

Ceramic Chip Antenna 2.4GHz ISM Band

multicomp PRO

**RoHS
Compliant**

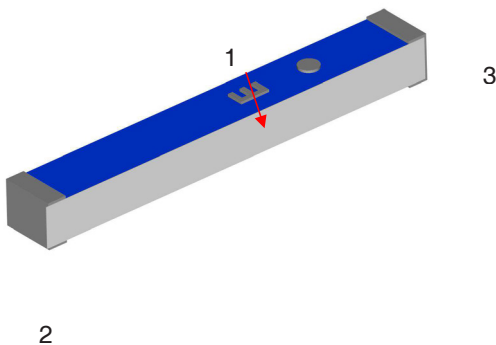
Features

- Surface Mounted Devices with a small dimension of 8mm x 1mm x 0.8mm meet future miniaturization trend.
- Low profile for thin type terminal
- High Stability in Temperature / Humidity Change
- High mechanical strength

Applications

- Bluetooth
- Wireless LAN
- HormRF
- ISM band 2.4GHz wireless applications

Construction



PIN	Connection
1	Identification Mark
2	Soldering terminal
3	Feeding

Figure	Symbol	Dimension (mm)
	L	8 ± 0.2
	W	1.05 ± 0.2
	T	0.8 ± 0.1
	A	0.3 ± 0.2

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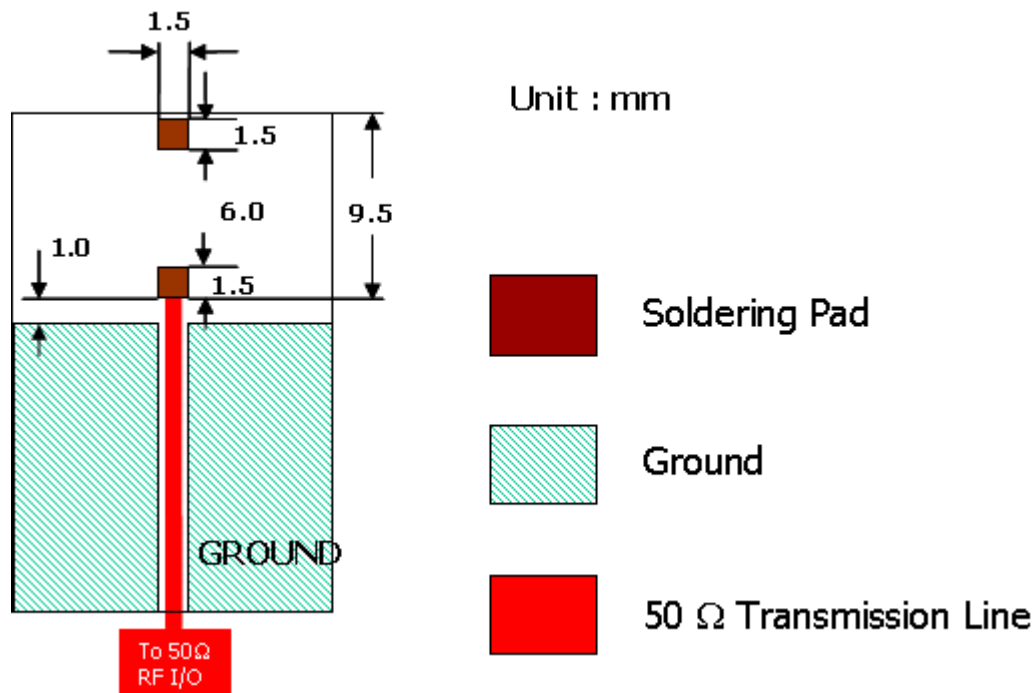
Electrical Characteristics

MP006295	Specification
Working Frequency Range	2.4 GHz to 2.5GHz
Gain	2 dBi (Typical)
VSWR	2 max.
Polarization	Linear
Azimuth Beamwidth	Omni-directional
Impedance	50Ω
Rated Power (max.)	3 Watts
Maximum Input Power	5 Watts for 5 minutes
Operation Temperature	-40°C to +85°C

Remark: The specification is defined based on the test board dimension as in below

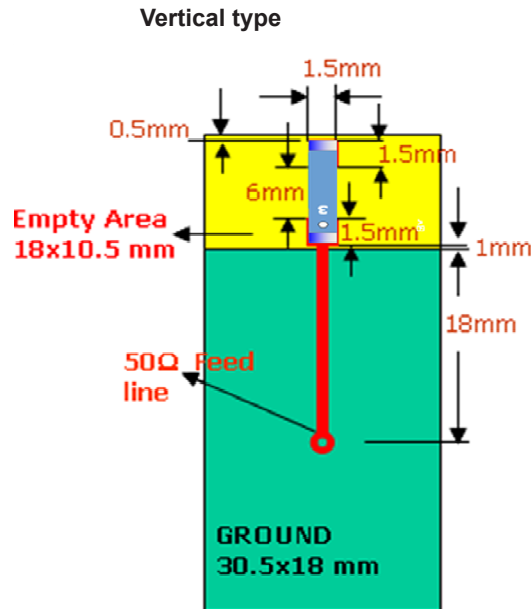
Solder Land Pattern Design

Figure (Vertical type)



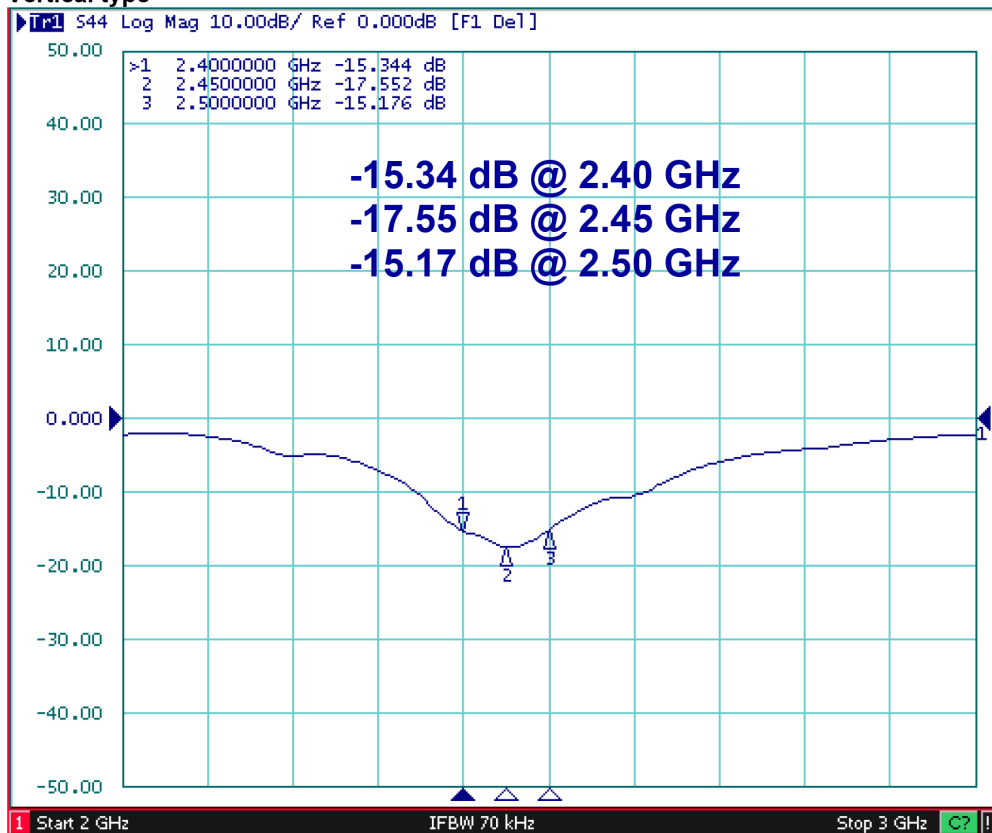
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Antenna on Test Board (FR4 Thickness 0.8mm)



Antenna S11 on Test Board

Vertical type

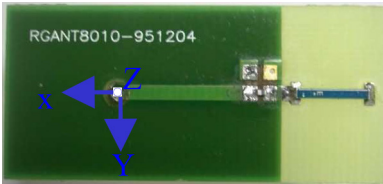


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Radiation Pattern (Vertical type)

Radiation Pattern and Gain were dependent on measurement board design.
 The specification of antenna was measured based on the PCB size and installation position as shown in the below figure Test Board



	Vertical	Horizontal
Y - Z Plane Average Gain= 1.136 dBi	<p>Peak Gain = 3.25 dBi Average Gain = 0.44 dBi</p>	<p>Peak Gain= -0.06 dBi Average Gain=-7.16 dBi</p>
X - Z Plane Average Gain= -1.750dBi	<p>Peak Gain= -2.68 dBi Average Gain= -9.30dBi</p>	<p>Peak Gain= 3.12 dBi Average Gain= -2.59 dBi</p>
X - Y Plane Average Gain= -2.322 dBi	<p>Peak Gain= -2.43 dBi Average Gain= -7.10dBi</p>	<p>Peak Gain= 0.96 dBi Average Gain= -4.08 dBi</p>

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Reliability Test

Test item	Test condition / Test method	Specification
Solderability JIS C 0050-4.6 JESD22-B102D	*Solder bath temperature : 235 ± 5°C *Immersion time : 2 ± 0.5 sec Solder : Sn3Ag0.5Cu for lead-free	At least 95% of a surface of each terminal electrode must be covered by fresh solder.
Leaching (Resistance to dissolution of metallization) IEC 60068-2-58	*Solder bath temperature : 260 ± 5°C *Leaching immersion time : 30 ± 0.5 sec Solder : SN63A	Loss of metallization on the edges of each electrode shall not exceed 25%.
Resistance to soldering heat JIS C 0050-5.4	*Preheating temperature : 120°C to 150°C, 1 minute. *Solder temperature : 270±5°C *Immersion time : 10±1 sec Solder : Sn3Ag0.5Cu for lead-free Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C. Loss of metallization on the edges of each electrode shall not exceed 25%.
Drop Test JIS C 0044 Customer's specification.	*Height : 75 cm *Test Surface : Rigid surface of concrete or steel. *Times : 6 surfaces for each units : 2 times for each side.	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.
Vibration JIS C 0040	*Frequency : 10Hz~55Hz~10Hz(1min) *Total amplitude : 1.5mm *Test times : 6hrs.(Two hrs each in three mutually perpendicular directions)	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.
Adhesive Strength of Termination JIS C 0051- 7.4.3	*Pressurizing force : 5N(≤0603) : 10N(>0603) *Test time : 10±1 sec	No remarkable damage or removal of the termination.
Bending test JIS C 0051- 7.4.1	The middle part of substrate shall be pressurized by means of the pressurizing rod at a rate of about 1 mm/s per second until the deflection becomes 1mm/s and then pressure shall be maintained for 5±1 sec. Measurement to be made after keeping at room temperature for 24±2 hours	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.
Temperature cycle JIS C 0025	1. 30±3 minutes at -40°C±3°C, 2. 10~15 minutes at room temperature, 3. 30±3 minutes at +85°C±3°C, 4. 10~15 minutes at room temperature, Total 100 continuous cycles Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.
High temperature JIS C 0021	*Temperature : 85°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.

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Test item	Test condition / Test method	Specification
Humidity (steady conditions) JIS C 0022	*Humidity : 90% to 95% R.H. *Temperature : 40±2°C *Time : 1000+24/-0 hrs. Measurement to be made after keeping at room temperature for 24±2 hrs 500hrs measuring the first data then 1000hrs data	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.
Low temperature JIS C 0020	*Temperature : -40°C±2°C *Test duration : 1000+24/-0 hours Measurement to be made after keeping at room temperature for 24±2 hrs	No mechanical damage. Electrical specification shall satisfy the descriptions in electrical characteristics under the operational temperature range within -40°C to 85°C.

Soldering Condition

Typical examples of soldering processes that provide reliable joints without any damage are given in Fig 2

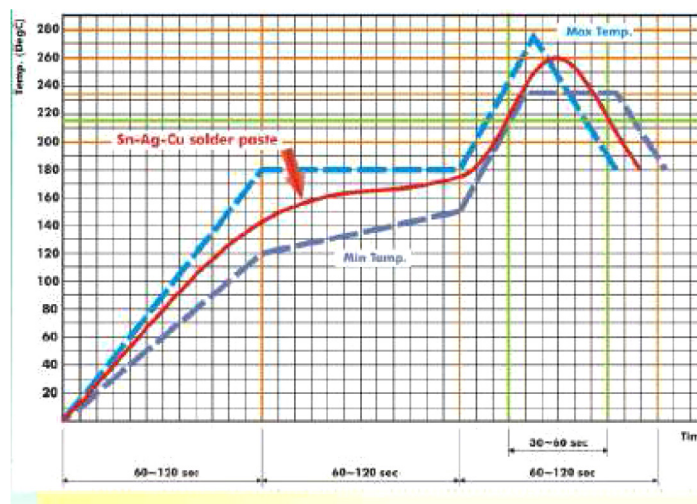


Fig 2. Infrared soldering profile

Part Number Table

Description	Part Number
Chip Antenna, 2.4GHz ISM Band, 8mm × 1mm	MP006295

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