

2G/3G/GSM Ceramic Chip Antenna



ACAR3005-S824



30.0 x 5.0 x 5.0 mm
RoHS/RoHS II Compliant
MSL = N/A

Features

- 824~960 MHz, 1710~2170 MHz band support
- Covering GSM850, GSM900, DCS, PCS, & UMTS
- 2G/3G/GSM support
- Omnidirectional pattern
- Linear polarization

Applications

- IoT
- M2M
- 3G/2G/GSM applications
- Telecommunications
- Networking
- Wireless modules
- Mobile devices
- Consumer electronics
- Broadband cellular connectivity
- Video and surveillance

Electrical Characteristics

Item	Spec	
Working Frequency	824~960 MHz, 1710~2170 MHz	
Dimension	30.0 × 5.0 × 5.0 mm	
VSWR	3 max (depends on the special environment)	
Polarization	Linear	
Impedance	50 Ω	
Operating Temperature	-40~85°C	
Termination	Ag (Environmentally-Friendly Pb Free)	
Efficiency(%)	824~960 MHz	55
	1710~2170 MHz	60

* Evaluation board size 40.0 x 120.0 mm²

* Actual electrical value will depend on customer ground plane size

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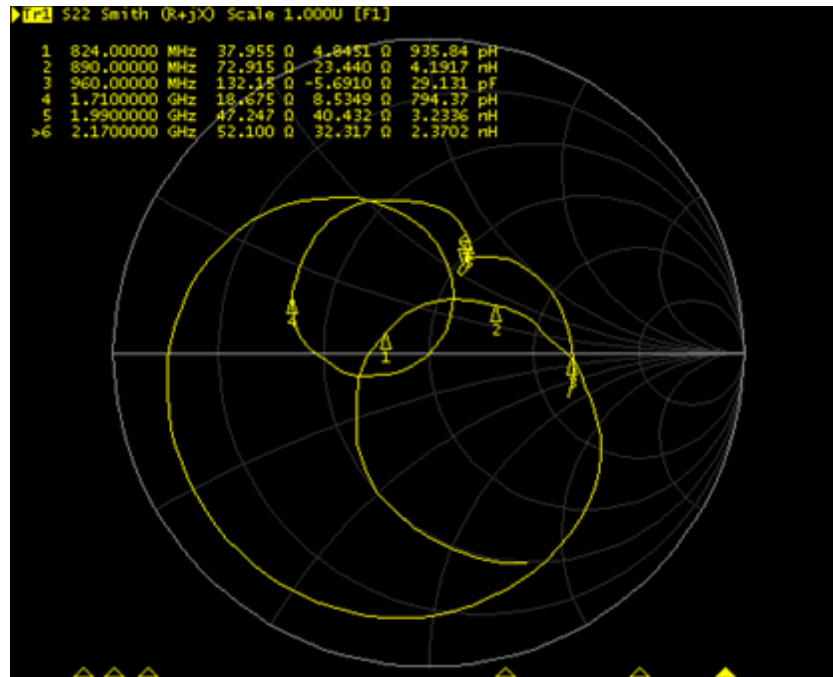
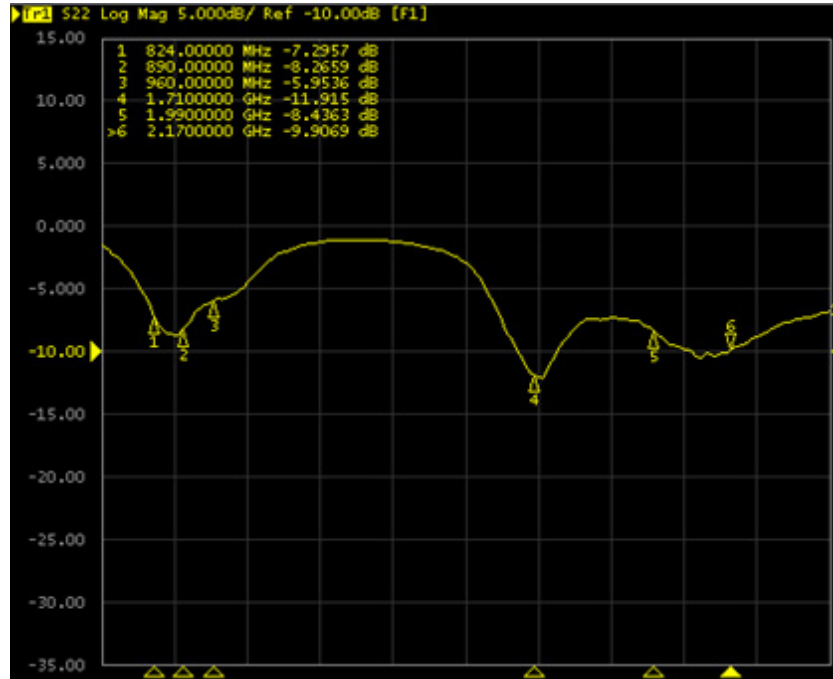


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Return Loss Characteristics



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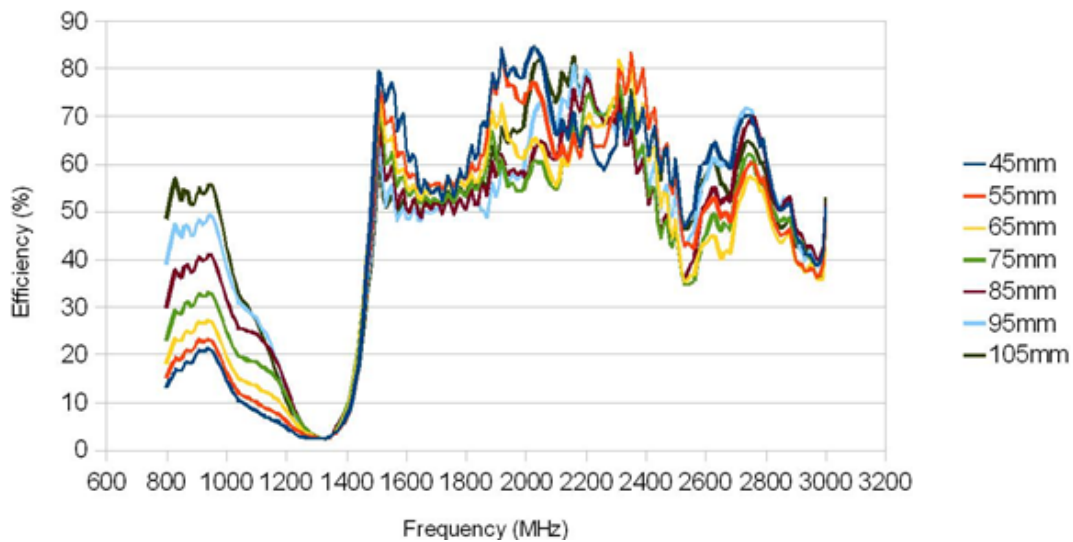


30.0 x 5.0 x 5.0 mm
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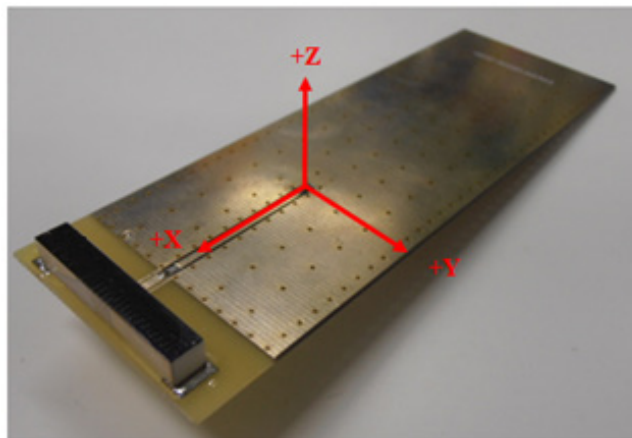
Gain and Efficiency

(Ground length: 107mm)

Peak Gain Parameter Summary										
Band	GSM (MHz)				DCS (MHz)		PCS (MHz)		WCDMA (MHz)	
	824	890	880	960	1710	1880	1850	1990	2110	2170
Peak Gain(dBi)	0.77	0.10	0.55	-0.18	2.08	1.78	2.12	2.70	3.03	3.12
Efficiency(%)	59.4	53.15	54.12	54.57	54.42	53.18	53.90	58.94	66.10	63.80



3D Radiation Pattern



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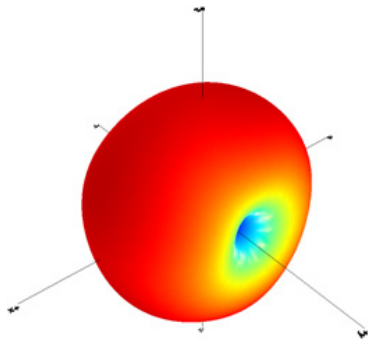


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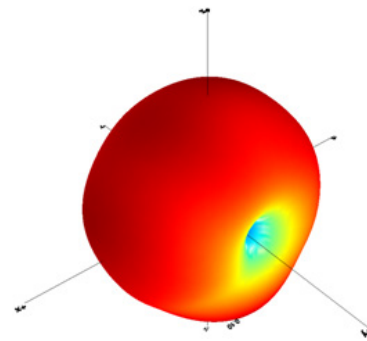


30.0 x 5.0 x 5.0 mm
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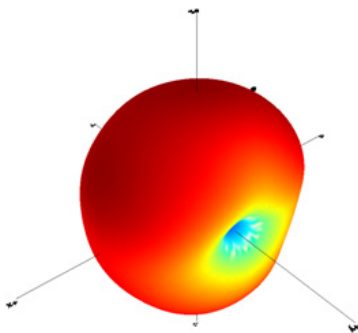
3D Radiation Pattern



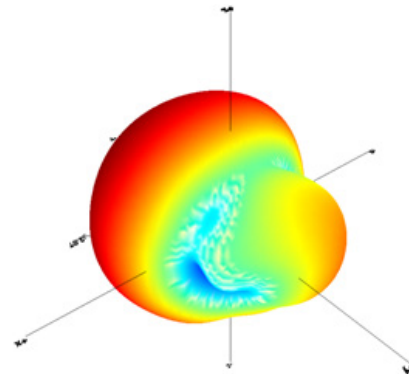
824MHz



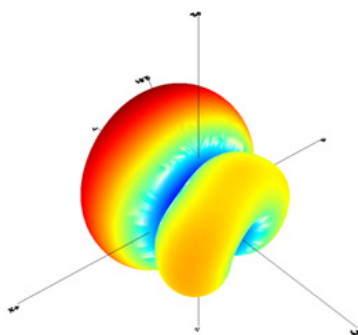
890MHz



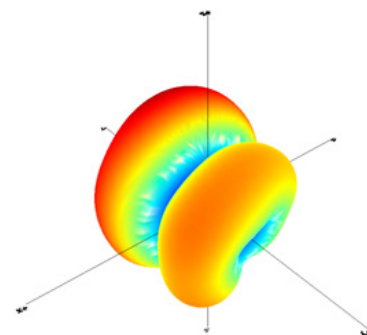
960MHz



1710MHz



1990MHz



2170MHz

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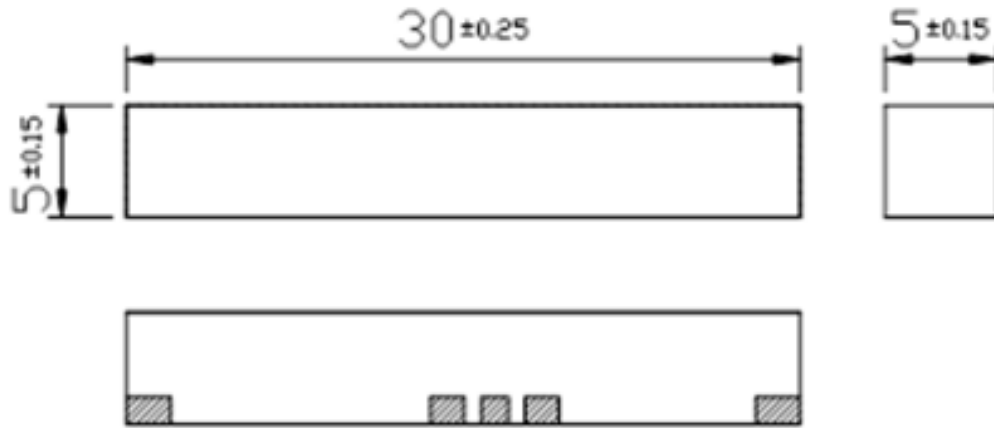
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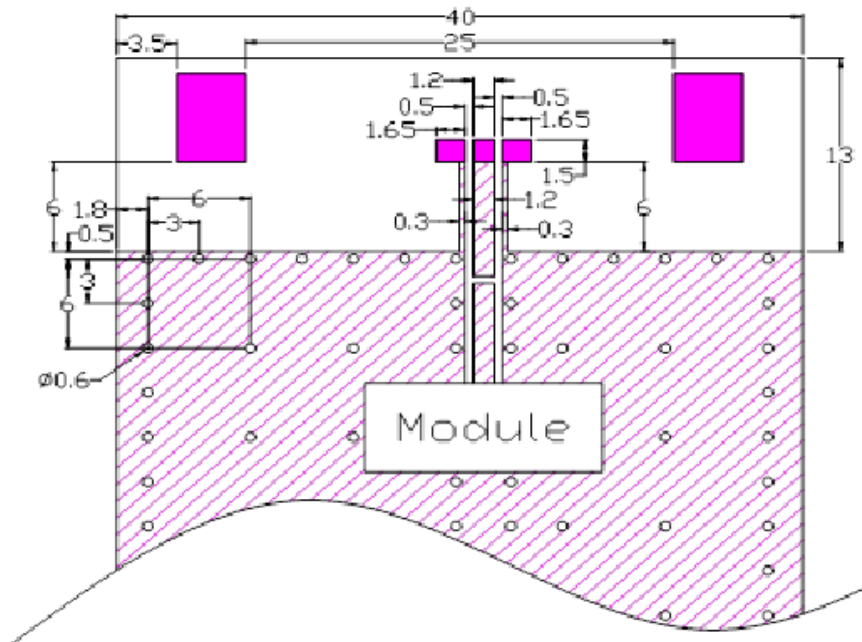
Drawings

Shape and Dimensions



Unit: mm

Recommended Foot Print for Evaluation Board



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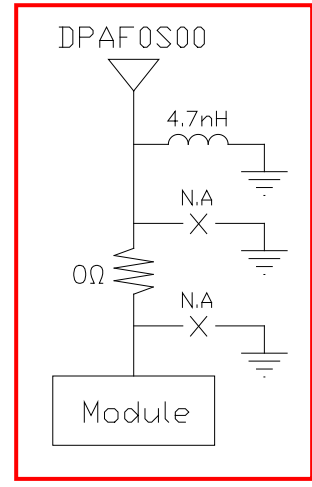
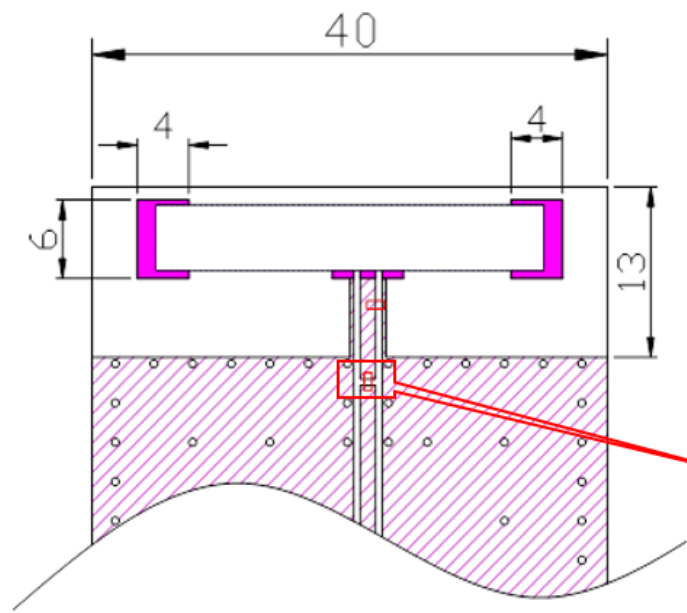
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Antenna Environment on Demo Board

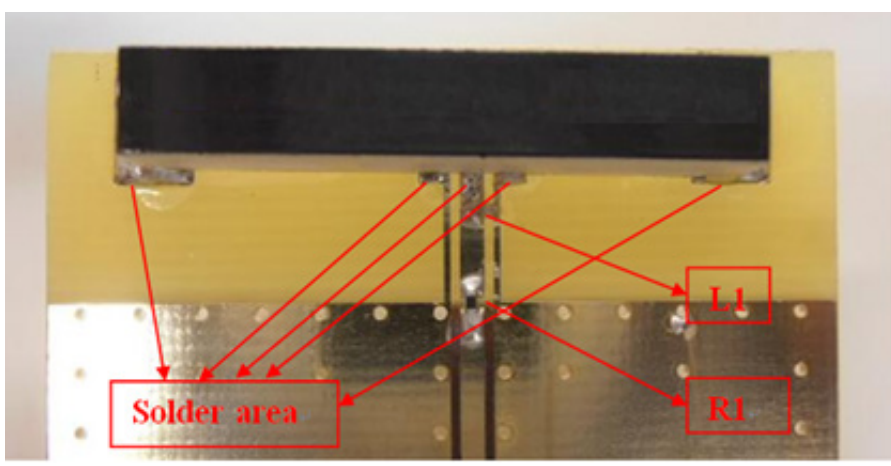
Matching Circuit



Pi type matching

A pi type matching circuit is needed between antenna and module.

Unit: mm



Circuit Symbol	Size	Description
L1	0402	4.7nH Inductor
R1	0402	0 Ω

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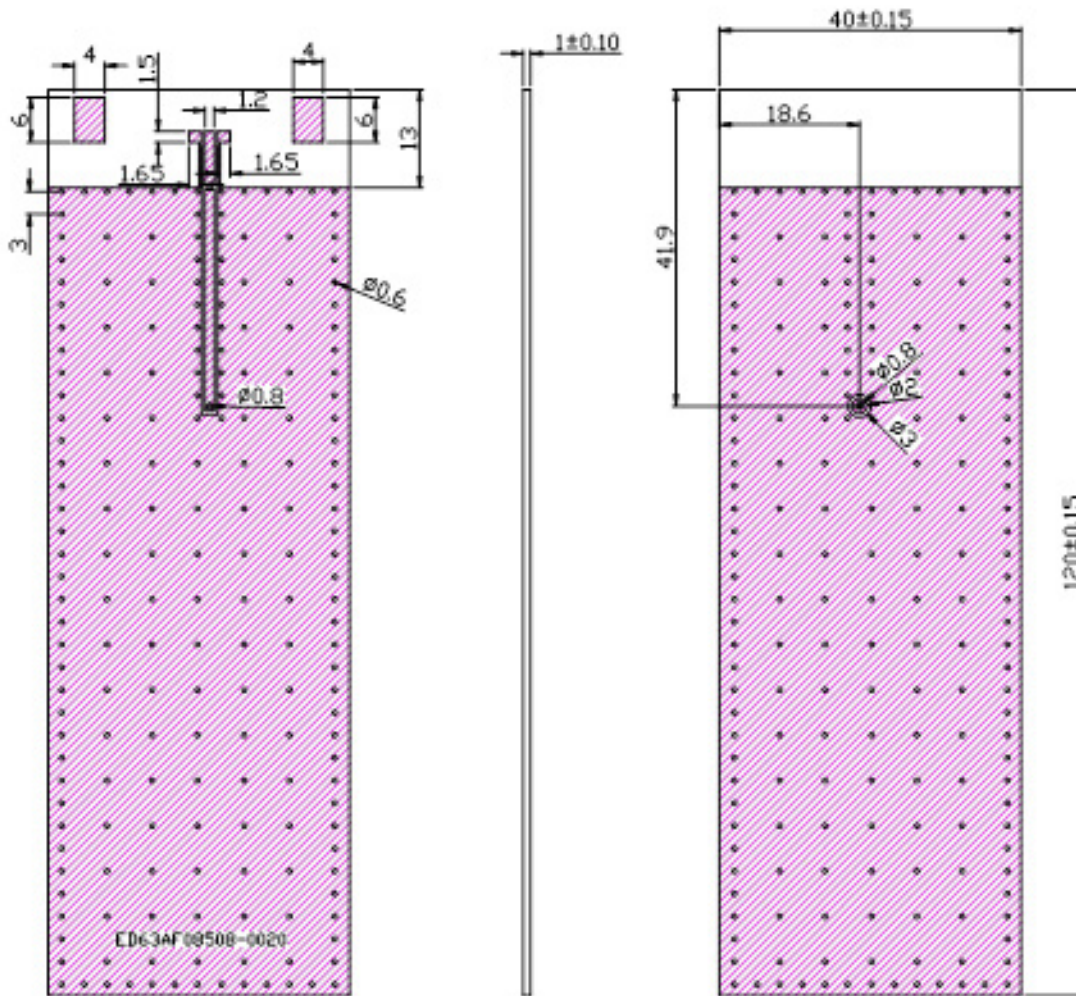


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Test Board Dimensions



Unit: mm

Environmental Conditions

Parameters	Description
Operating Temperature Range	-40°C ~ + 85°C
Relative Humidity	0 ~ 95% RH @ +40°C
Storage Temperature Range	-40°C ~ + 85°C

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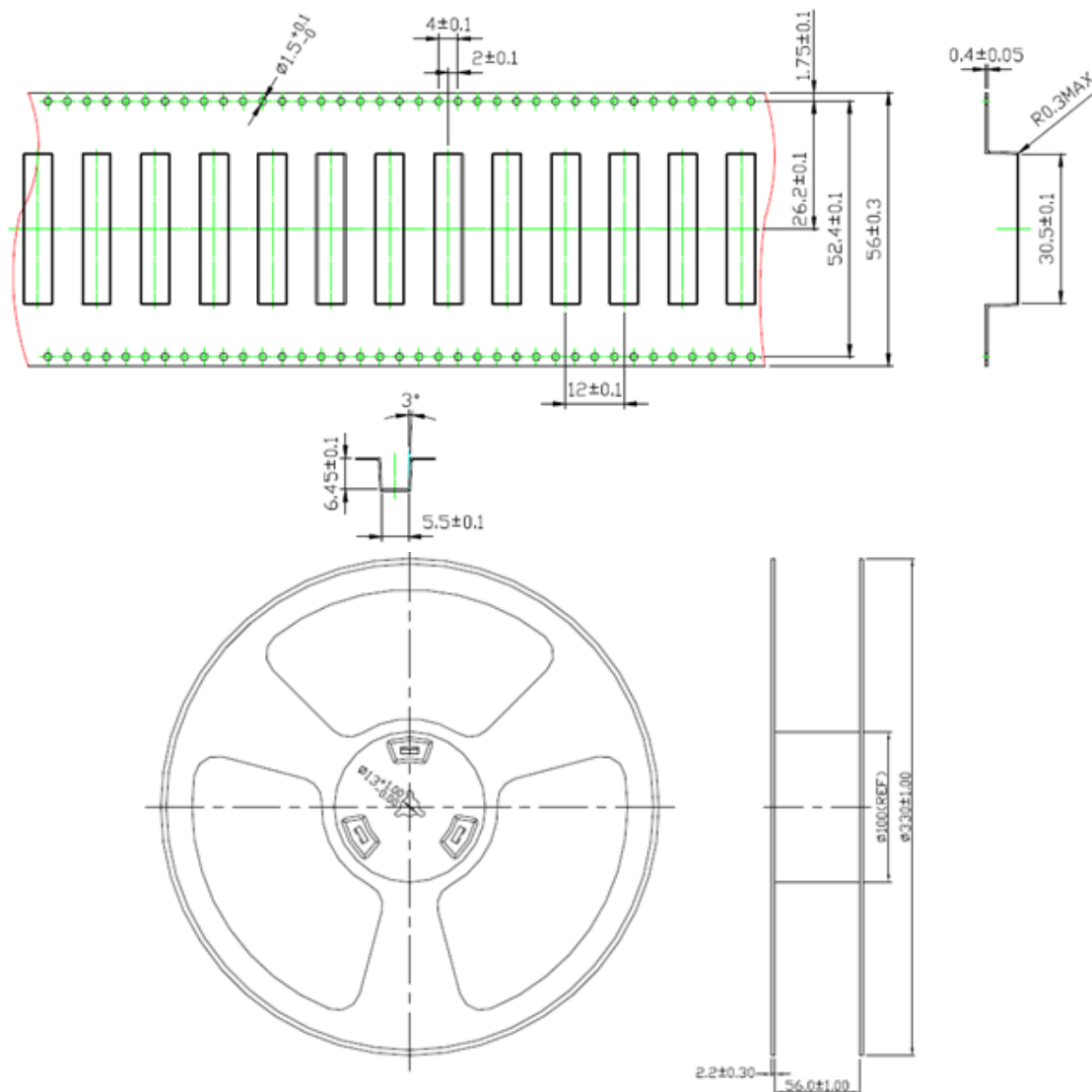
30.0 x 5.0 x 5.0 mm
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Precautions

- Antenna pattern use an Ag electrode.
- Please don't use the corrosion gas (sulfur gas, chlorine gas) in the atmosphere.
- Please don't direct solder onto the gold electrode of Antenna pattern.

Packaging

1. 450pcs/reel
2. 350.0 x 340.0 x 67.0 mm (450pcs/Cartron-Inside)
3. 370.0 x 360.0 x 275.0 mm (1,350pcs/Cartron-Outside)
4. GW - 6.19KG



Unit: mm

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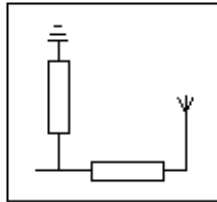
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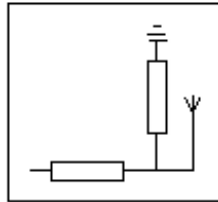
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Transmission Line and Matching

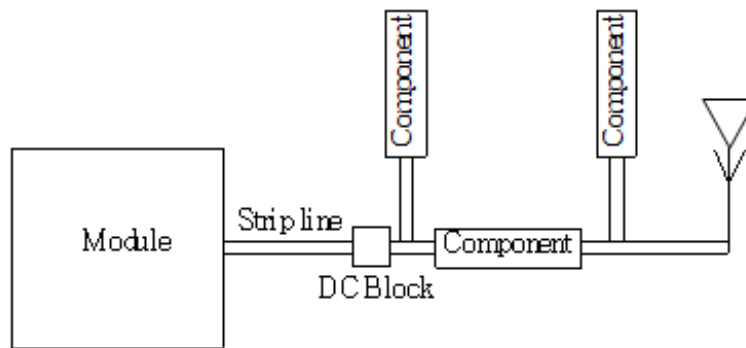
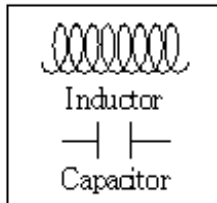
Typical config.1



Typical config.2



Component types



The matching network has to be individually designed using one, two, or three components.

Recommended Reflow Soldering Profile

Abracon products can be assembled following Pb-free assembly. According to the Standard IPC/JEDEC J-STD-020C, the temperature profile suggested is as follow:

Phase	Profile Features	Sn-Pb Assembly	Pb-Free Assembly (SnAgCu)
PREHEAT	Avg. Ramp-up Rate (T _{max} to TP)	3°C/second (max)	3°C/second (max)
RAMP-UP	-Temperature Min(T _{Smin}) -Temperature Max(T _{Smin}) -Time(t _{Smin} to t _{Smax})	100°C 150°C 60-120 seconds	100°C 150°C 60-120 seconds
REFLOW	-Temperature(TL) -Total Time above TL (t L)	183°C 60-150 seconds	217°C 60-150 seconds
PEAK	-Temperature(TP) -Time(tp)	235°C 10-30 second	260°C 20-40 second
RAMP-DOWN	Rate	6°C/ second max.	6°C/ second max.
Time from 25°C to Peak Temperature		6 minutes max.	8 minutes max.

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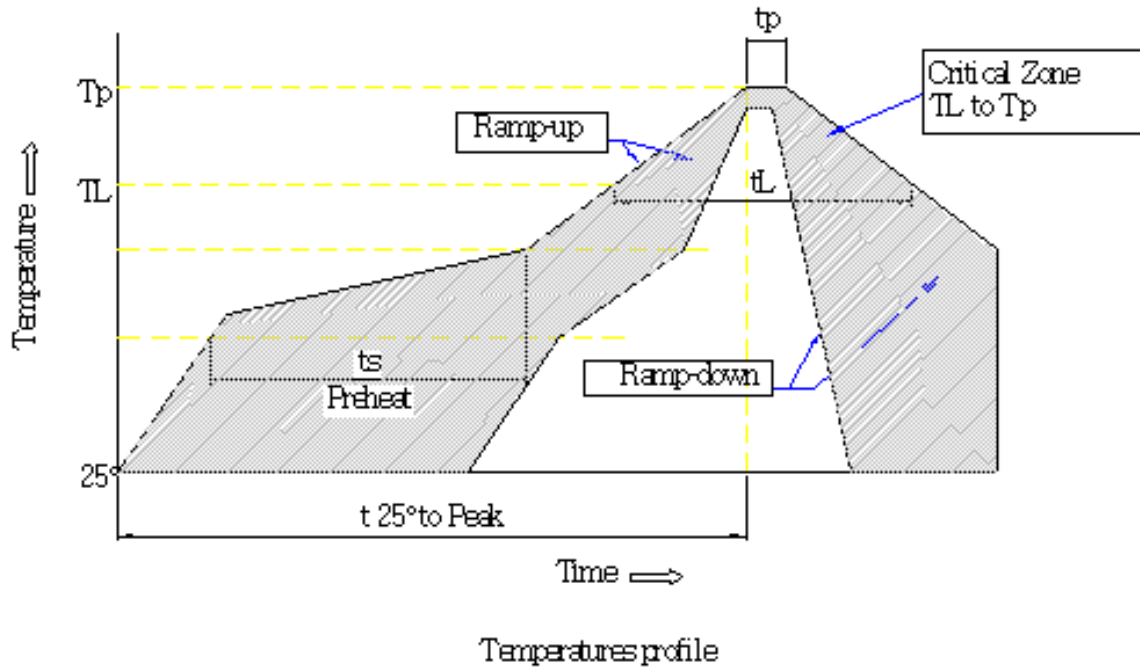


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Next graphic shows temperature profile (gray zone) for the antenna assembly process in reflow ovens



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