Material of the carrier tape : PS

Carrier Tape



Dimensions (mm)

A	B	C	D	E	F	G	H	J	K	t
0.97	1.8	8.0	3.5	1.75	4.0	2.0	4.0	1.5	0.55	0.25
+/- 0.05	+/- 0.05	+/- 0.2	+/- 0.05	+/- 0.1	+/- 0.1	+/- 0.05	+/- 0.1	+0.1/-0	MAX	+/- 0.05

STANDARD PACKAGE QUANTITY
(pieces/reel)

4,000

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ご使用上の注意事項

本製品をご使用の前に、必ず納入仕様書をお取り寄せください。

安全上のご注意

本製品のご使用にあたっては、注意事項に十分留意され安全設計を行って下さい。

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|--------------------|------------------|
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| ④発電制御用機器 | ⑪防災、防犯機器 |
| ⑤原子力関係機器 | ⑫各種安全装置 |
| ⑥海底機器 | ⑬その他特定用途と認められる用途 |
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