MDA-LTE15-00-001 Specification

1. Explanation of Part Number：

MDA	-	***LTE15***	-	***00***	-	***001***
(1)		***(2)***		***(3)***		***(4)***

(1) Product type：LDS

(2) Frequency：699~960MHz、1710~2690MHz、3300~5000MHz

(3) Connector Types：00

(4) Serial number：001

2. Electrical Specification：

Item	Specification
Frequency Band	699~960 MHz、1710~2690 MHz、3300~5000 MHz
VSWR	4.0 Max
Polarization	Linear
Impedance	50 ohm Typ.

* Test condition：Test board size 140*50 mm
Matching circuit may be required

3. Electrical Characteristics：

3.1 VSWR

```
Trc1     S11 SWR  1 U/ Ref 1 U  Cal int Offs     Mem2[Trc1] S11 SWR  1 U/ Ref 1 U  Invisible
Mem3[Trc1] S11 SWR  1 U/ Ref 1 U  Invisible      Mem4[Trc1] S11 SWR  1 U/ Ref 1 U  Invisible

  M!   699.000000 MHz  2.717 U
  M2   880.000000 MHz  1.968 U
  M3   960.000000 MHz  2.515 U
  M4     1.710000 GHz  2.851 U
  M5     2.170000 GHz  1.701 U
  M6     2.690000 GHz  3.076 U
  M7     3.300000 GHz  1.640 U
  M8     4.800000 GHz  1.690 U
• M9     5.000000 GHz  1.876 U

Ch1  Start  500 MHz          Pwr  -10 dBm  Bw  10 kHz          Stop  6 GHz
```

Frequency(MHz)	VSWR
699	2.72
880	1.97
960	2.52
1710	2.85
2170	1.70
2690	3.01
3300	1.64
4800	1.69
5000	1.88

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DESIGNED BY：张涛	**APPROVED BY：徐克文**	

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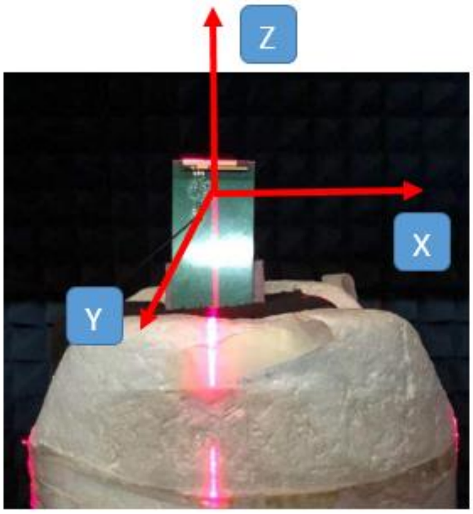
3.2 Efficiency and Gain

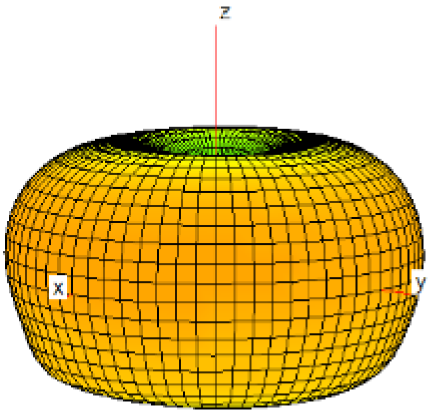
Frequency (MHz)	Peak Gain (dBi)	Ave Gain (dBi)	Efficiency (%)
699	-1.32	-4.13	38.66
704	-1.03	-3.92	40.53
740	-0.10	-3.09	49.05
791	0.55	-2.83	52.11
824	0.80	-2.79	52.60
869	1.06	-2.87	51.68
880	1.14	-2.93	50.98
894	0.96	-3.26	47.17
915	1.53	-2.75	53.07
960	1.22	-3.60	43.62
1710	1.75	-2.84	51.98
1805	1.01	-3.22	47.60
1920	1.28	-3.05	49.59
1950	1.52	-2.91	51.13
2110	1.24	-3.24	47.38
2170	1.00	-3.24	47.44
2300	0.69	-3.13	48.65
2400	0.52	-3.48	44.89
2500	0.52	-3.58	43.87
2690	0.83	-3.67	42.95
3300	1.50	-3.95	40.32
3800	2.57	-2.95	50.74
4800	2.47	-3.71	42.52
5000	2.08	-3.78	41.86

*Antenna Test Date on Demo Board

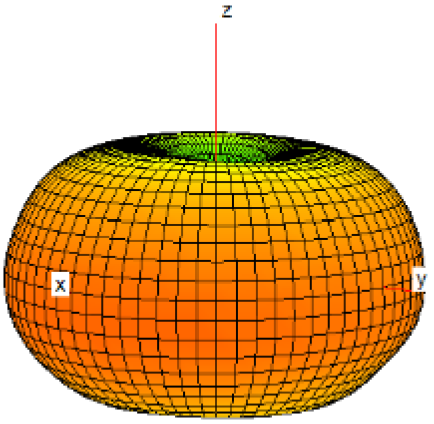
3.3 3D Radiation Patten



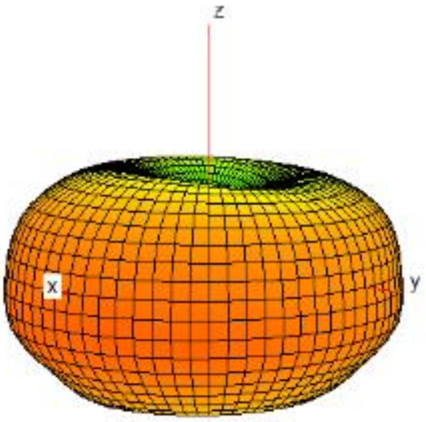
699 MHz



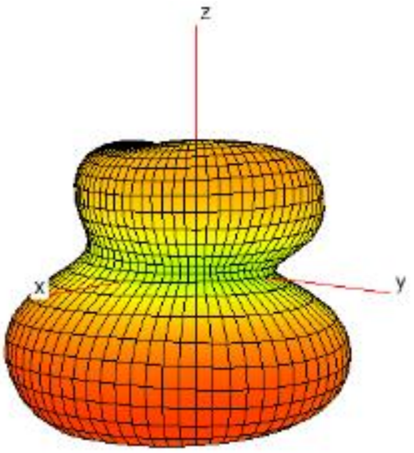
880 MHz



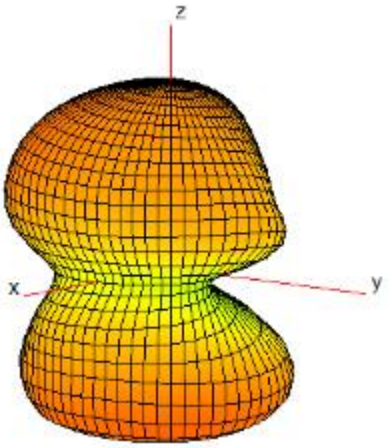
960 MHz



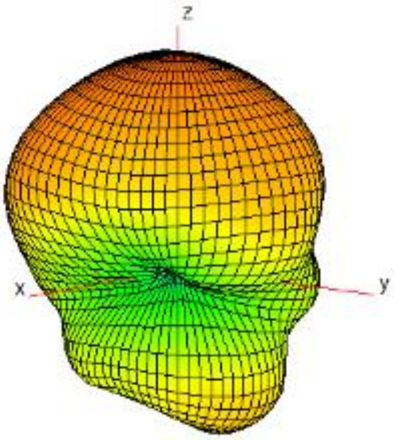
1710 MHz



2170 MHz



2690 MHz



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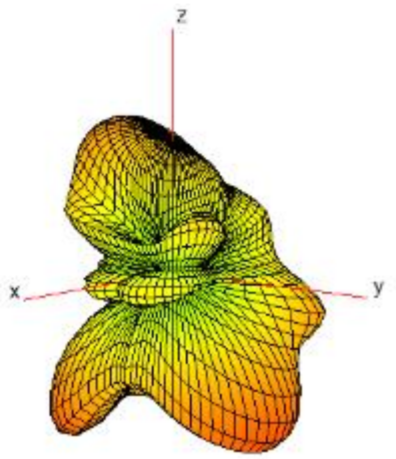
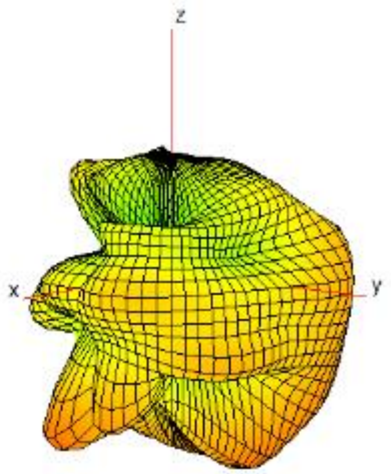
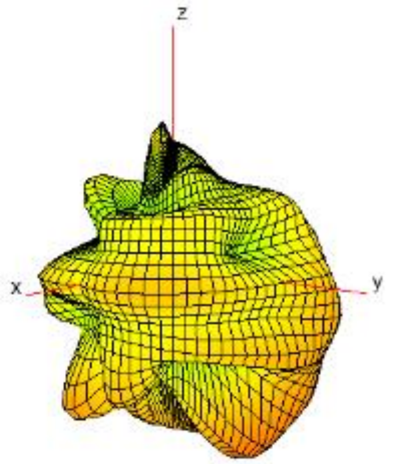
3300 MHz	4800 MHz
	
5000 MHz	
	

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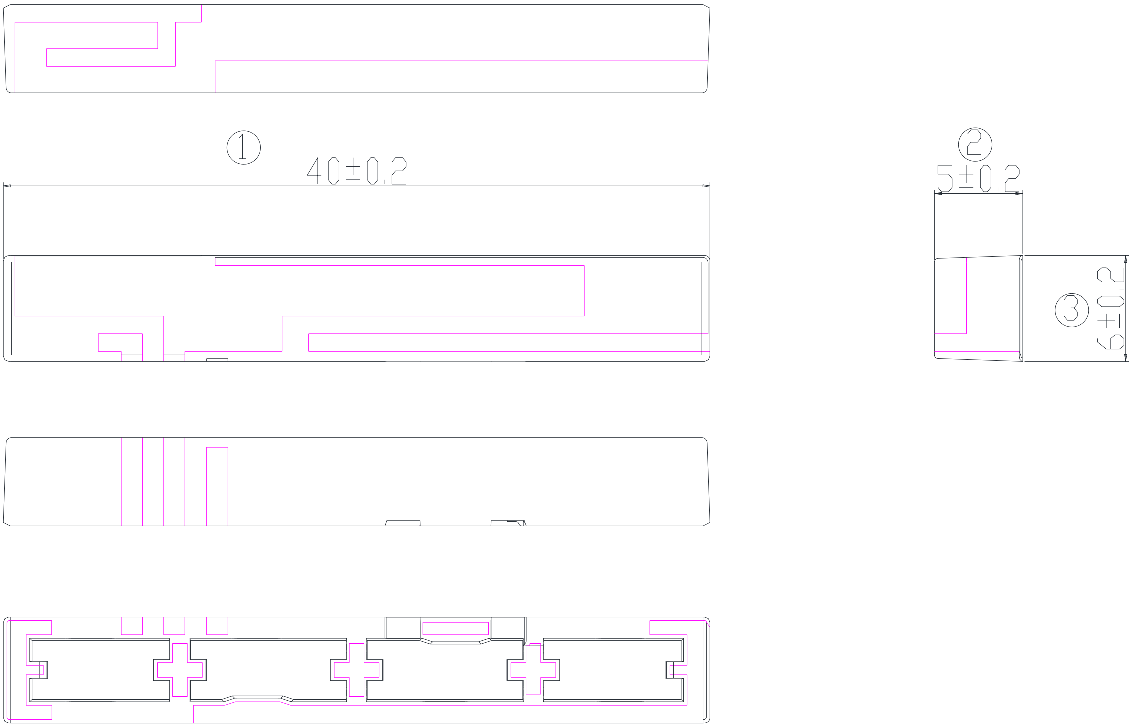
4. Antenna Dimensions:

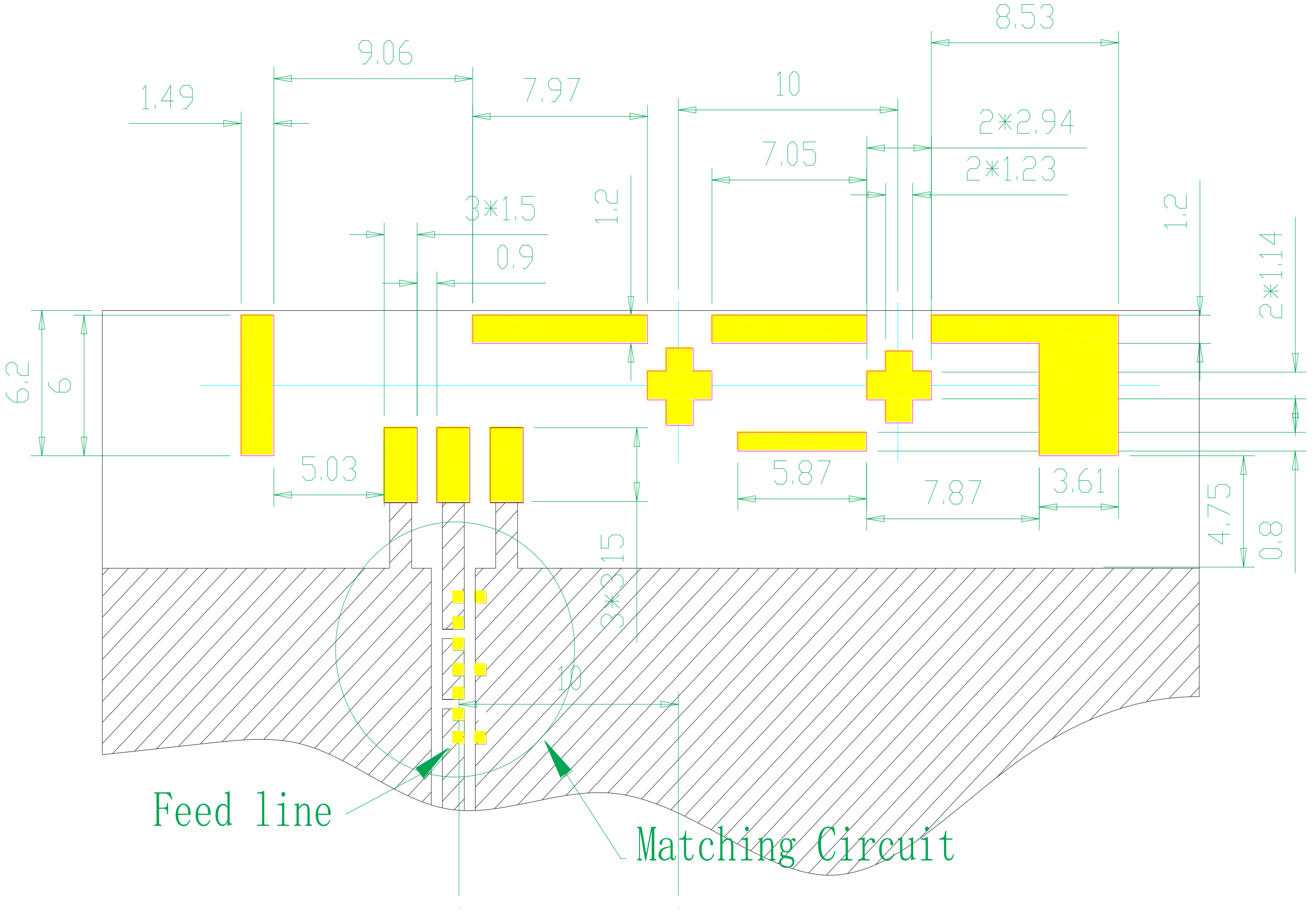


Item	Specification
Dimension	40x6x5mm
Material	PA
Surface treatment	Chemical Gold Plating

Physical photographs

5. Recommended PCB Layout：

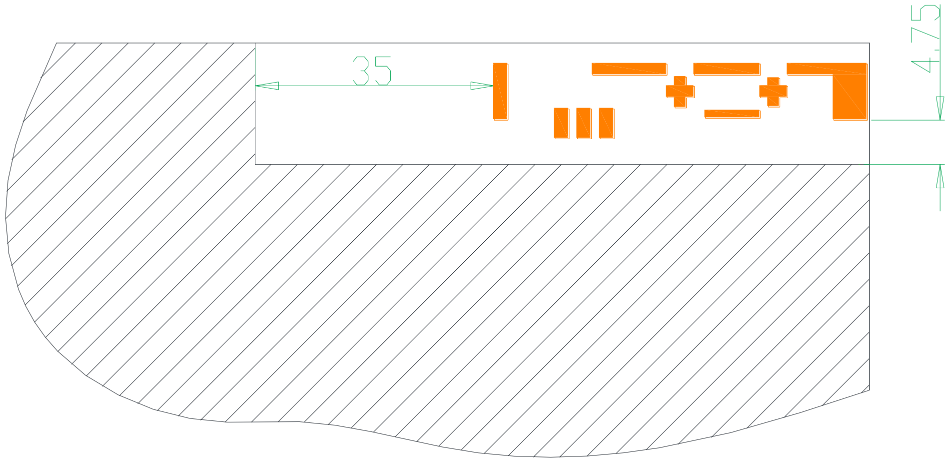
5.1 Layout



Tolerance: ±0.05

5.2 Antenna Clearance Size

Case1: The antenna is in the corner of the PCB.



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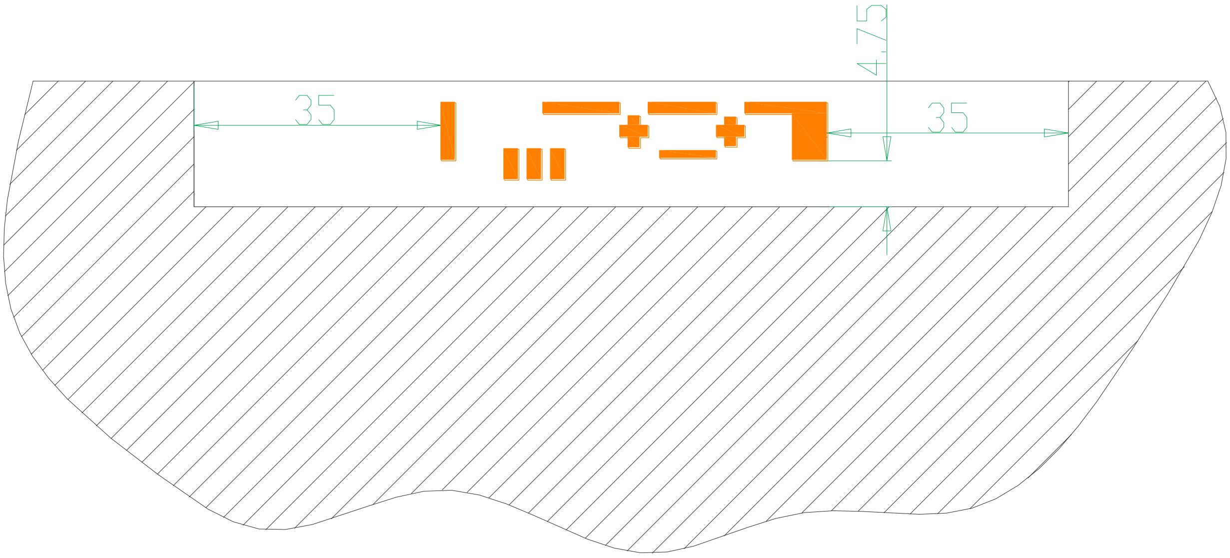
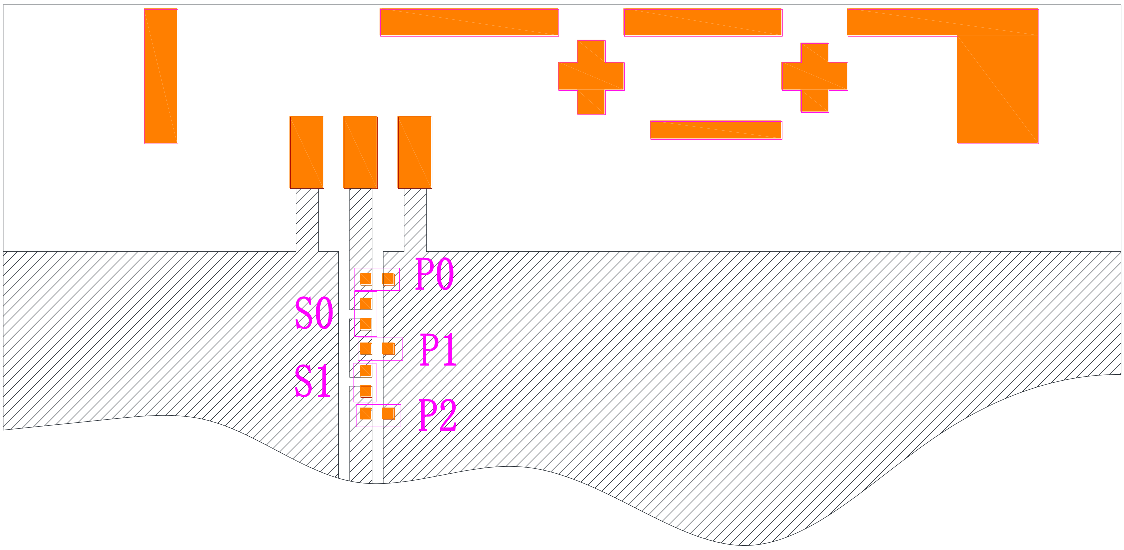
Case2: The antenna is in other non-corner locations of one side.



5.3 Matching Circuit on Demo-board



Circuit Symbol	Size	Description
S0	0402	0Ω
S1	0402	5.6pF
P0	0402	8.2nH
P1	0402	NA
P2	0402	NA

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6. Environmental Characteristics：

6.1 Reliability Test

Item	Condition	Specification
Thermal shock	1. 30 minutes at -40°C±5°C, 2. Convert to +105°C in 5 minutes, 3. 30 minutes at +105°C±5°C, 4. Convert to -40°C in 5 minutes, 5. Total 1000 continuous cycles.	No apparent damage, Fulfill the electrical Spec. after test.
High Temperature / Humidity resistance	6. Humidity：85±5% RH, 7. Temperature：85±3°C, 8. Time：1000 hours.	No apparent damage, Fulfill the electrical Spec. after test.
High temperature resistance	9. Temperature：105°C±5°C, 10. Time：1000 hours.	No apparent damage, Fulfill the electrical Spec. after test.
Low temperature resistance	1. Temperature：-40°C±5°C, 2. Time：1000 hours.	No apparent damage, Fulfill the electrical Spec. after test.
Soldering heat resistance	1. Solder bath temperature：260±5°C, 2. Bathing time：10±0.5 seconds.	No apparent damage.
Solderability	The dipped surface of the terminal shall be at least 95% covered with solder after dipped in solder bath of 245±5°C for 5±0.5seconds.	No apparent damage.

6.2 Storage condition:

(a) At warehouse：

The temperature should be within 0 ~ 30°C and humidity should be less than 60% RH.

The product should be used within 1 year from the time of delivery.

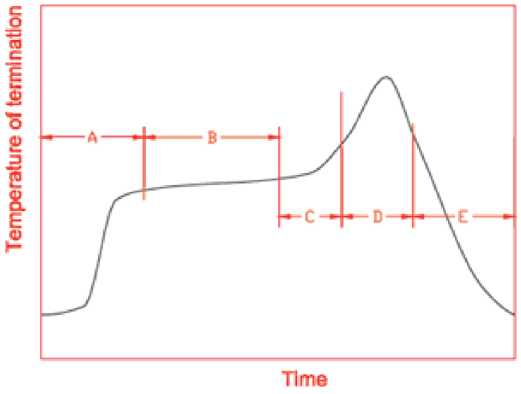
(b) On board：

The temperature should be within -40 ~ 85°C and humidity should be less than 85% RH.

6.3 Operating temperature range:

Operating temperature range：-40 ~ +105°C.

7. Recommended reflow soldering：



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A	1st rising temperature	The normal to Preheating temperature	30s to 60s
B	Preheating	140°C to 200°C	90s to 120s
C	2nd rising temperature	Preheating to 217°C	30s to 60s
D	Main heating	240°C ~ 260°C	20s to 40s
E	Regular cooling	200°C to 100°C	3°C/s ~ 6C/s

8. **Note:

1. In SMT process, the thickness of solder paste shall be at least 0.1mm, so that the solder paste can climb the inner wall of the groove at the bottom after melting, which can ensure the effective fixation strength.

2. If the PCB is a joint board, the special board splitting machine shall be used when separating the individual. It is not allowed to break the board by hand or other unprofessional equipment, which may cause PCB deformation, external stress on the components, potential crack at the welding place, and fall off in serious cases.

3. During the assembly process of the product, attention shall also be paid to avoid the influence of external large stress, which may cause potential crack at the welding position.

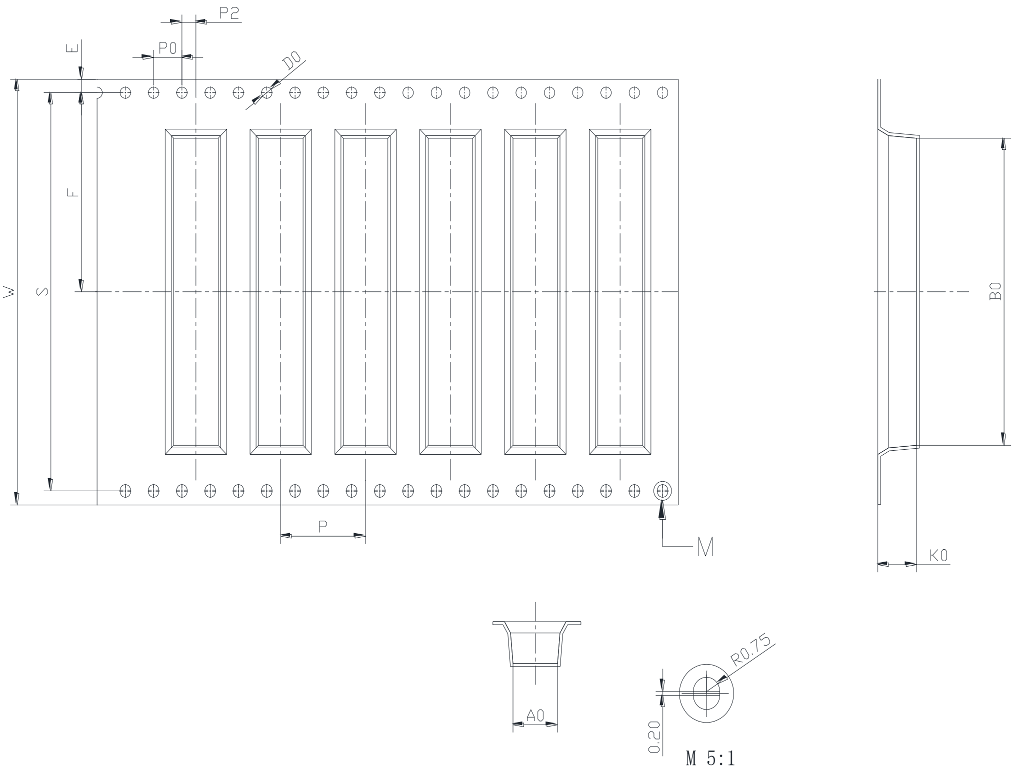
4. If the product is still subject to the risk of external stress, glue can be added to reduce it.

5. The product shall be stored in a normal temperature and dry environment, and shall be used as soon as possible after the vacuum packaging is opened to avoid oxidation and dampness caused by long-term storage in the air.

9. Packing：

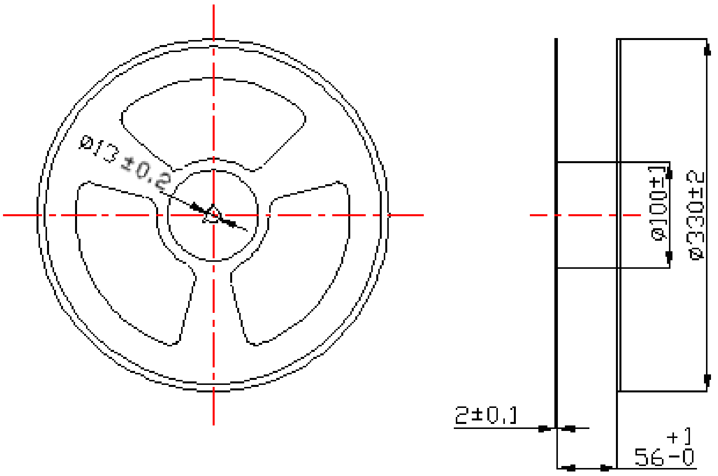
9.1 Quantity/Reel：750pcs/Reel

9.2 Carrier tape dimensions



Item	規 格
W	56.00
P	12.00
S	52.40
E	1.75
F	26.20
P2	2.00
D0	1.50
D1	----
Po	4.00
10Po	40.00
Ao	6.30
B0	40.40
Ko	5.50

9.3 Taping reel dimensions



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