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

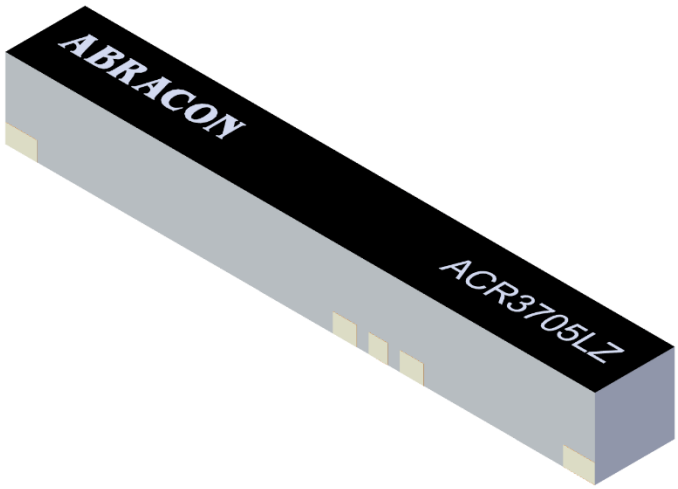
Features

- 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



ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

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

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 ºC & 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	-40ºC to +85 ºC
Storage Temperature	-40ºC to +85 ºC
RoHS / RoHS II Compliant	Yes
MSL	1
Environmentally Friendly	Pb free
Relative Humidity	0~95%

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

LTE Chip Antenna - Automotive Qualified

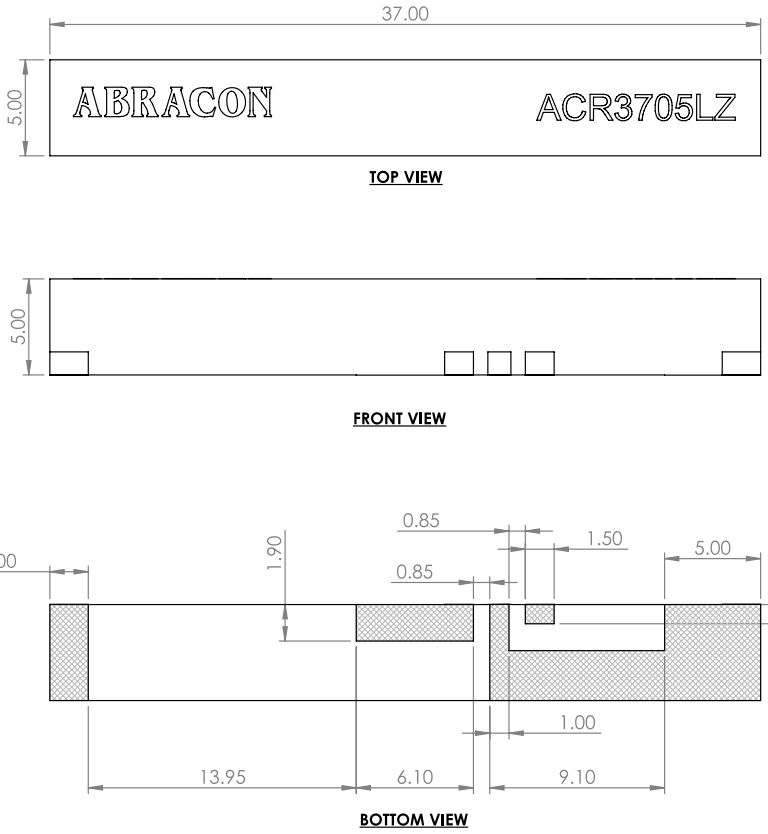
ACR3705LZ

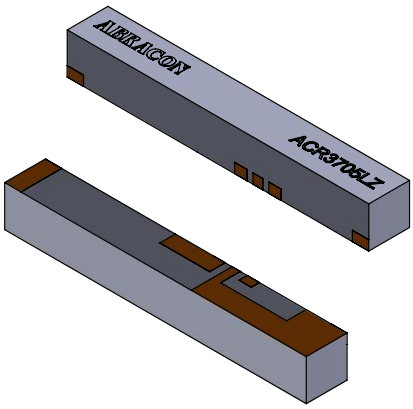
Request Samples

Check Inventory

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

Product Dimension





Unit: mm

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

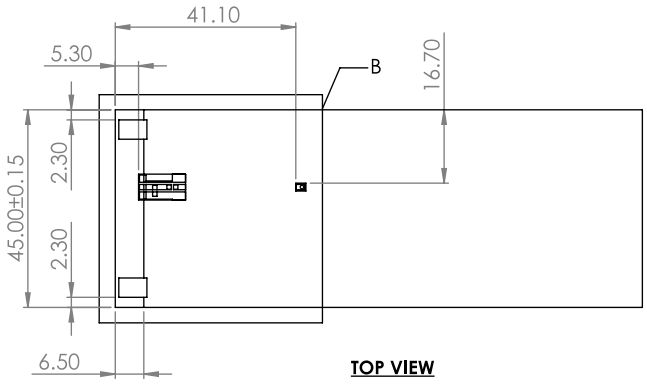
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

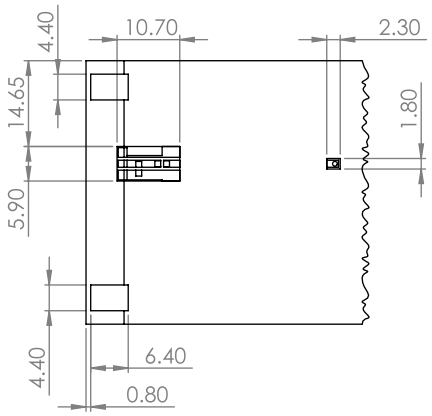
Request Samples | Check Inventory

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

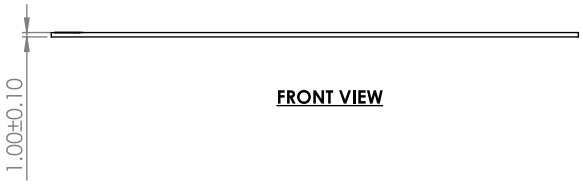
Evaluation Board Dimension



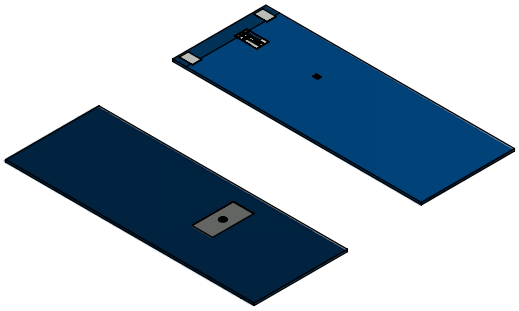
TOP VIEW

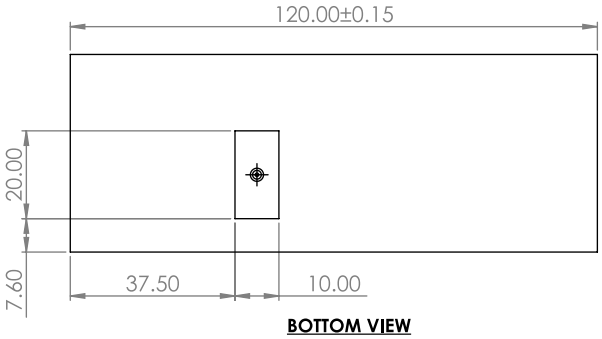


DETAIL B



FRONT VIEW





BOTTOM VIEW

Unit: mm

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

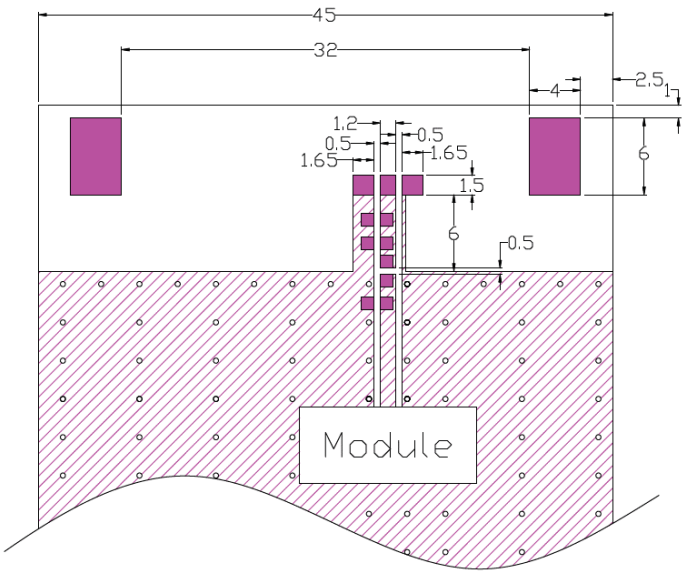
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

Request Samples | Check Inventory

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

Recommended Layout Dimensions



Unit: mm

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

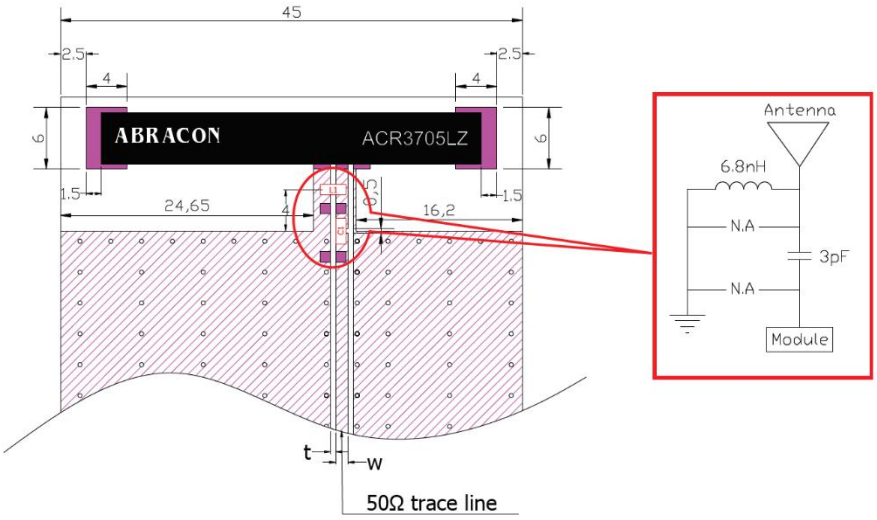
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

Request Samples | Check Inventory

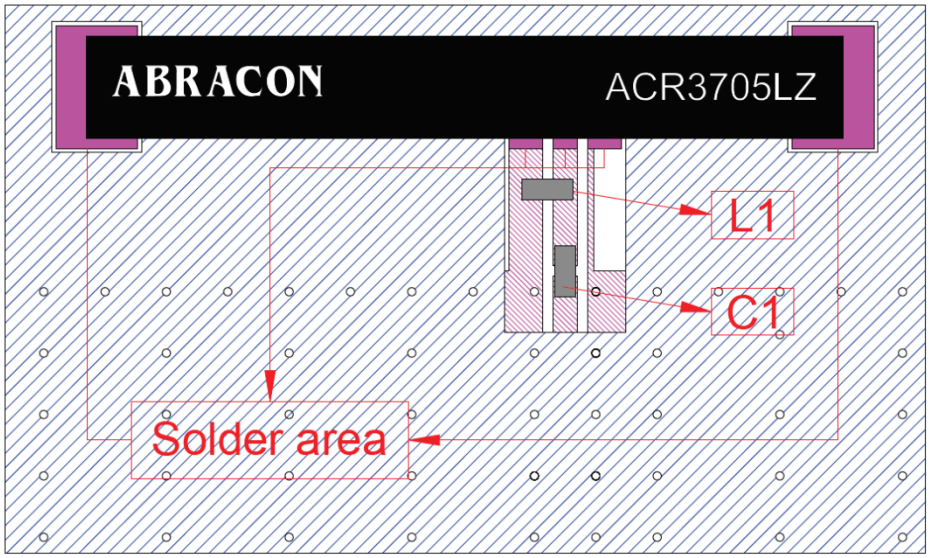
37.0 x 5.0 x 5.0 mm
RoHS/RoHS II Compliant
MSL Level = 1

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

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

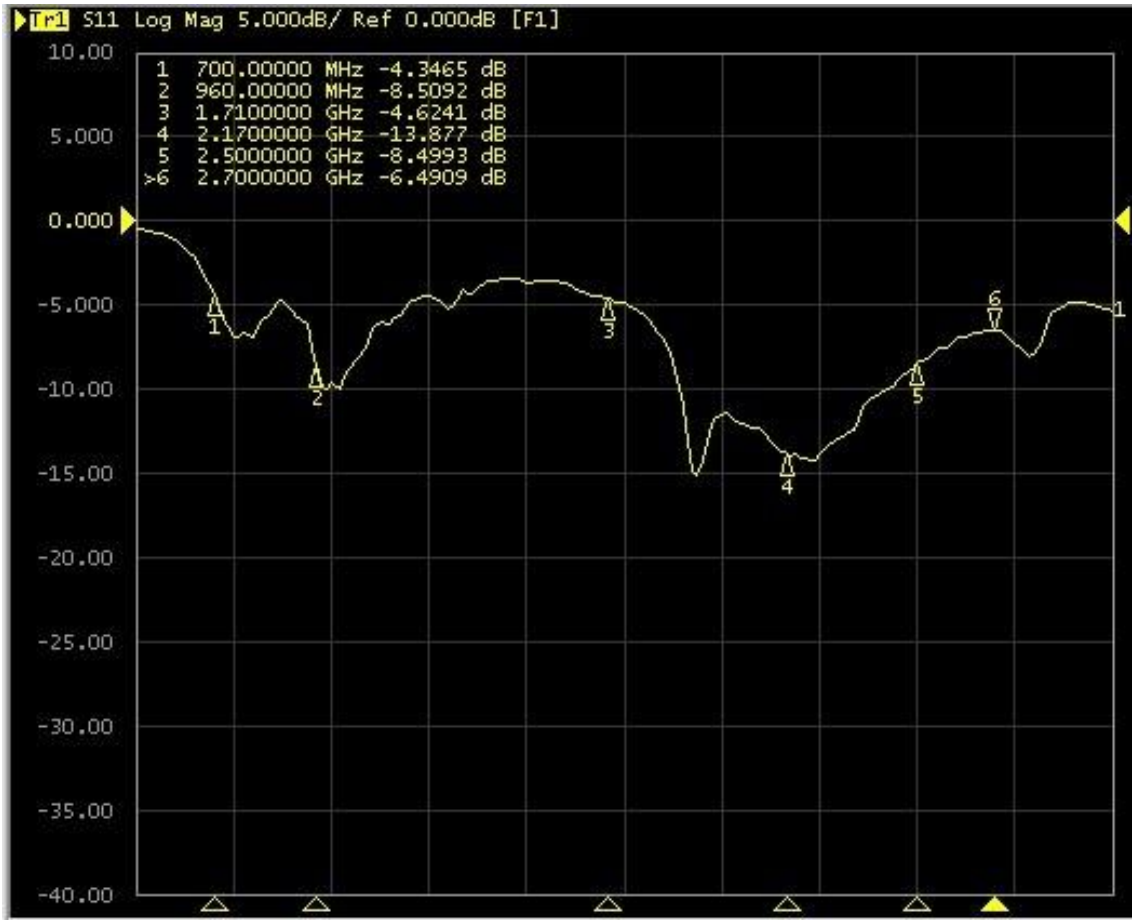
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

Request Samples | Check Inventory

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

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

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

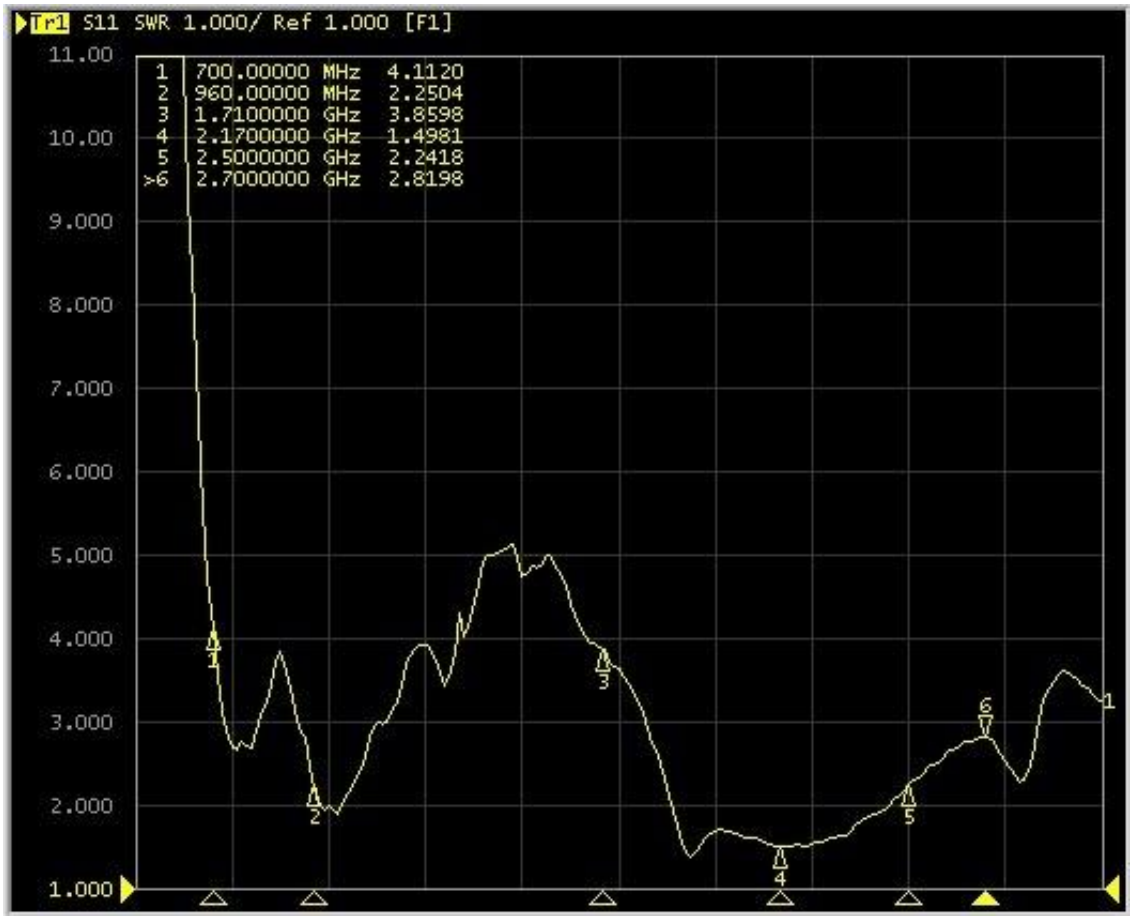
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

Request Samples | Check Inventory

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

Test Measurement – SWR



ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

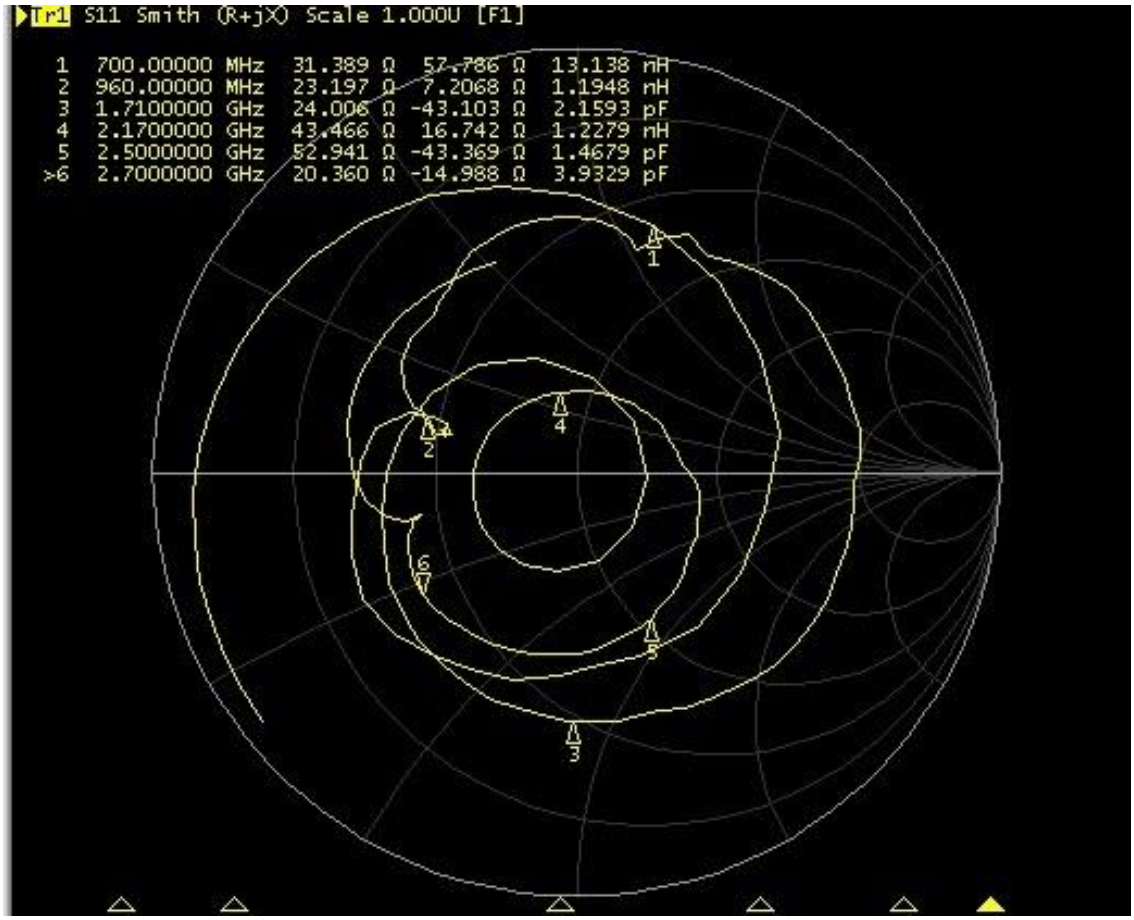
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

Request Samples | Check Inventory

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

Test Measurement – Smith Chart



ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

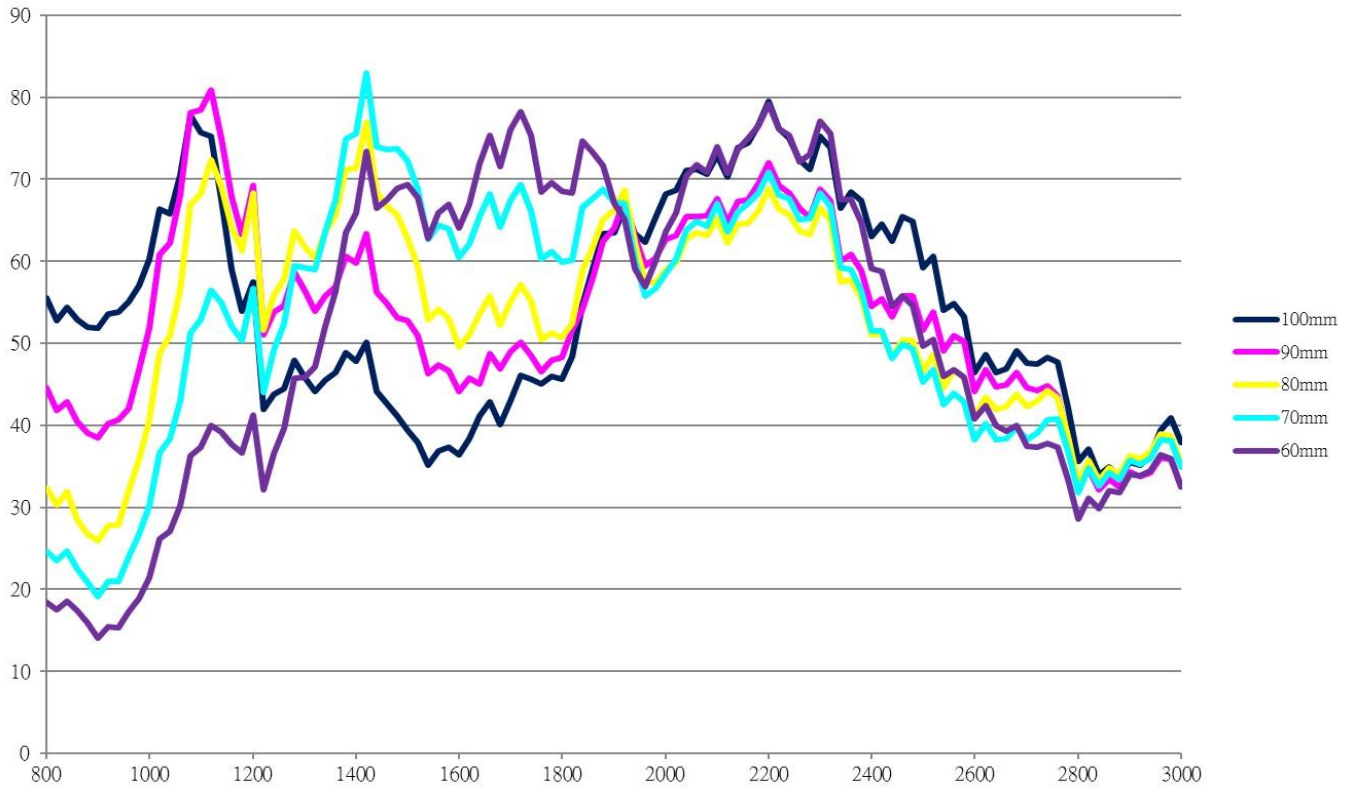
LTE Chip Antenna - Automotive Qualified

ACR3705LZ

Request Samples | Check Inventory

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

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

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

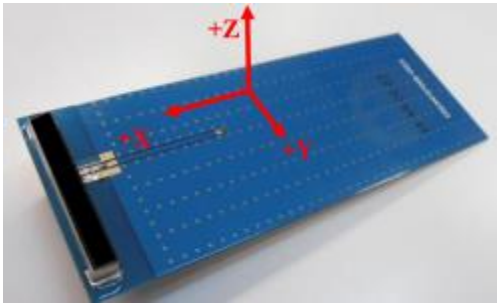
LTE Chip Antenna - Automotive Qualified

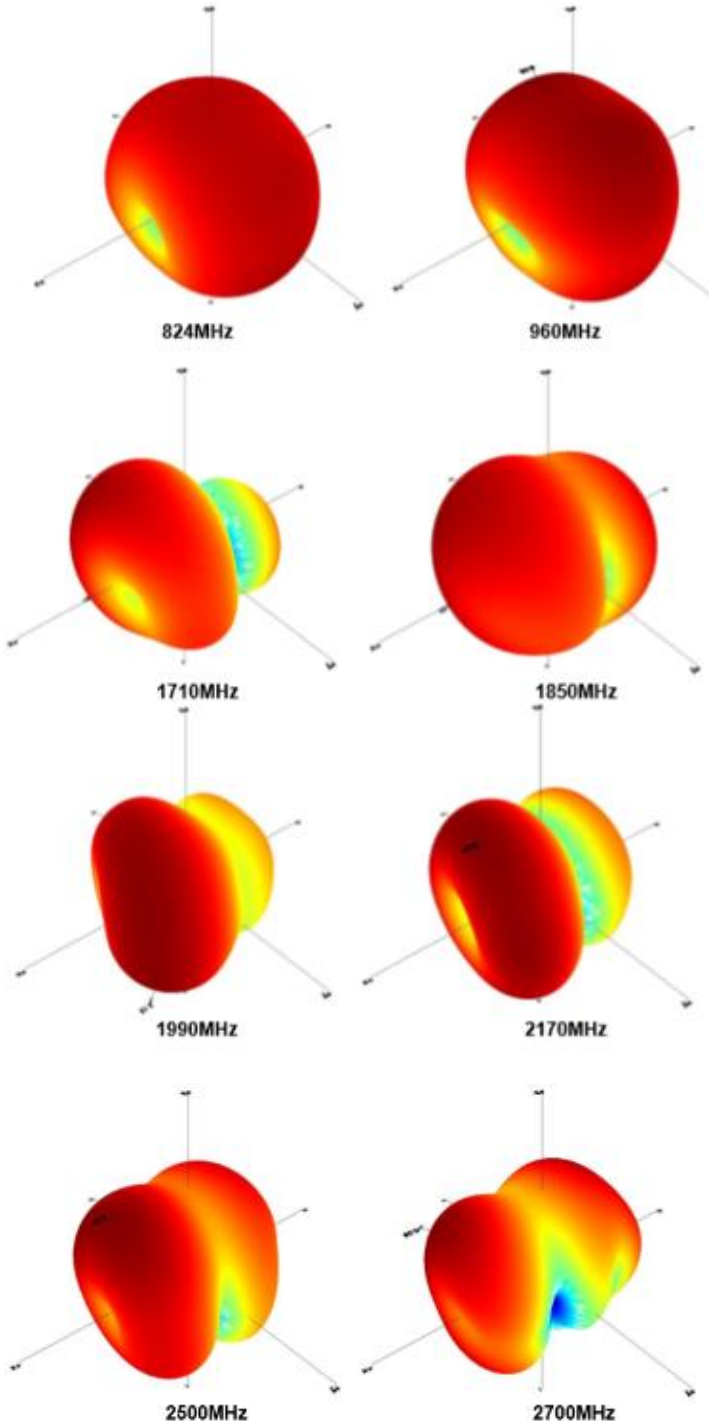
ACR3705LZ

Request Samples | Check Inventory

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

Test measurement – 3D Radiation Pattern





ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS ISO9001-2015 CERTIFIED

LTE Chip Antenna - Automotive Qualified

ACR3705LZ

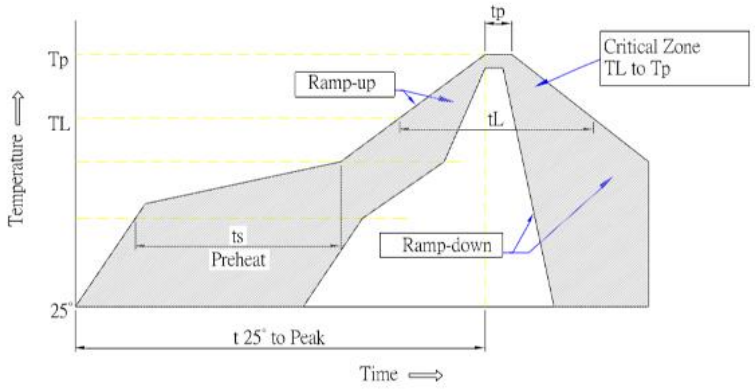
Request Samples | Check Inventory

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

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 (Tsmax to TP)	3°C /second(max)	3°C /second(max)
Preheat	-Temperature Min (TSmin) -Temperature Max (TSmax) -Time (Tsmin to Tsmax)	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.



Temperatures profile

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.

LTE Chip Antenna - Automotive Qualified

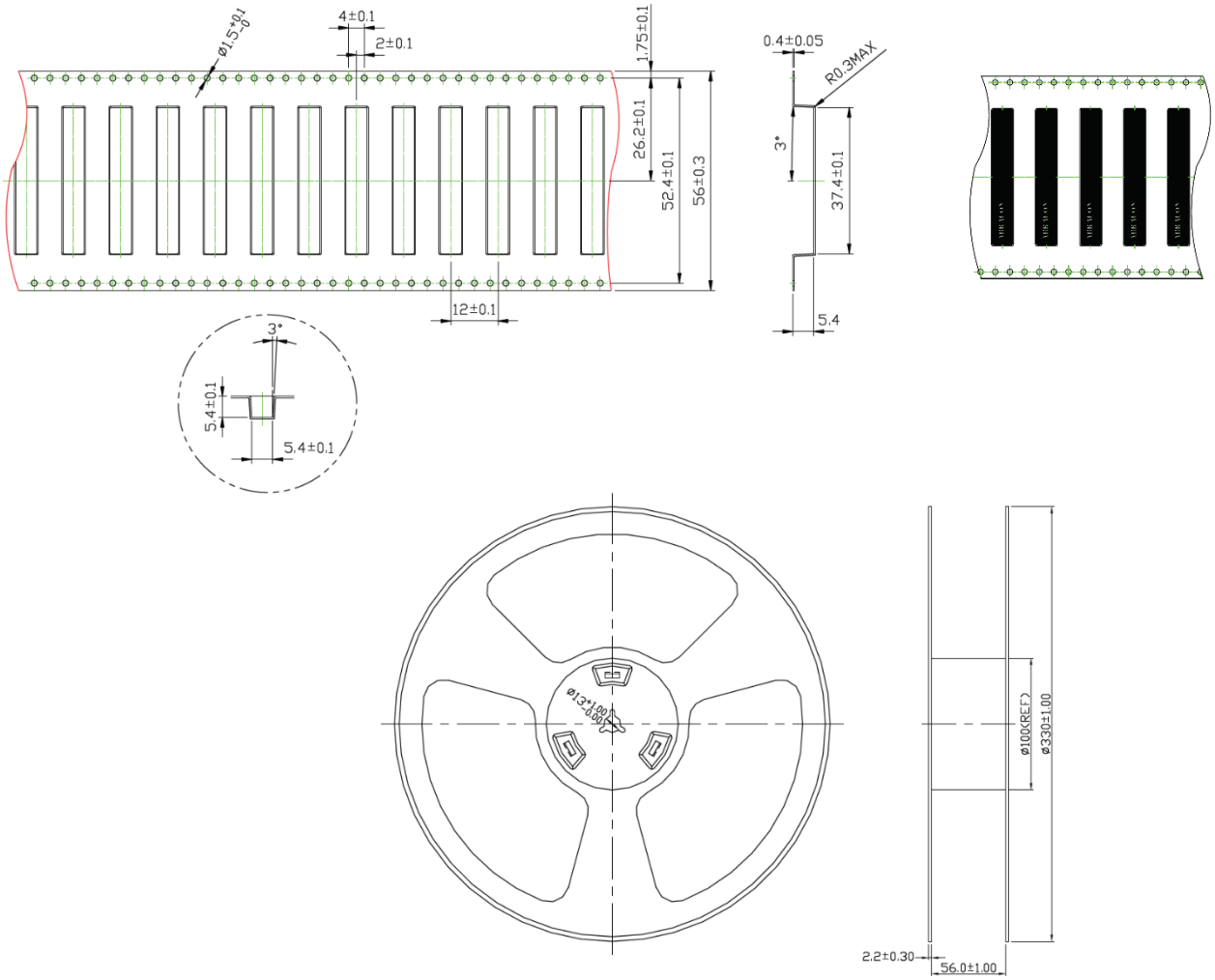
ACR3705LZ

Request Samples | Check Inventory

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

Packaging Information

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



Unit : mm

ABRACON

5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sales, please visit:
www.abracon.com

REVISED: 08-21-24

ABRACON IS
ISO9001-2015
CERTIFIED