

LTE Chip Antenna - Automotive Qualified



ACR3705LZ

Request Samples



Check Inventory



37.0 x 5.0 x 5.0 mm

RoHS/RoHS II Compliant

MSL Level = 1

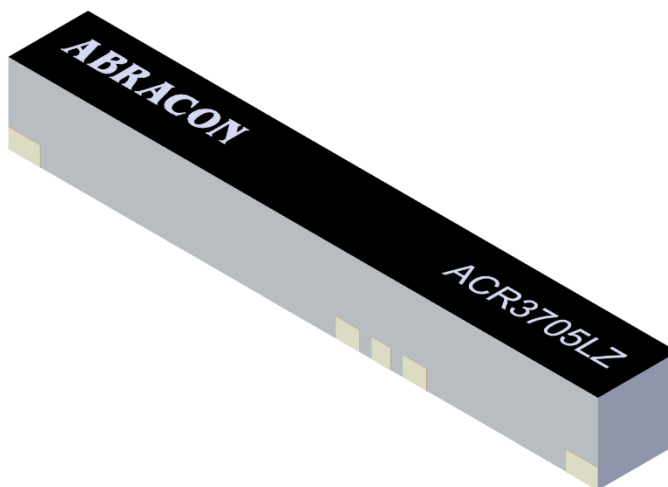
Features

- Complies with Automotive Qualification (AEC-Q200)
- Complies with IATF 16949 Certification
- 4G/LTE full band coverage
- 2G/3G/GSM support
- Linear polarization
- Compact size

Applications

- 4G/LTE/3G/2G/GSM applications
- Automotive, UAV, V2X
- IoT, M2M
 - Industrial, Infrastructure IoT
- Consumer electronics
- Wireless modules
- Video and surveillance
- Broadband cellular connectivity
- Networking & Telecommunications

Product Image



5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
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Electrical Specifications

Parameter	Specification			Unit
Operating Frequency	700 ~ 960	1710 ~ 2170	2500 ~ 2700	MHz
VSWR _{max}	4.5			
Efficiency	55	70	50	%
Impedance	50			Ω
Polarization	Linear			

*All test measurements were conducted with antennas on an evaluation board of dimension 45 x 120 mm and under the environmental condition of +40 °C & 0-95% R.H.

*Actual characteristics will depend on the application ground plane dimensions.

Mechanical Specifications

Parameter	Specification
Antenna Dimension	37 x 05 x 05 mm
Material	Ceramic
Termination	Silver
Mounting Type*	Surface Mount (SMD)

*Do not mount the antenna on a metal surface.

Environmental Specifications

Parameter	Specification
Operating Temperature	-40°C to +85 °C
Storage Temperature	-40°C to +85 °C
RoHS / RoHS II Compliant	Yes
MSL	1
Environmentally Friendly	Pb free
Relative Humidity	0~95%

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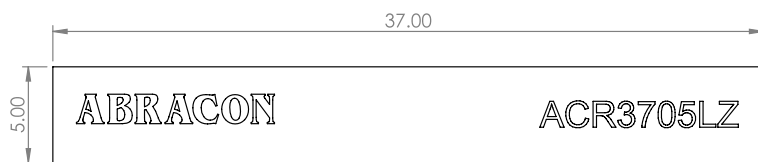


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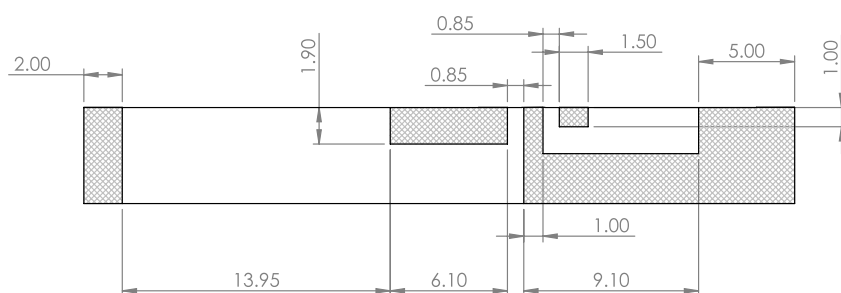
Product Dimension



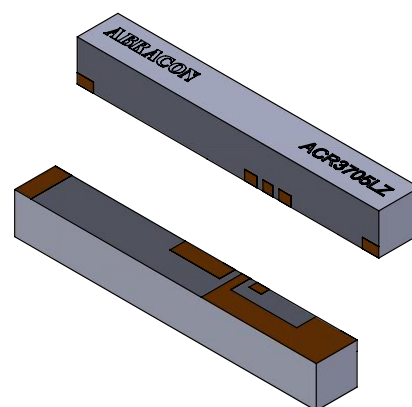
TOP VIEW



FRONT VIEW



BOTTOM VIEW



Unit: mm



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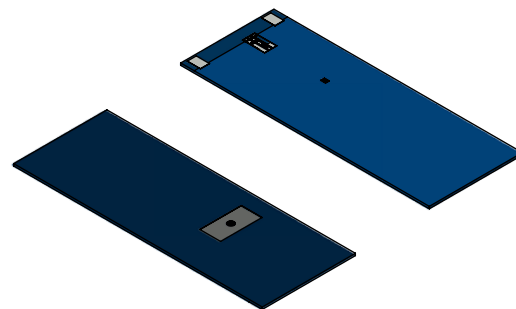
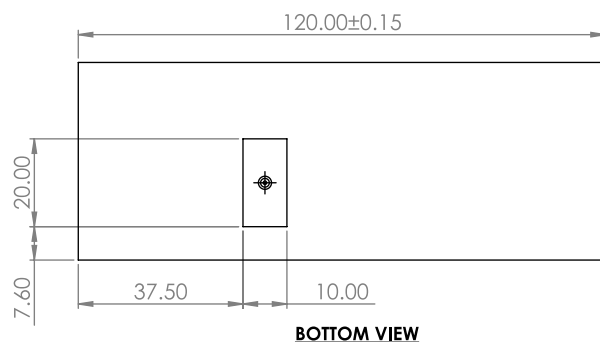
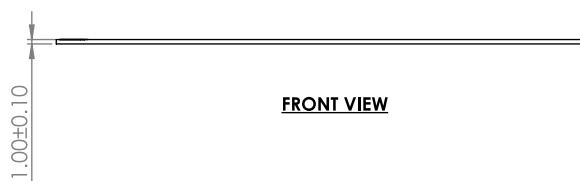
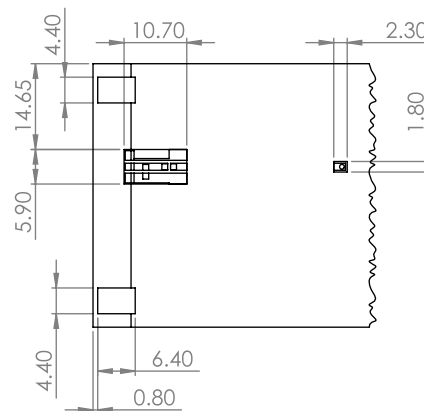
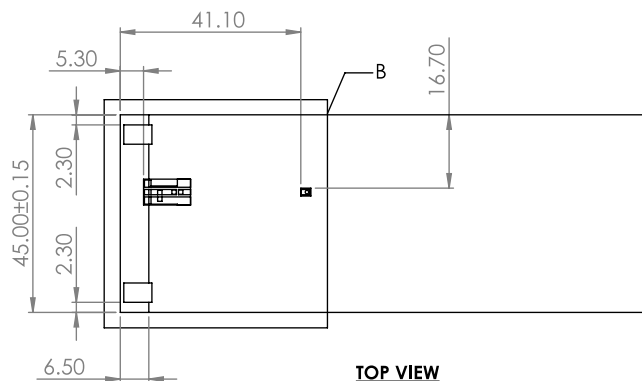


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Evaluation Board Dimension



Unit: mm



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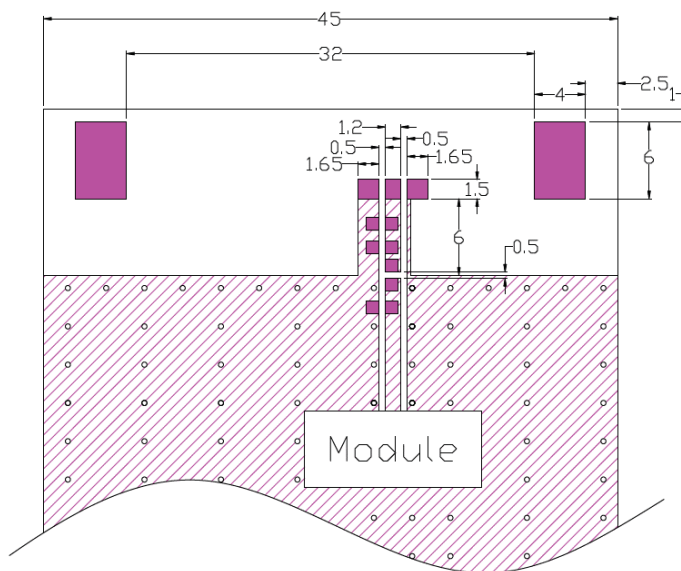


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37.0 x 5.0 x 5.0 mm
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Recommended Layout Dimensions



Unit: mm

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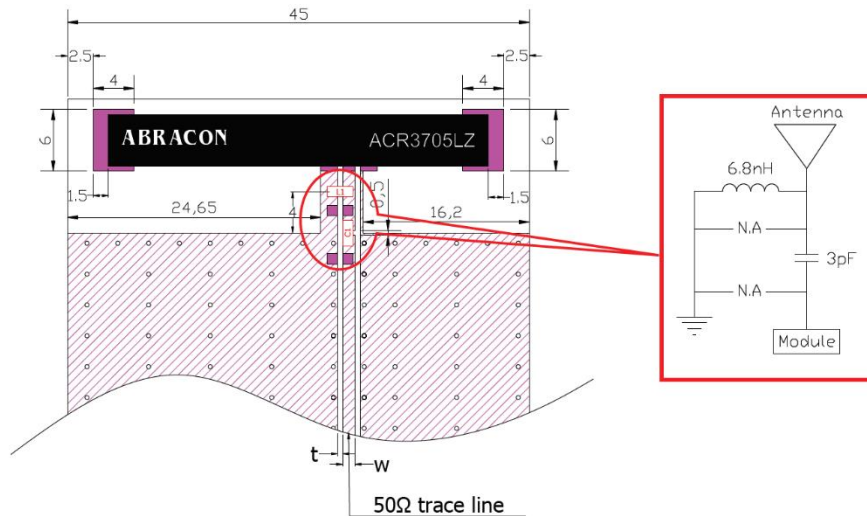


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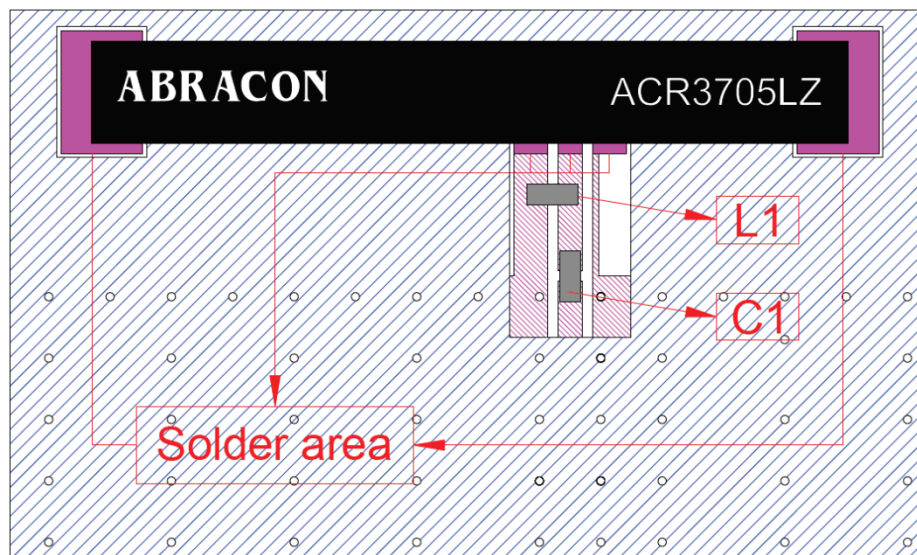
37.0 x 5.0 x 5.0 mm
RoHS/RoHS II Compliant
MSL Level = 1

Recommended Layout with Matching Circuit



Unit : mm

Note : t, w are unique in accordance with the PCB design



Circuit Symbol	Size	Description
L1	0402	6.8 nH
C1	0402	3 pF

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Test Measurement – Return Loss



Return Loss	700MHz	960MHz	1710MHz	2170MHz	2500MHz	2700MHz
S11	-4.34dB	-8.50dB	-4.62dB	-13.87dB	-8.49dB	-6.49dB

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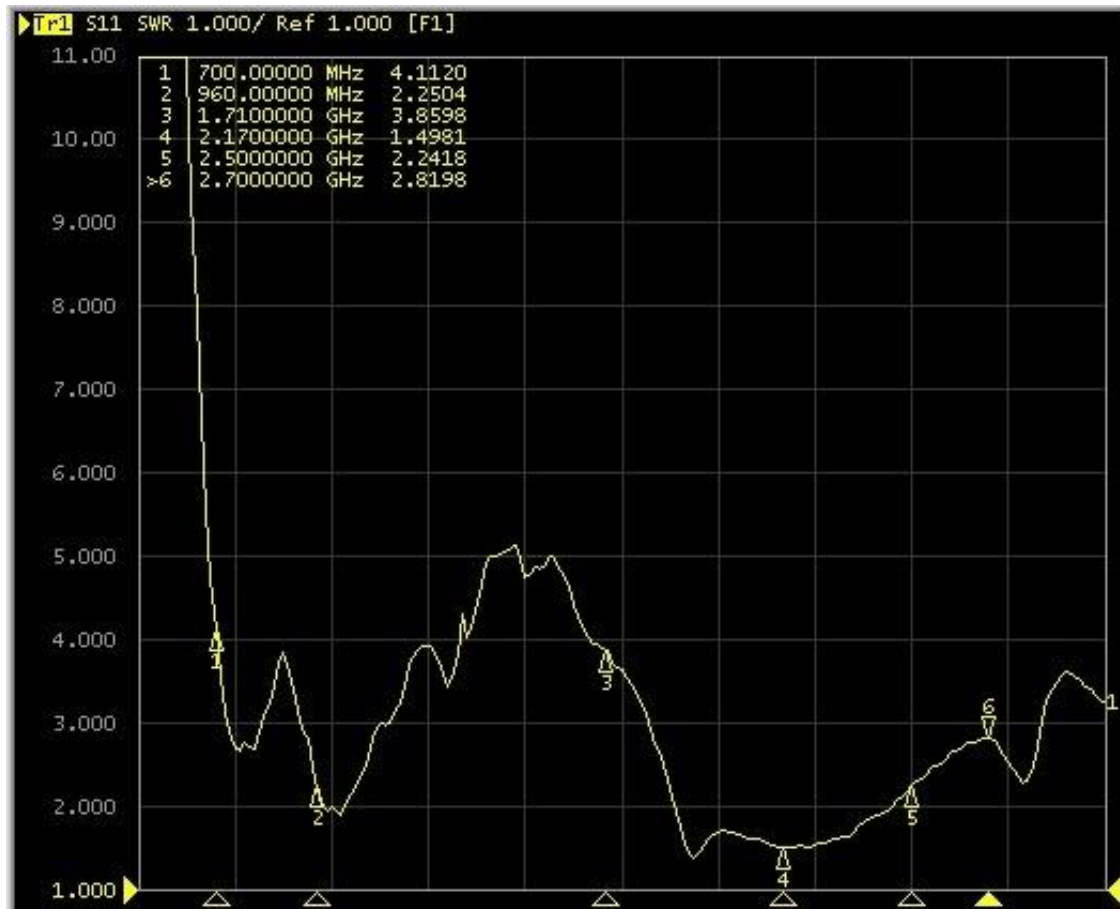


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Test Measurement – SWR



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Test Measurement – Smith Chart



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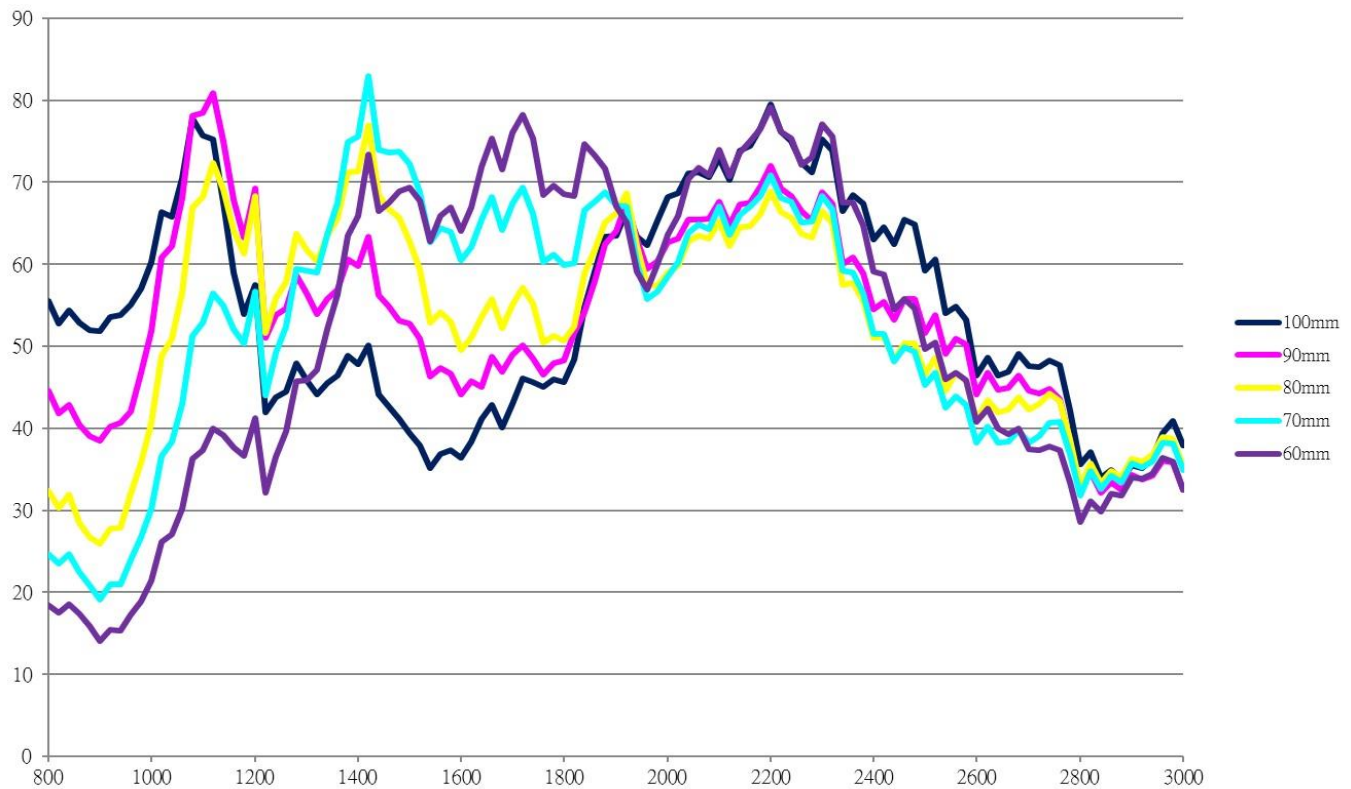


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Gain and Efficiency



Note :

For the measurement below, a ground plane length of 107 mm is considered.

Frequency (GHz)	824	960	1710	1850	1990	2170	2500	2700
Efficiency (%)	54.50	51.26	45.07	57.30	67.94	77.00	56.66	41.89
Average Gain (dBi)	-2.47	-2.49	-3.46	-2.42	-1.67	-1.13	-2.46	-3.77

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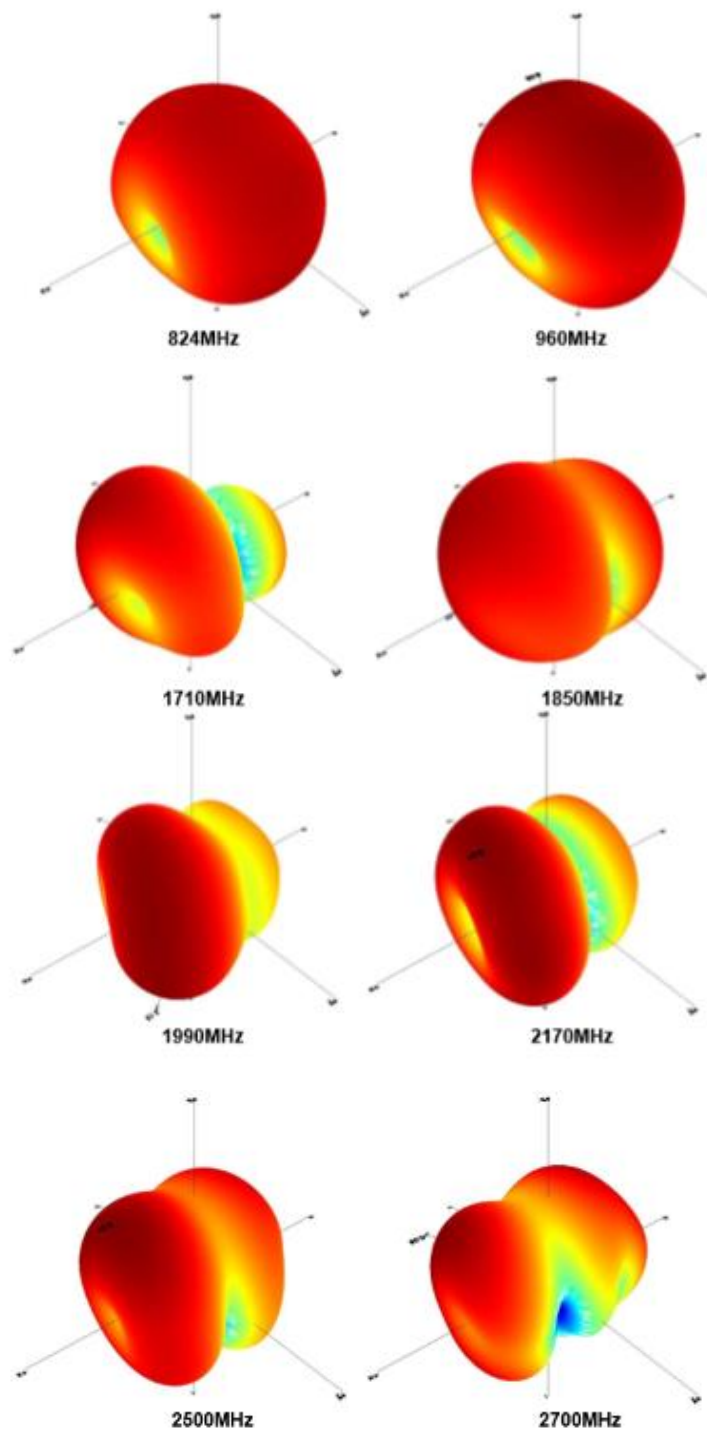
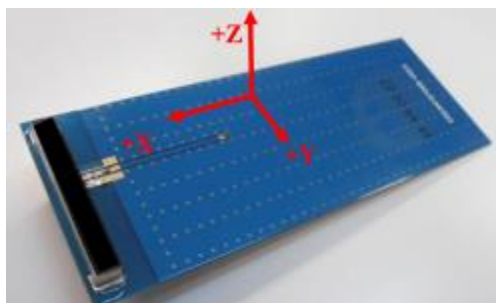


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Test measurement – 3D Radiation Pattern



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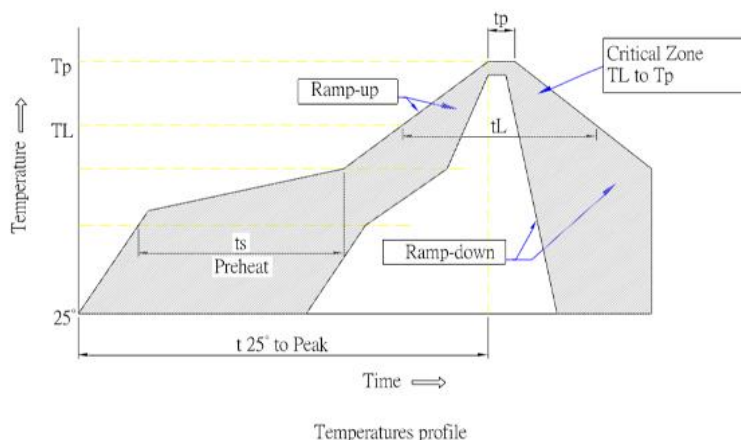


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MSL Level = 1

Reflow Profile

The Planer Inverted-F antenna can be assembled following either Sn-Pb or 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)
Ramp-Up	Avg Ramp-Up Rate (T _{smax} to TP)	3°C /second(max)	3°C /second(max)
Preheat	-Temperature Min (T _{Smin}) -Temperature Max (T _{Smax}) -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 seconds	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.



Precautions

- Do not direct solder onto the gold electrode of the antenna pattern.
- Do not use the chip antenna in a corrosive gaseous atmosphere for example sulfur gas, chlorine gas.

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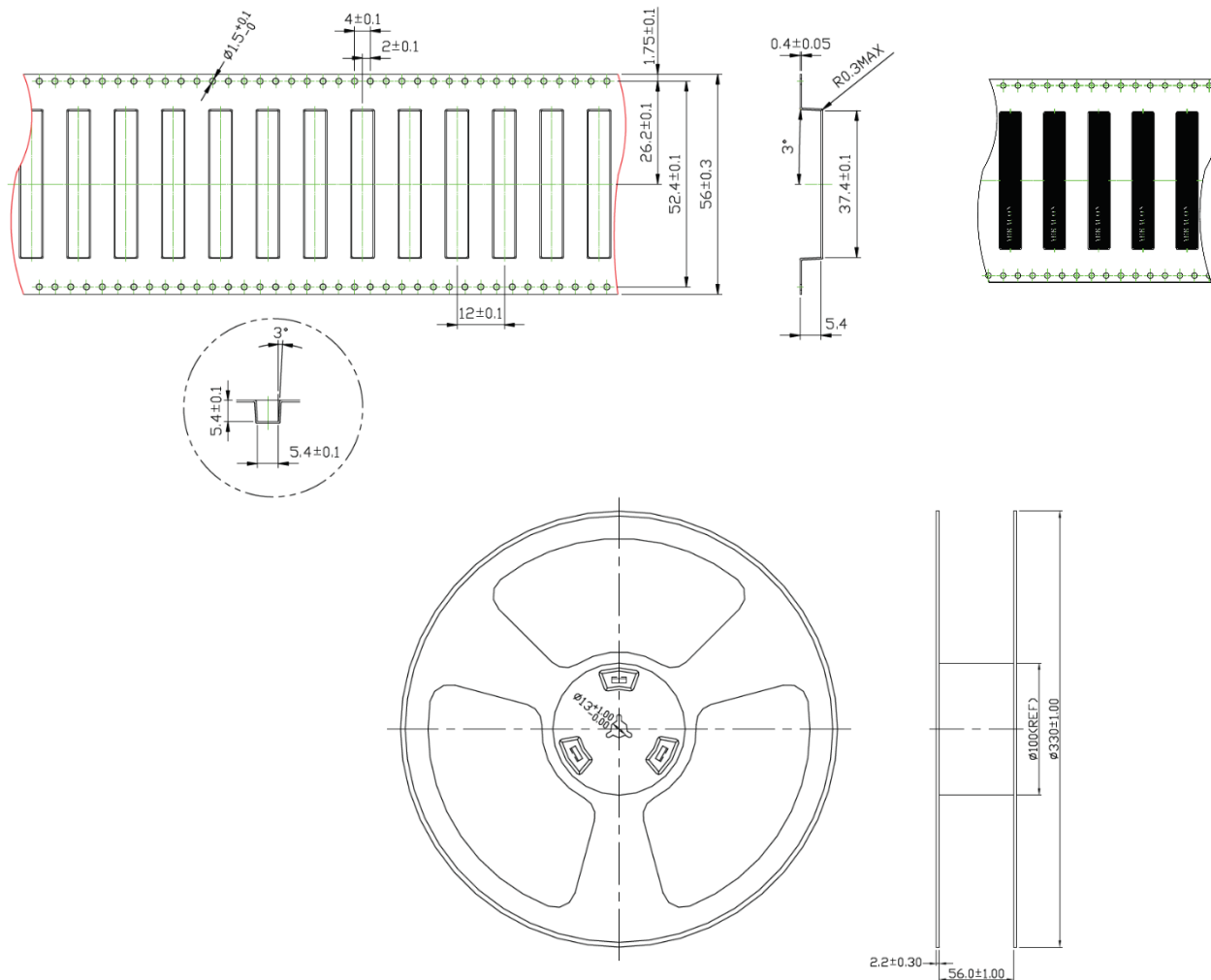
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Packaging Information

1. Blister tape to IEC 286-3 , polyester.
2. Pieces per tape /reel : 450 pcs



Unit : mm

ATTENTION: Abracon LLC's products are Commercial-Off-The-Shelf ("COTS"), which are designed, intended, and validated for use in commercial, industrial, and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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