Antenna

YC0008AA Datasheet

Antenna Services

Version: 1.3

OC (Antenna Only): **YC0008AA**

OC (Antenna + EVB): **YC0008AAEVB**

Date: 2021-12-03

Status: Released

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About the Document

Revision History

Version	Date	Author	Note
-	2020-12-15	Kenny YIN	Creation of the document
1.0	2020-12-15	Kenny YIN	First official release
1.1	2021-07-25	Kenny YIN	Updated the working temperature (Chapter 3).
1.2	2021-09-28	Aria CHU	Added the new OC YC0008AAEVB on the cover.
1.3	2021-12-03	Aria CHU	Updated the product description in Chapter 1.

Contents

1 Product Description

This Quectel GNSS antenna adopts a diversity of forms to guarantee the most suitable polarization type. Quectel's positioning products support single-band or multi-band operation modes to meet various high-precision positioning requirements of customers' products. Quectel ~~also~~ provides both passive and active antennas to satisfy the customer demand for high gain. Such antenna supports different installation or connection methods such as pin mount, surface mount, magnetic mount, internal cable, and external SMA. Customized connector type and cable length are provided according to requirements.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

2 Product Features

- GNSS
- High efficiency
- Excellent performance

3 Product Specifications

Passive Electrical Specifications	
Frequency Range	1173 MHz, 1575 MHz
Input Impendence	50 Ω
VSWR	≤ 2.5
Efficiency	1170-1180 MHz: 38% (average) 1570-1580 MHz: 53% (average)
Gain	≤ 2 dBi
Polarization Type	Linear
Mechanical Specifications	
Antenna Size	30 mm (L) × 5 mm (W) × 5 mm (H)
Carrier	XHP-1002
Connector Type	SMD
Working Temperature	-40 °C to +85 °C
Radome Color	Black

4 Overall Performance

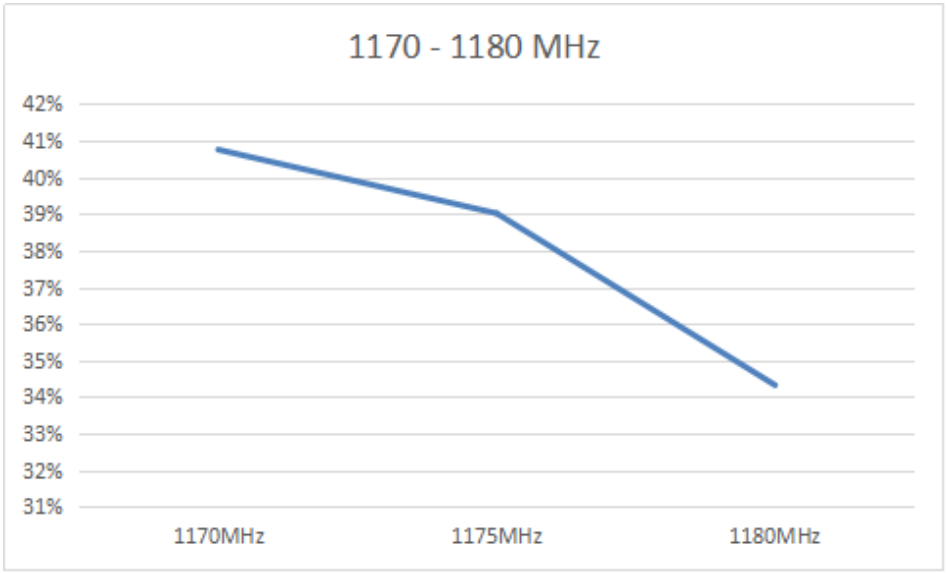
4.1. Test Environment

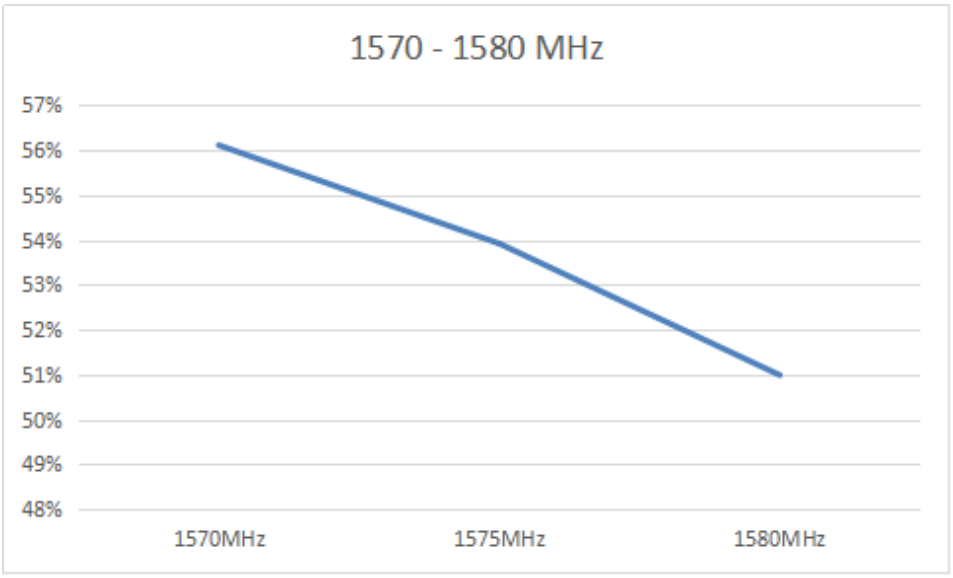
- KEYSIGHT VNA Network Analyzer E5063A 100KHz-8.5GHz
- RayZone®2800 Chamber 5G(FR1) SISO/MIMO, 400MHz-8.0GHz

4.2. VSWR

Frequency (MHz)	1173	1575
VSWR	2.5	1.9

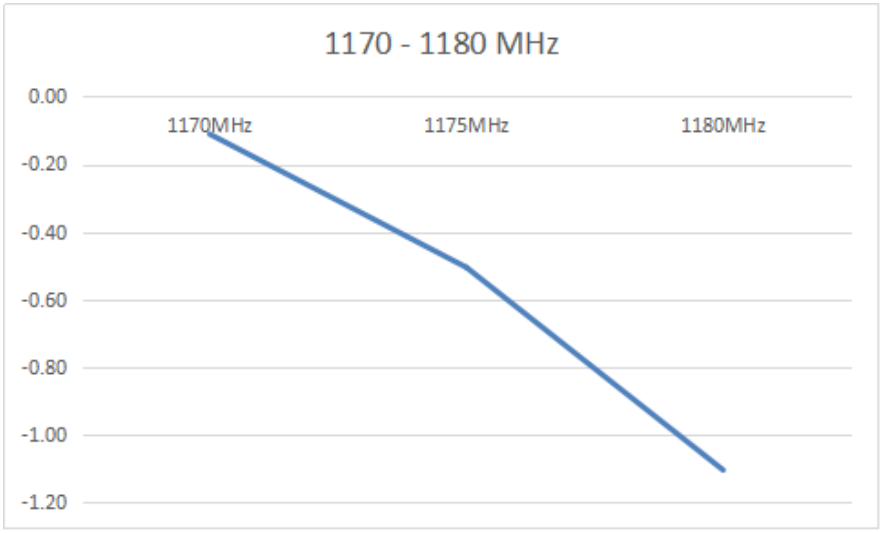
4.3. Efficiency

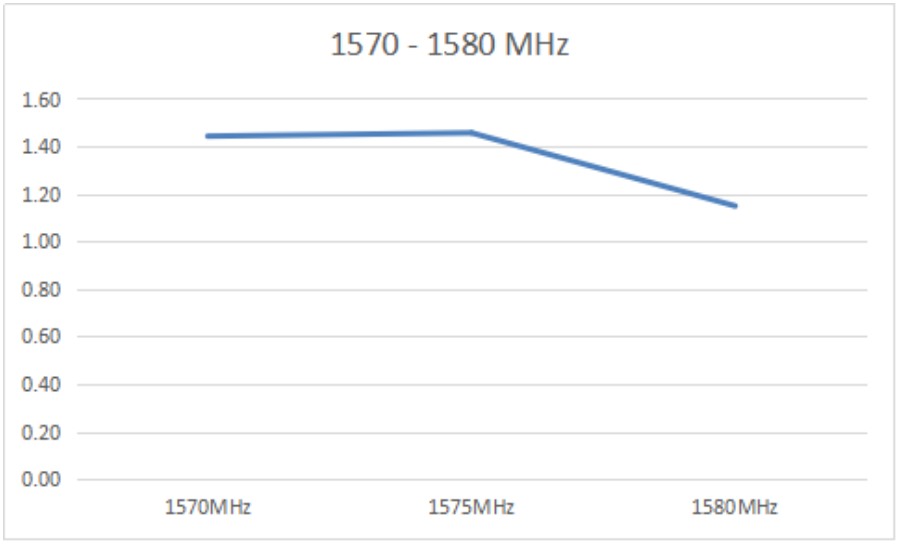




Frequency (MHz)	1170	1175	1180	1570	1575	1580
Efficiency (%)	41%	39%	34%	56%	54%	51%

4.4. Gain



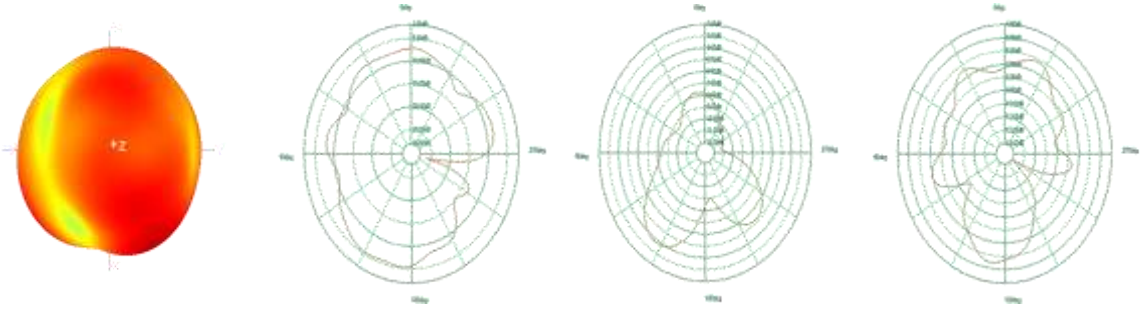


Frequency (MHz)	1170	1175	1180	1570	1575	1580
Gain (dBi)	-0.11	-0.51	-1.11	1.44	1.46	1.15

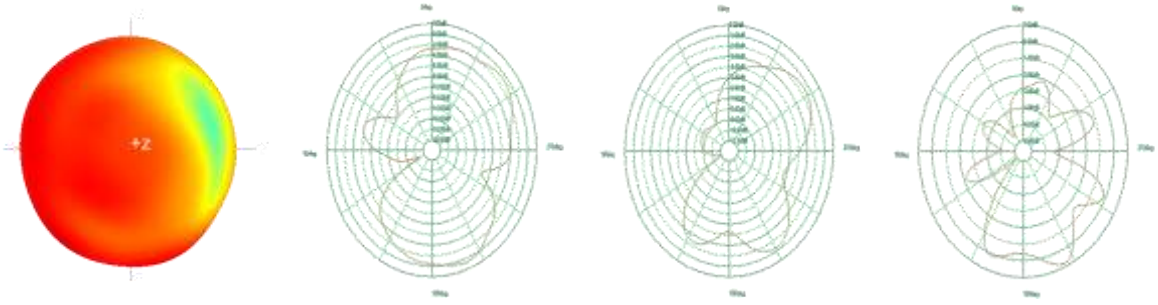
4.5. Radiation Pattern

- Board length: 80 mm.

4.5.1. 1173 MHz

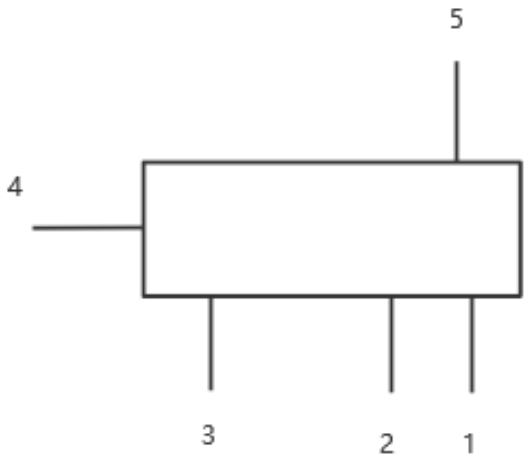


4.5.2. 1575 MHz



4.6. Schematic Symbol and Pin Definition

The pin assignment for the antenna are as follows. The antenna has 6 pins and only two work. All other pins are designed for mechanical strength.



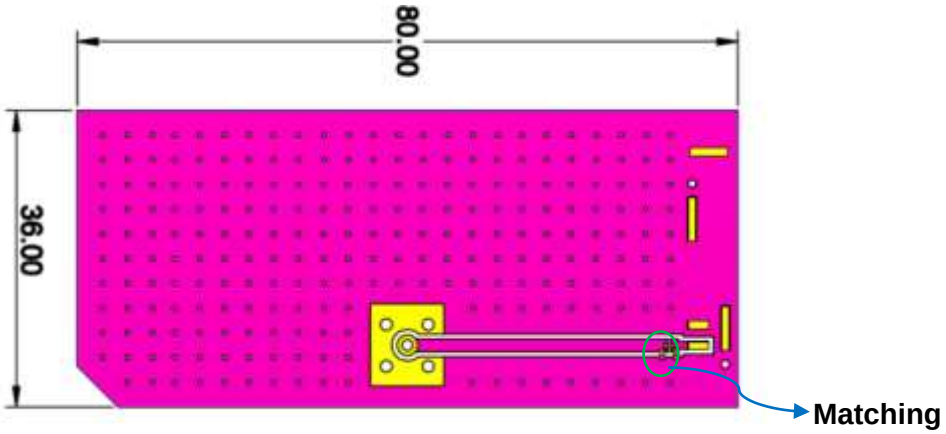
Pin No.	Description
1	Feed
2	Return/GND
3, 4, 5	Not used (mechanical only)

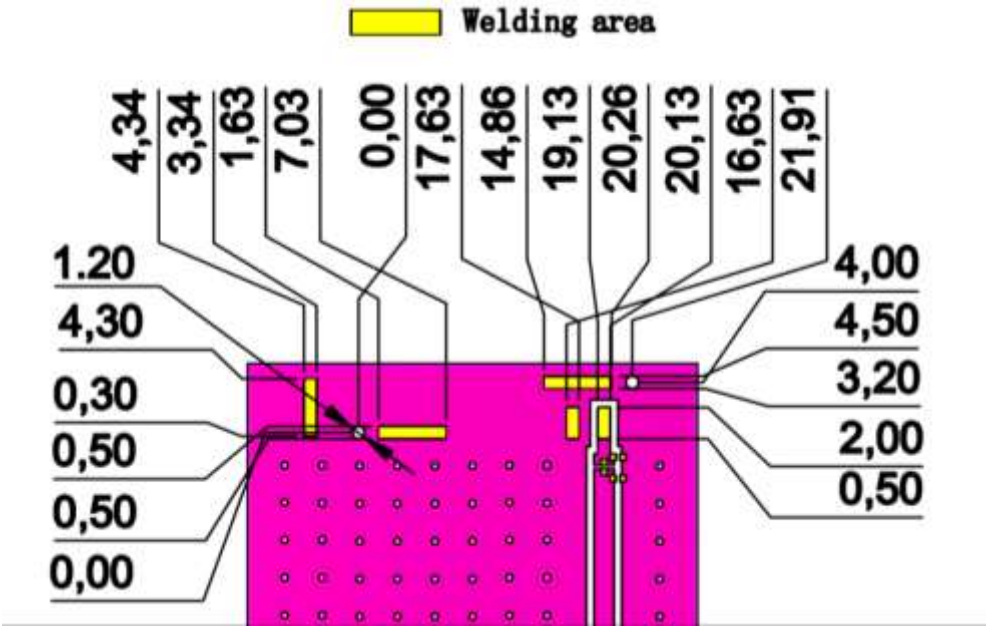
4.7. Transmission Line

The characteristic impedance of all transmission lines shall be designed as 50 Ω.

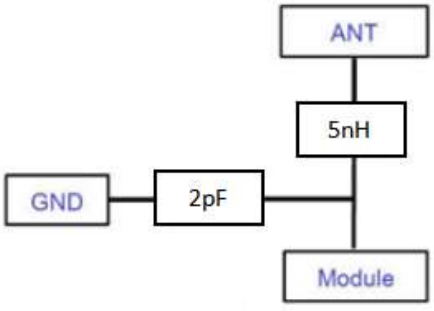
- The length of the transmission lines should be kept to as short as possible.
- Any other part of the RF system, such as transceiver, power amplifiers, etc., shall also be designed with an impedance of 50 Ω.

4.8. Reference PCB Design

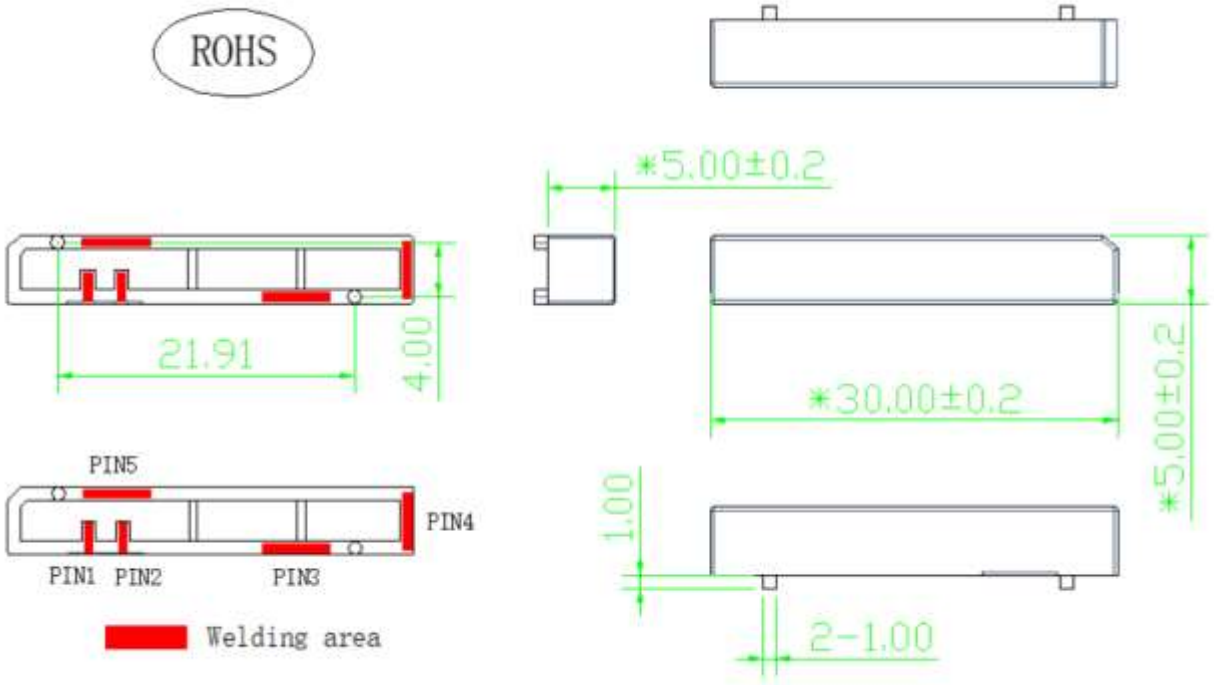




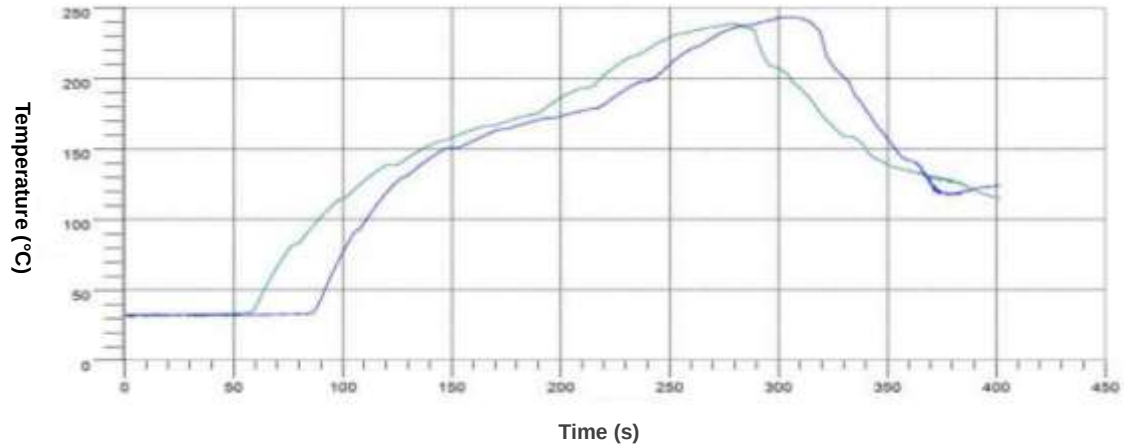
4.8.1. Matching Circuit



5 Product Size



6 Reflow Profile

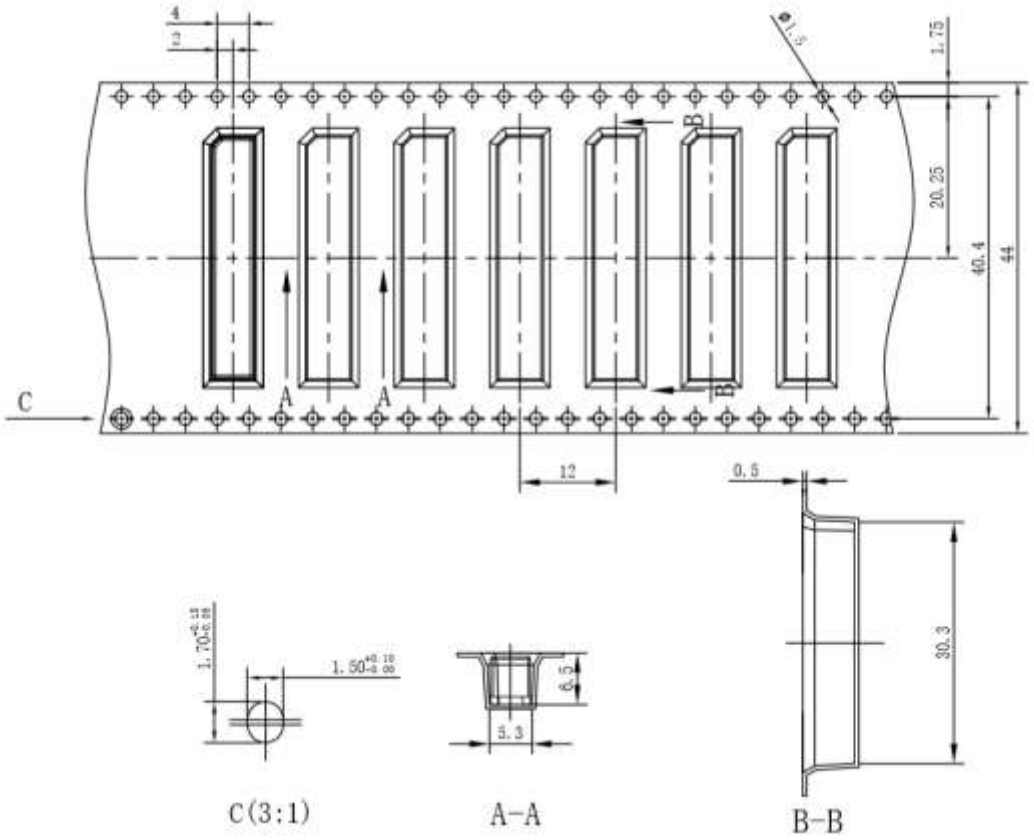


No	Probe name	150-190℃		>220℃	peak temperature℃
		60-110s	slope 0.0-3.0	40-90s	230-250℃
No.1	J1	67.9	0.59	52.4	239
No.2	J2	80.6	0.5	62.3	243.4

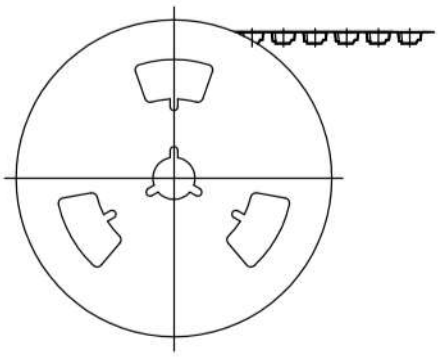
furnace parameter	1	2	3	4	5	6	7	8	9	10	11	12
Up Temperature zone	175.0	185.0	185.0	185.0	190.0	195.0	230.0	275.0	275.0	275.0		
Down Temperature zone	175.0	185.0	185.0	185.0	190.0	195.0	230.0	275.0	275.0	275.0		
Temperature zone length	0	0	0	0	0	0	0	0	0	0	0	0

7 Package

- Quantity/Reel: 800 pcs/Reel.
- Carrier tape dimensions:



- Taping reel dimensions:



330 mm x 44 mm