

# DATA SHEET

( RoHS Compliant & Halogen Free )

**CUSTOMER** : \_\_\_\_\_  
**CUSTOMER'S PART NO** : \_\_\_\_\_  
**DESCRIPTION** : **1000 Base-T Transformer Single Port**  
**PART NO.** : **RT12SA5-RU**  
**DATE** : **2019/09/23**  
**AUTHORIZED BY** : *James Cheng*

	<b>APPROVED</b>	<b>CHECK</b>	<b>PREPARED</b>
<b>SIGN</b>	<i>James Cheng</i>	<i>Jet Liang</i>	<i>Jamie Chuang</i>

美磊科技股份有限公司

**MAG. LAYERS SCIENTIFIC-TECHNICS CO., LTD**

**HEAD OFFICE / PINGZHEN PLANT**

No.270, Nanfeng Rd., Pingzhen Dist., Taoyuan City 324, Taiwan

TEL: +886-3-4159111 FAX: +8486-3-4195522

<http://www.maglayers.com.tw>

E-mail : [info@maglayers.com.tw](mailto:info@maglayers.com.tw)



MAG.LAYERS

## Revision History

REV.	Description	Date	Drawn	Designed	Approved
A	Specification issued	03.23.2018	Jamie.Chuang	Jamie.Chuang	James.Cheng
B	Modify Transformer part name	05.31.2018	Jamie.Chuang	Jamie.Chuang	James.Cheng
C	Modify package specificaton : 750 pieces / reel => 800 pieces / reel 2 box / carton => 5 box / carton 1500 pcs / carton => 8000 pcs / carton	07.24.2018	Jamie.Chuang	Jamie.Chuang	James.Cheng
D	Modify Package Lable Direction	03.05.2019	Jamie.Chuang	Jamie.Chuang	James.Cheng



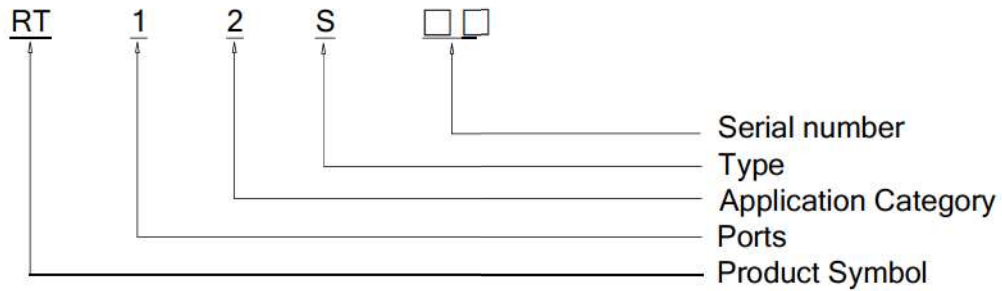
# Networking Communication Components

## RT Series

### **Feature**

- Meets IEEE802.3ab specification.
- Comply with ROHS & Halogen Free requirements.
- Compliant and peak reflow temperature rating 245°C .
- Packaging specification is reel.  
( RT12S□□: Reel )

### **Product Identification**

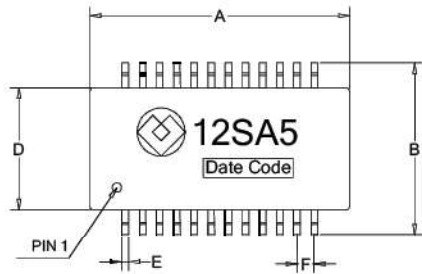


### **Transformer**

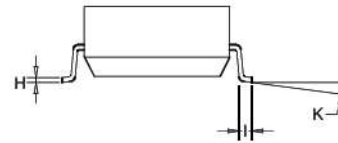
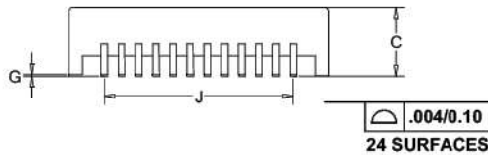
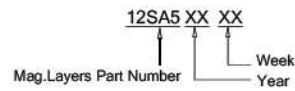
Part number : RT12SA5-RU

Part name : 1000 Base-T Transformer Single Port

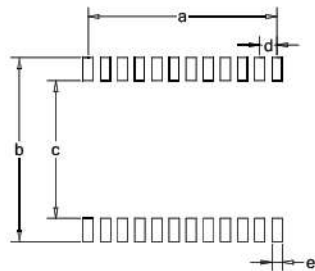
## Mechanical Dimension and Marking



UNIT	mm	inch
A	15.10 ±0.25	0.5945 ±0.010
B	10.00 ±0.25	0.3937 ±0.010
C	4.00 ±0.25	0.1575 ±0.010
D	7.10 ±0.25	0.2795 ±0.010
E	0.38 ±0.13	0.0150 ±0.005
F	1.00 ±0.13	0.0394 ±0.005
G	0.25 ±0.13	0.0098 ±0.005
H	0.30 ±0.10	0.0118 ±0.005
I	1.05 ±0.25	0.0413 ±0.010
J	11.00 ±0.13	0.4331 ±0.010
K	0°~ 8°	



## Suggested Land Pattern



UNIT	mm	inch
a	11.00	0.4331
b	10.70	0.4213
c	8.00	0.3150
d	1.00	0.0394
e	0.60	0.0236

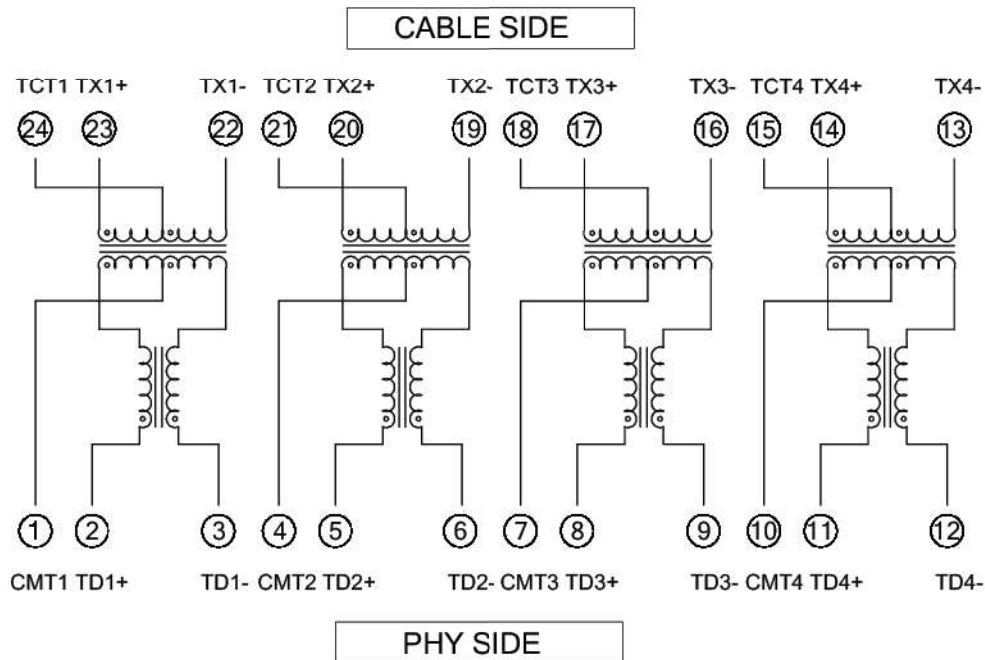
Drawn	Jamie.Chuang	Designed	Jamie.Chuang	Approved	James.Cheng
-------	--------------	----------	--------------	----------	-------------

## Characteristics

Operating Temperature : 0°C to +70°C.  
Storage Temperature : -25°C to +105°C

## Schematics

RT12SA5



## Electrical Specification @ 25°C, Humidity 65% RH

Inductance @ Phy side(OCL)  
100KHz, 0.1V, 8mA DC Bias  
350uH MIN

Part Number	Turns Ratio	Insertion Loss	Return Loss					DMCR			Crosstalk			Hipot
	100KHz	dB MAX	dB MIN					dB MIN			dB MIN			Vrms, Sec
	± 3%		1MHz-100MHz	1MHz-30MHz	40MHz-50MHz	60MHz-80MHz	100MHz	30MHz	60MHz	100MHz	30MHz	60MHz	100MHz	Pri To Sec
RT12SA5	1:1	-1.0	-18	-14	-13	-12	-10	-43	-37	-33	-42	-35	-32	1500, 60

## Reliability Test Method

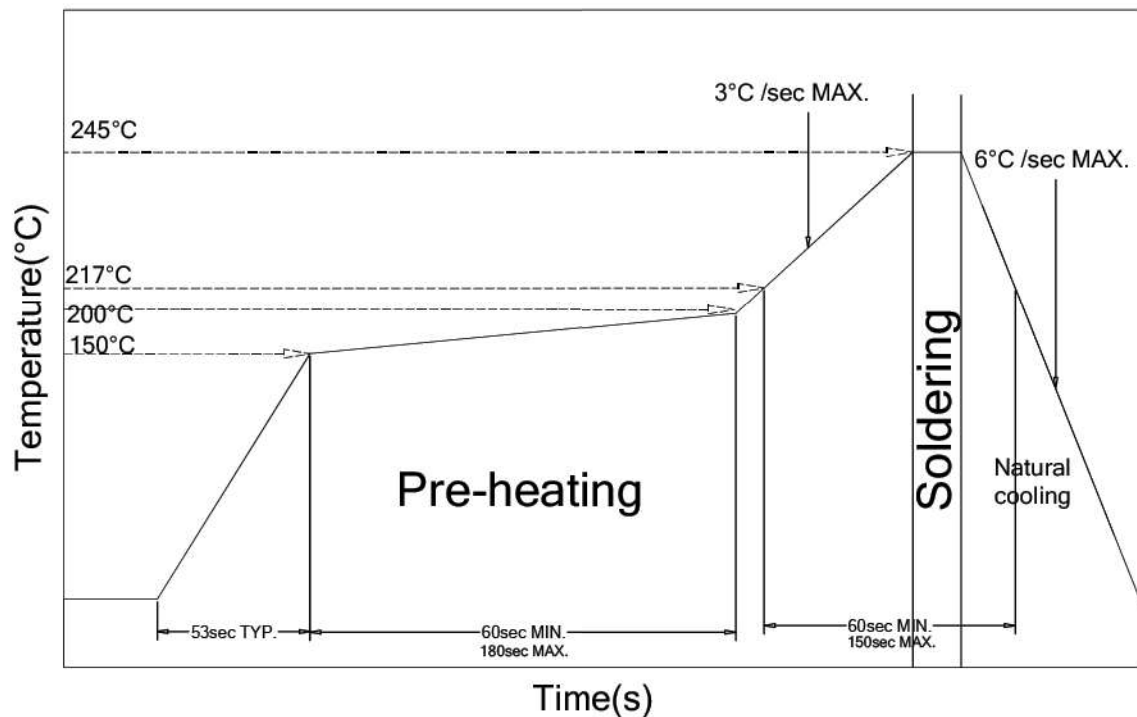
### Mechanical

Item	Test Item	Test Conditions	Criteria
1	SOLDER-ABILITY	*.Refer to J-STD-002 1. Solder Temperature : 245±5°C 2. Flux : Rosin 3. Dip Time : 3±1 seconds 4. More than 90% of terminal electrode shall be covered with fresh solder.	1.No electrical problem found. 2.No mechanical damage found.
2	RESISTANCE TO SOLDER HEAT	*.Refer to J-STD-002 1. Solder Temperature : 260±5°C 2. Flux : Rosin 3. Dip Time : 10±1 seconds 4. More than 75% of terminal electrode shall be covered with fresh solder.	1.No electrical problem found. 2.No mechanical damage found.
3	SUBSTRATE BENDING	1. The sample shall be soldered onto to the printed circuit board. Apply pressure gradually in the middle printed circuit board at a rate of about 0.5mm/s until bent depth reaches 2mm and hold for 30 sec. 2. There shall be no mechanical damage or electrical damage.	1.No electrical problem found. 2.No mechanical damage found.
4	VIBRATION	1. 2HRS EACH IN X,Y,AND Z DIRECTIONS TOTAL : 6HRS	1.No electrical problem found. 2.No mechanical damage found.
5	TERMINAL STRENGTH	1. Force of 1.8kg for 60 seconds. 2. No apparent damage.	1.No electrical problem found. 2.No mechanical damage found.

### Enviroment Characteristics

Item	Test Item	Test Conditions	Criteria
1	THERMAL SHOCK	*.Refer to MIL-STD-883 1011.09 COND.A 1. 1000 cycle ( 0 to +70°C)	1.No electrical problem found. 2.No mechanical damage found.
2	HUMIDITY RESISTANCE	*.Refer to MIL-STD-202 Method 103 1. 1000 hours. 85°C. 85% RH	1.No electrical problem found. 2.No mechanical damage found.
3	HIGH TEMPERATURE RESISTANCE	*.Refer to MIL-STD-202 Method 108 1. 1000 hours. 70°C.	1.No electrical problem found. 2.No mechanical damage found.
4	LOW TEMPERATURE RESISTANCE	*.Refer to MIL-STD-810F-502.4 1. 1000 hours. 0°C.	1.No electrical problem found. 2.No mechanical damage found.

## Reflow Soldering

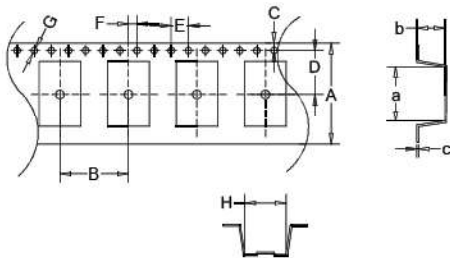


- IR Reflow soldering :  
Preheat at 3°C per second to 217°C and using lead free solder ,  
IR at 245°C for 30seconds Max.
- Rework flow:  
Component must withstand two IR reflow cycles with a cool down  
between cycles
- Temperature is measured at the terminal portion of product  
(Using thermocoupler for measurement).
- This profile is reference data we recommend. Please check in your  
actual process.
- For reliable soldering, the thickness of solder paste screen should  
be over the terminal co-planality.
- The cutted end of terminal has no plating  
(out of subject of solder ability).
- JEDEC Moisture: Level 1.

## **Packaging Styles**

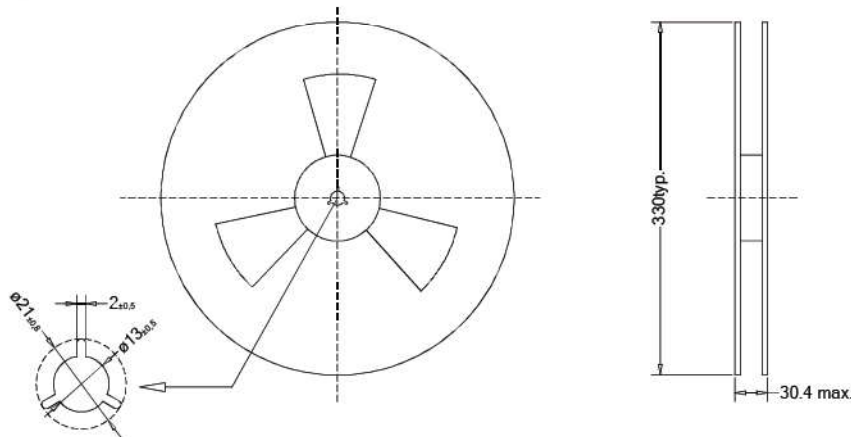
800 pieces/reel

## **Tape Dimensions**



UNIT	mm	UNIT	mm
A	24.00± 0.30	F	2.00± 0.10
B	16.00± 0.10	G	1.50+ 0.10
C	1.75± 0.10	H	10.50± 0.10
D	11.50± 0.10	a	16.00± 0.10
E	4.00± 0.10	b	4.50± 0.10
10°E	40.00± 0.20	c	0.40± 0.05

## **Reel Dimensions**



Dimensions in mm

## **Recommended Condition For Long Term Store**

When it stores for a long term, please avoid place of high temperature and high humidity.

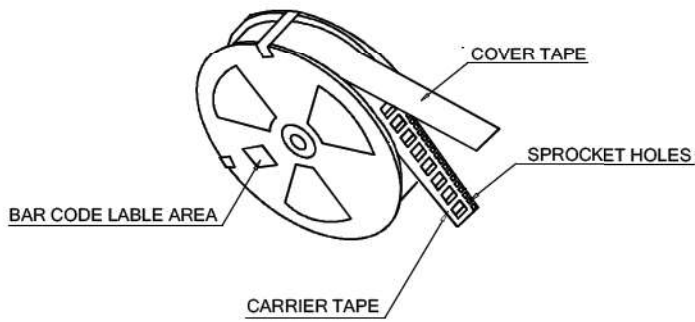
Recommend that it uses after the delivery within 1 year.

- Temperature rengen: +5 to +30°C.
- Humidity: 60(%)RH max..

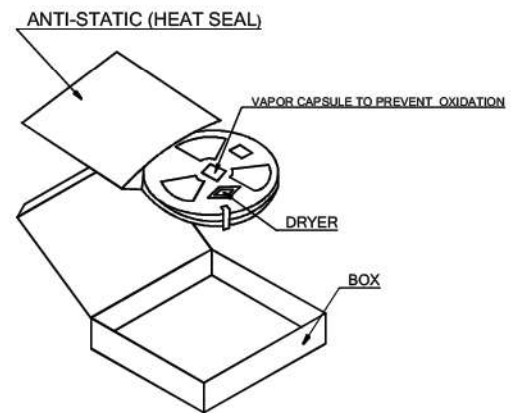


## Package Specification

800 pieces / reel



2 reel / BOX



5 BOX / CARTON  
8000 pieces / CARTON

