

2.4GHz Chip Antenna(FA094)

1. Explanation of Product Number

| | | | | | | | | | | | | | | |
|---|---|-----|---|-----|-----|-----|-----|-----|---|---|---|---|---|---|
| F | J | 1 | 3 | L | P | F | A | 0 | 0 | F | A | 0 | 9 | 4 |
| | | (1) | | (2) | (3) | (4) | (5) | (6) | | | | | | |



Product Code:

(1) Dimensions:

13: 3.2x1.6x0.4(mm)

(2) Polarization:

L: Linear Polarization

(3) Product Categories:

PF: Polymer Substrate

(4) Working Frequency:

A: 2400~2500MHz

(5) Applications:

00: WiFi IEEE802.11 b/g / Bluetooth / ZigBee

(6) Antenna Series:

FA094: serial number(loop antenna)

Tolerances (Unless otherwise specified)

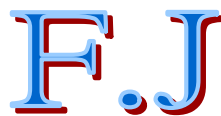
X : \pm X.X : \pm X.XX : \pm

Angle : \pm Hole Dia. : \pm

Scale : Unit : mm

Prepared By : Frank Checked By : C.H

Designed By : H.Sin Approved By : D.G



東莞市方久電子科技有限公司

FANGJIU ELECTRIC TECHNOLOGY CO.LTD

Website:www.fj-dg.com

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2. Features

- *Stable and reliable in performances
- *Low profile, compact size
- *RoHS compliance
- *Low temperature coefficient of frequency
- *SMD type

3. Applications

- *Bluetooth earphone systems
- *Hand-held devices when Bluetooth/WiFi functions are needed, e.g., Smart phone.
- *IEEE802.11 b/g/n
- *ZigBee
- *Wireless PCMCIA cards or USB dongle

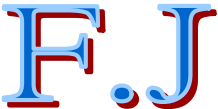
4. Description

FANGJIU's chip antenna series are specially designed for Bluetooth/WiFi applications. Based on FANGJIU's proprietary design and processes, this chip antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

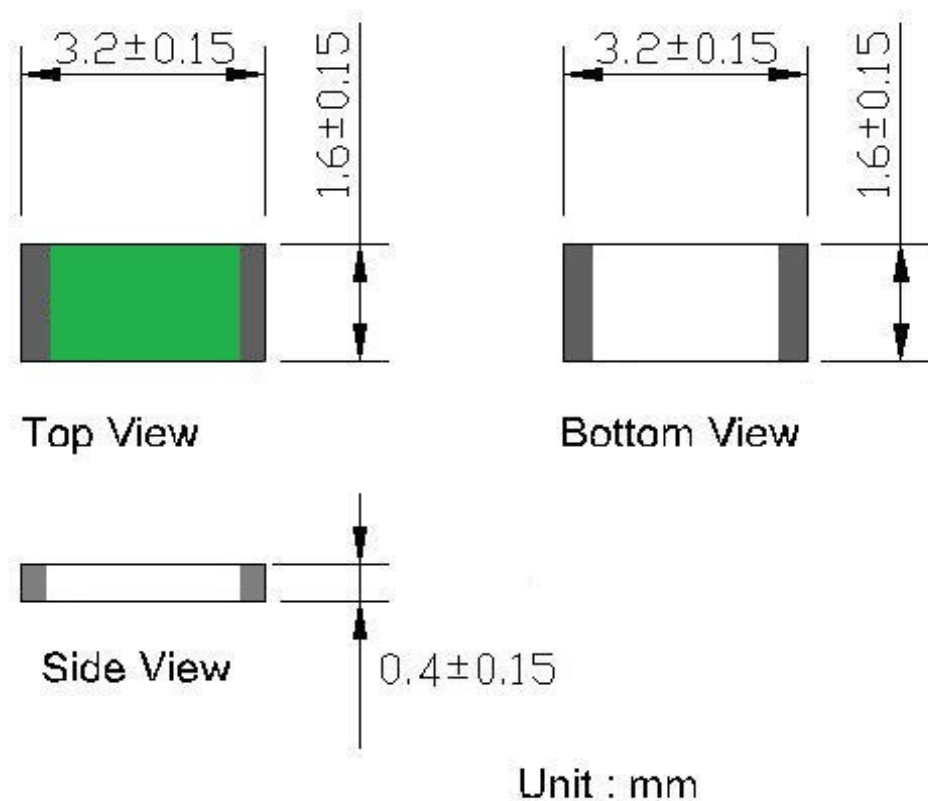
5. Electrical Specifications

| Characteristics | | Specifications | Unit |
|--------------------------------------|------------|----------------------------------|----------|
| Antenna Dimensions | | 3.2x1.6x0.4 | mm |
| Ground Plane | | 85x45 | mm |
| Center Frequency | | 2442 | MHz |
| Bandwidth (under -10dB return loss) | | 100 min. | MHz |
| VSWR | | 2 max. | |
| Impedance | | 50 | Ω |
| Polarization | | Linear Polarization | |
| Gain | Peak | 2.6 (typical) | dBi |
| | Efficiency | 85 (typical) | % |
| Temperature Coefficient of Frequency | | 0 \pm 20 max (@ -40°C~85°C) | ppm/°C |

*Center frequency will be offset to working frequency according to the conditions of user's ground plane and radome.

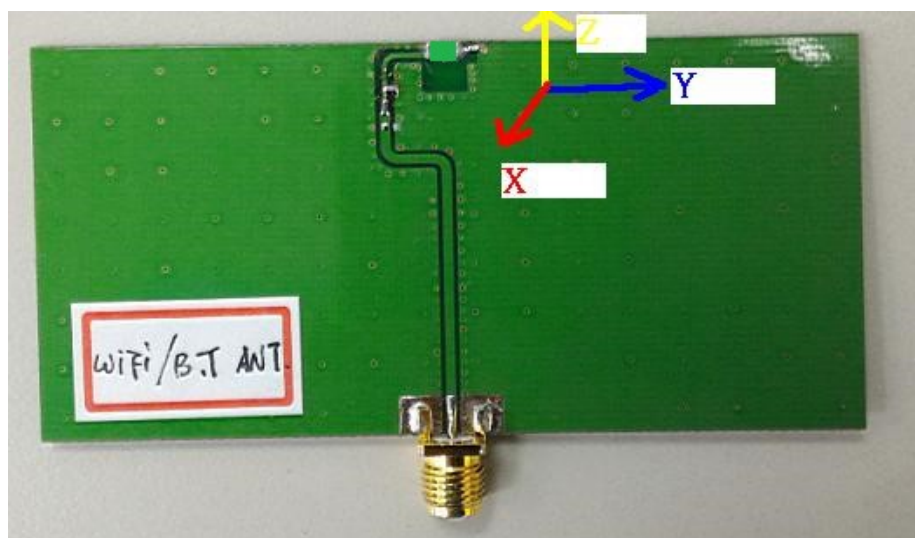
| | | | |
|---|-------------------|---|------------------|
| Tolerances (Unless otherwise specified) X : \pm X.X : \pm X.XX : \pm Angle : \pm Hole Dia. : \pm | |  东莞市方久电子科技有限公司 FANGJIU ELECTRIC TECHNOLOGY CO.LTD Website:www.fj-dg.com | |
| Scale : | Unit : mm | THIS SPECIFICATION IS THE PROPERTY OF FANGJIU ELECTRIC TECHNOLOGY CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION | |
| Prepared By : Frank | Checked By : C.H | | |
| Designed By : HSin | Approved By : D.G | | |
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6. Antenna Dimensions



7. Measurement Results:

7-1. 3D Gain Pattern



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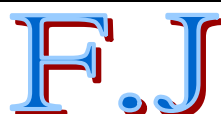
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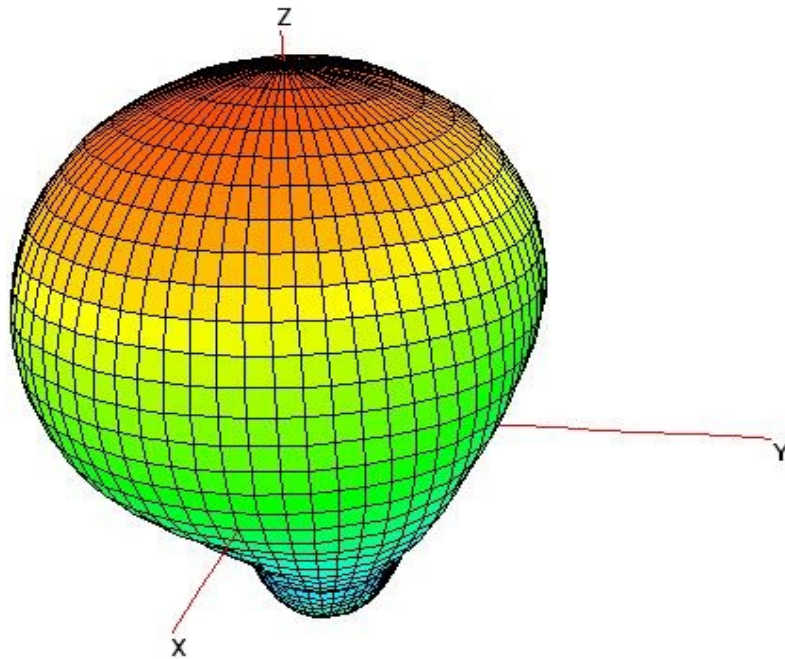
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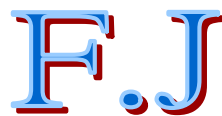
7-2. Efficiency Table

| Frequency(GHz) | 2400MHz | 2421MHz | 2442MHz | 2471MHz | 2500MHz |
|-------------------|----------|---------|----------|----------|----------|
| Average Gain(dBi) | -1.36 | -0.86 | -0.70 | -1.02 | -1.42 |
| Efficiency(%) | 73 | 82 | 85 | 79 | 72 |
| Peak Gain(dBi) | 1.71 dBi | 2.21 | 2.60 dBi | 2.10 dBi | 1.42 dBi |

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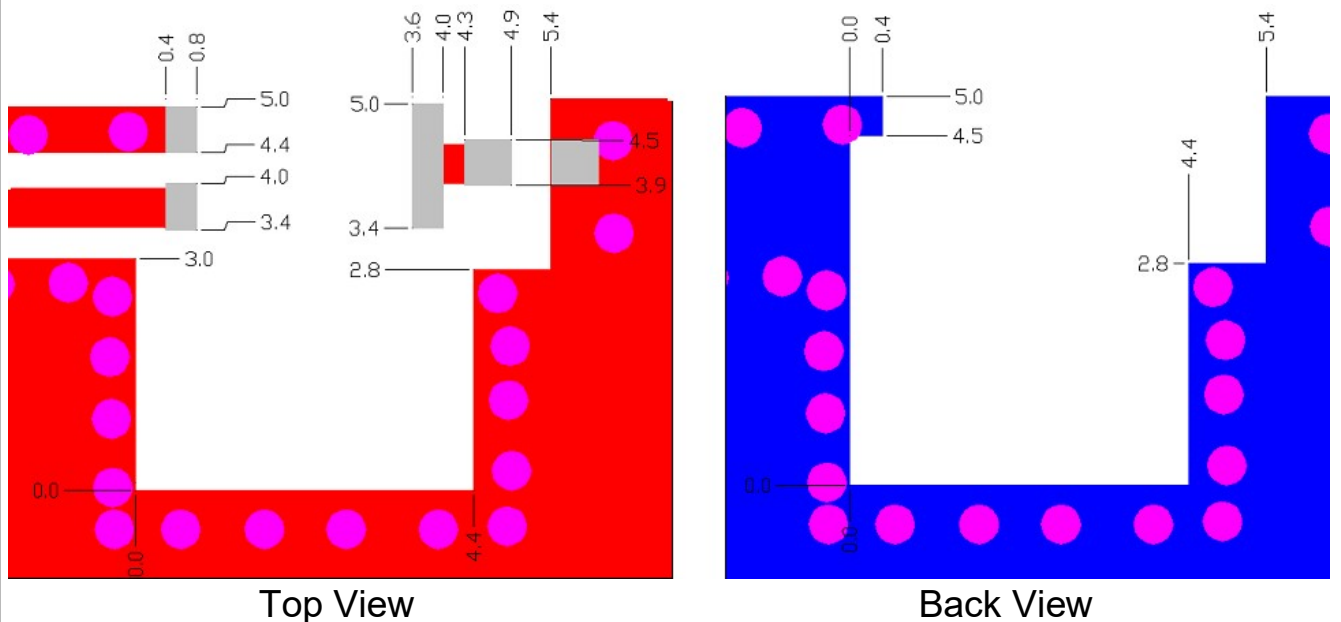
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8. Layout Guide:

a. Solder Land Pattern:

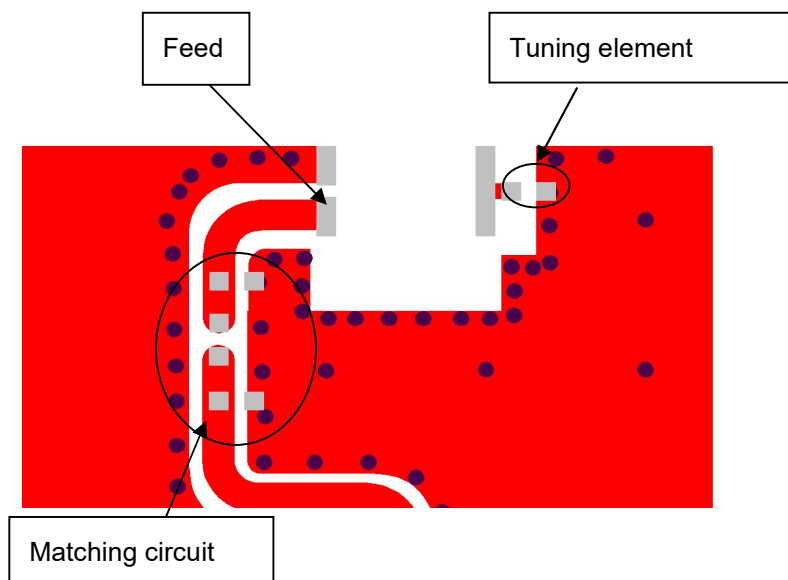
Land pattern for soldering (gray marking areas) is as shown below. Depending on Customer's requirement, matching circuit as shown below is also recommended .



Unit : mm

9. Frequency tuning:

a. Chip antenna tuning scenario :



Tolerances (Unless otherwise specified)

X : \pm X.X : \pm X.XX : \pm

Angle : \pm

Hole Dia. : \pm



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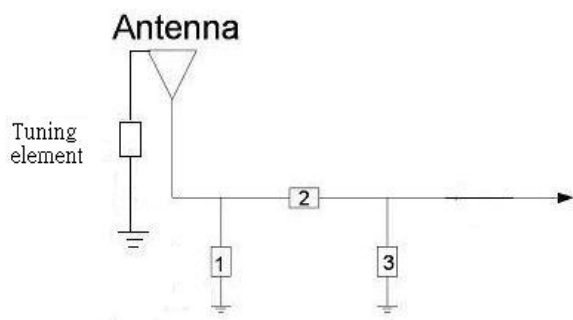
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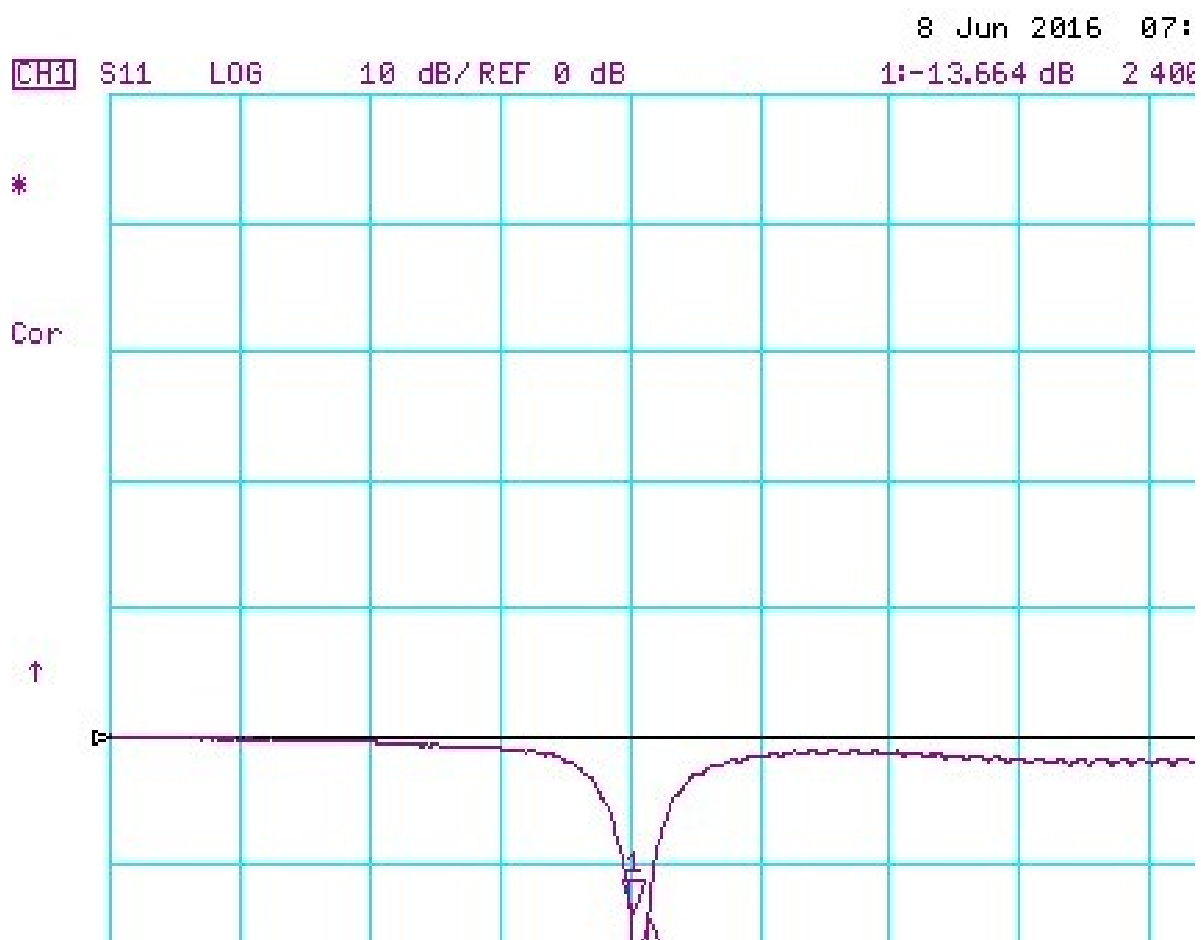
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b. Matching circuit : (Center frequency is about 2442MHz on 85x45(mm) ground plane)



| System Matching Circuit Component | | |
|-----------------------------------|-------------|---------------|
| Location | Description | Vendor |
| 1 | 0.3pF | Darfon (0402) |
| 2 | 0.56pF | Darfon (0402) |
| 3 | N/A | (0402) |
| Tuning element | 1.5pF | Darfon(0402) |

Return Loss(S_{11})



Tolerances (Unless otherwise specified)

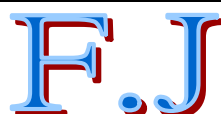
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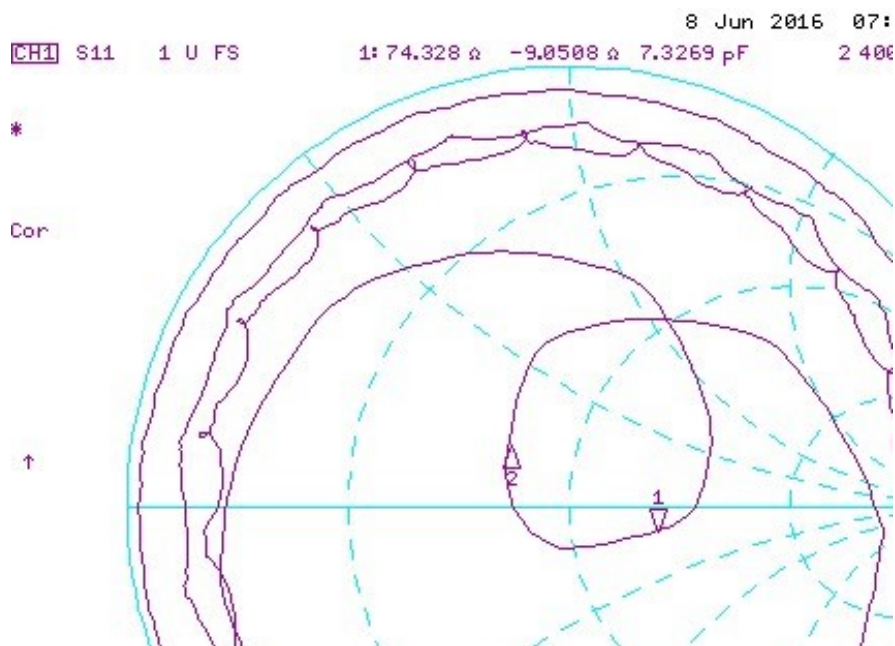
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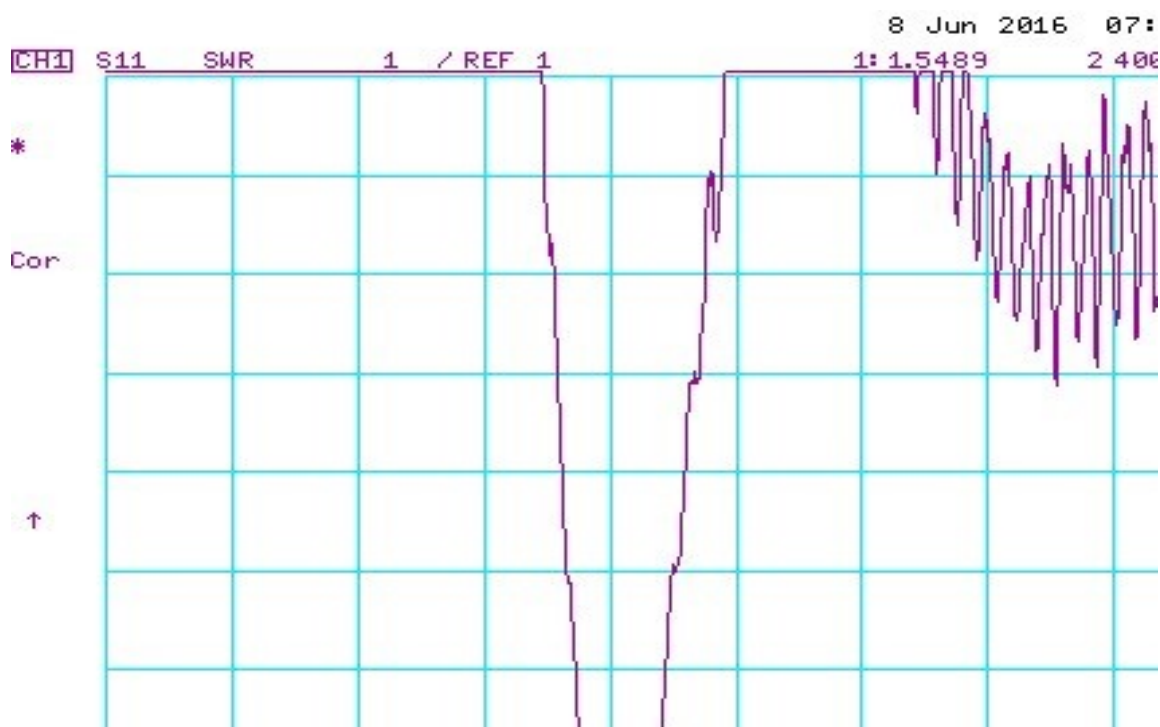
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Smith chart(S11)



VSWR(S11)



Tolerances (Unless otherwise specified)

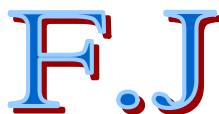
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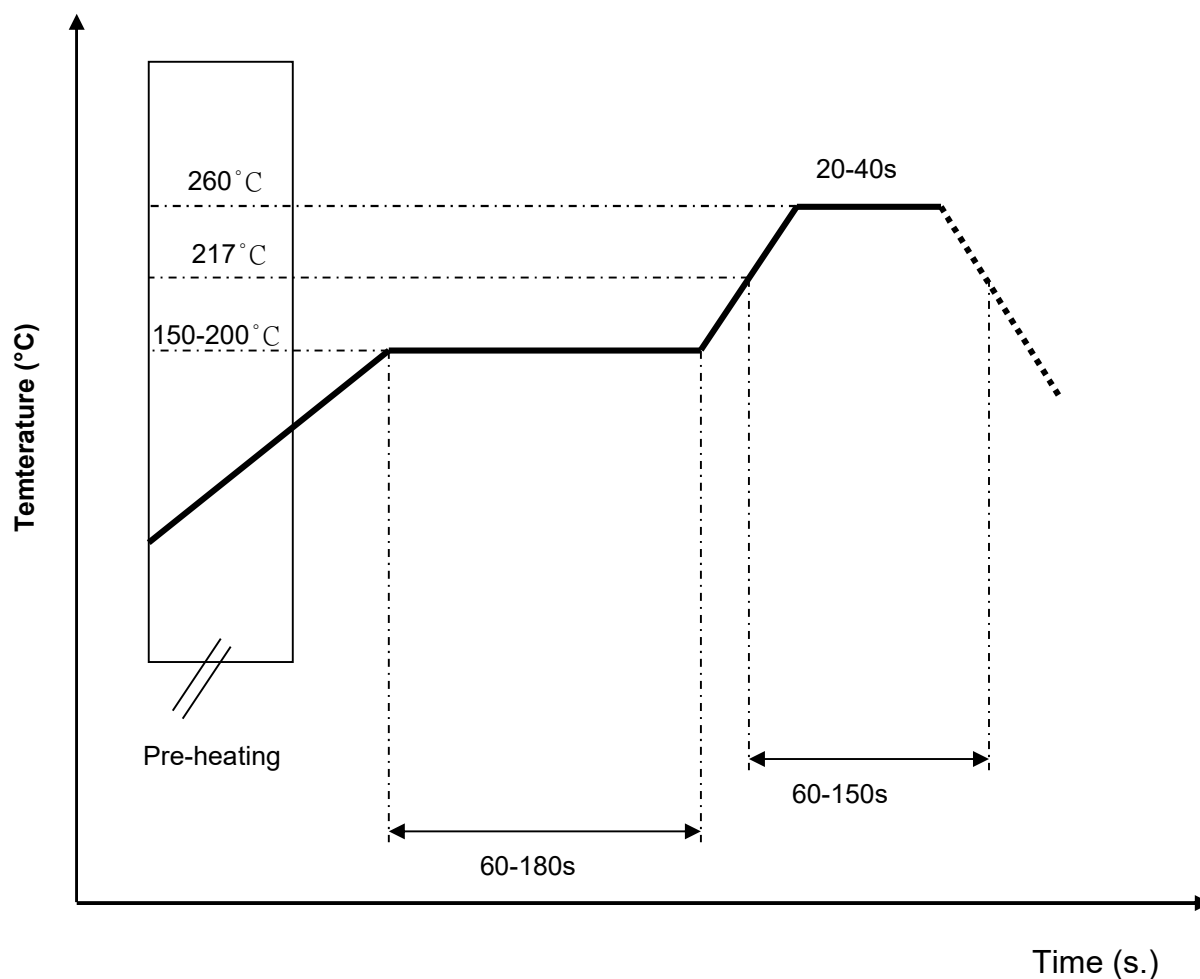
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10. Soldering Conditions:

Typical Soldering Profile for Lead-free Process



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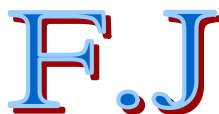
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