

ISM Band 434/315MHz Chip Antenna

1. Explanation of Product Number

| | | | | | | | | | | | | | | |
|---|---|-----|---|-----|-----|---|-----|-----|---|-----|---|---|---|---|
| R | A | 0 | 1 | L | P | F | B | 0 | 1 | R | A | 0 | 0 | 1 |
| | | (1) | | (2) | (3) | | (4) | (5) | | (6) | | | | |



✘ The direction of white dot forwards to feed point

Product Code:

(1) Dimensions:

01: 16x5.1x0.8(mm)

(2) Polarization:

L: linear polarization

(3) Product categories:

PF: polymer substrate

(4) Working frequency:


B: 433.925/315MHz

(5) Applications::

01: ISM band system

(6) Antenna series:

RA001: serial number

| | | | | |
|---|---------------------|---|------------------------|------------------|
| Tolerances (Unless otherwise specified) X : ± 1 X.X : ± 0.1 X.XX : ± 0.01 Angle : ± Hole Dia. : ± | |  RIFO Technologies Corporation Website: www.rifo.com.tw | | |
| Scale : | Unit : mm | THIS SPECIFICATION IS THE PROPERTY OF RIFO TECHNOLOGIES CORPORATION AND SHALL NOT BE REPRODUCED OR USED IN ALL CIRCUMSTANCES WITHOUT WRITTEN PERMISSION | | |
| Prepared By : Helen | Checked By : Jeff | | | |
| Designed By : Jason | Approved By : Allen | | | |
| TITLE : ISM Band 434/315MHz Chip Antenna | | DOCUMENT NO. | RA01LPFB01RA001 | REV. A |

2. Features

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

3. Applications

- *ISM Band system

4. Description

RIFO's chip antenna series are specially designed for 433.925/315MHz band application. Based on RIFO's proprietary designs and processes, this chip antenna has excellent stability and sensitivity to consistently provide high signal reception efficiency.

5. Electrical Specifications

| No | Item | SPEC. | Unit |
|----|---------------------------|------------------|----------|
| 1 | Dimensions (LxWxH) | 16*5.1*0.8 | mm |
| 2 | Operating Frequency Range | 433.925/315 | MHz |
| 3 | VSWR | 2 max. | |
| 4 | Impedance | 50 | Ω |
| 5 | Polarization | Linear | |
| 6 | Peak gain | 0.5 | dBi |
| 7 | Bandwidth(typ.) | 10 | MHz |
| 8 | Pattern | Omni-directional | |

*The antenna performance is measured on 93*55mm test Board.

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

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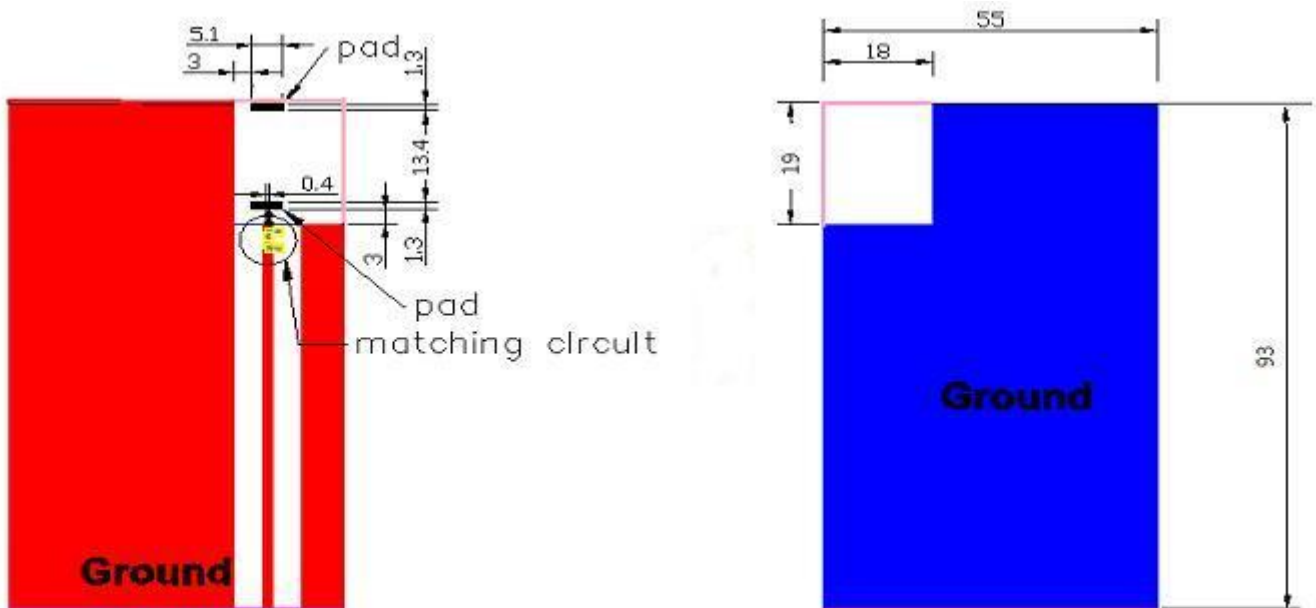
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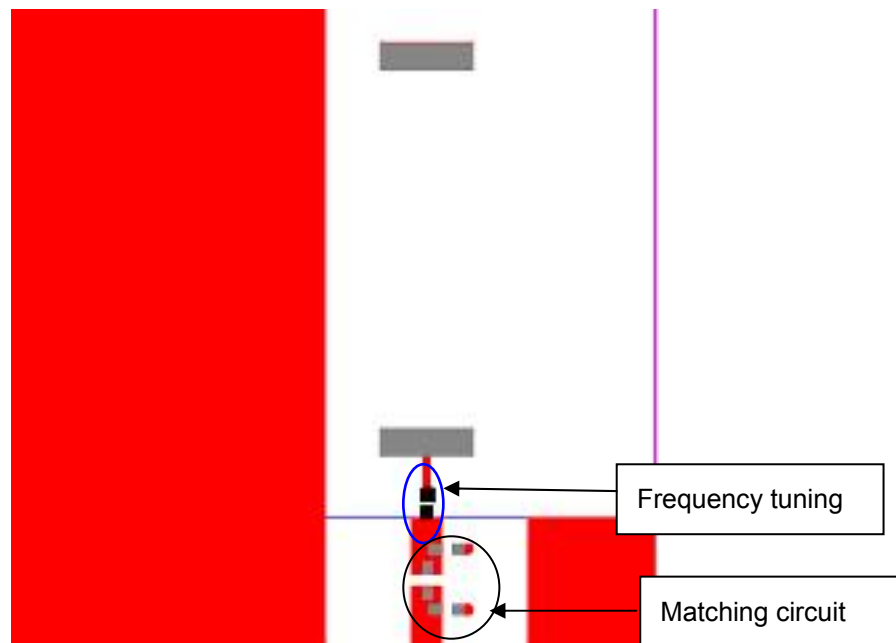
6. Layout Guide

6.1 Test Board Dimension



※ Test Board size is 93*55mm

6.2 PCB Design Guide



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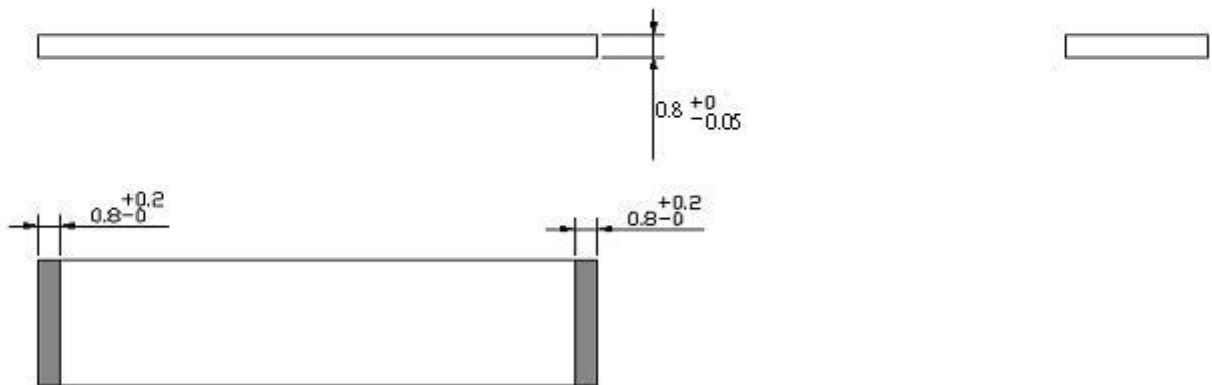
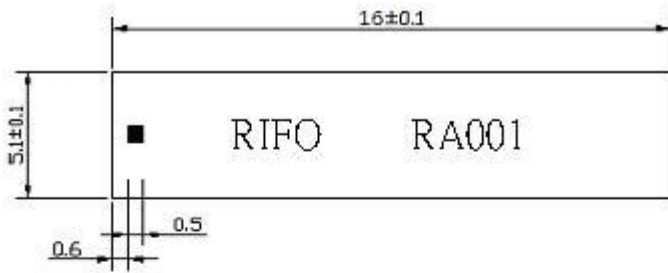
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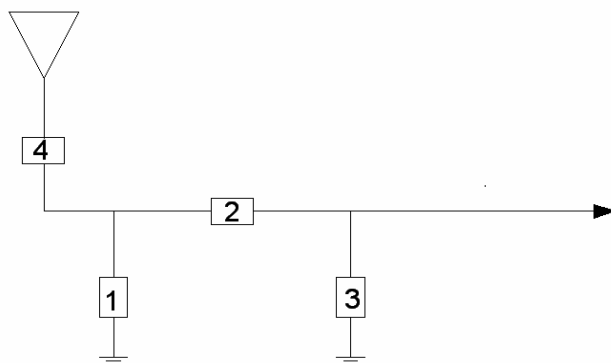
7. Antenna Dimensions (unit: mm)



8. Measurement Result

8.1 Matching circuit for 433.925MHz

Antenna



| System Matching Circuit Component | | |
|-----------------------------------|-------------|---------------|
| Location | Description | Vendor |
| 1 | 22nH | DARFON(0402)- |
| 2 | 3.3pF | YAGEO(0402) |
| 3 | 3.9pF | YAGEO(0402) |
| 4 | 0 ohm | (0402) |

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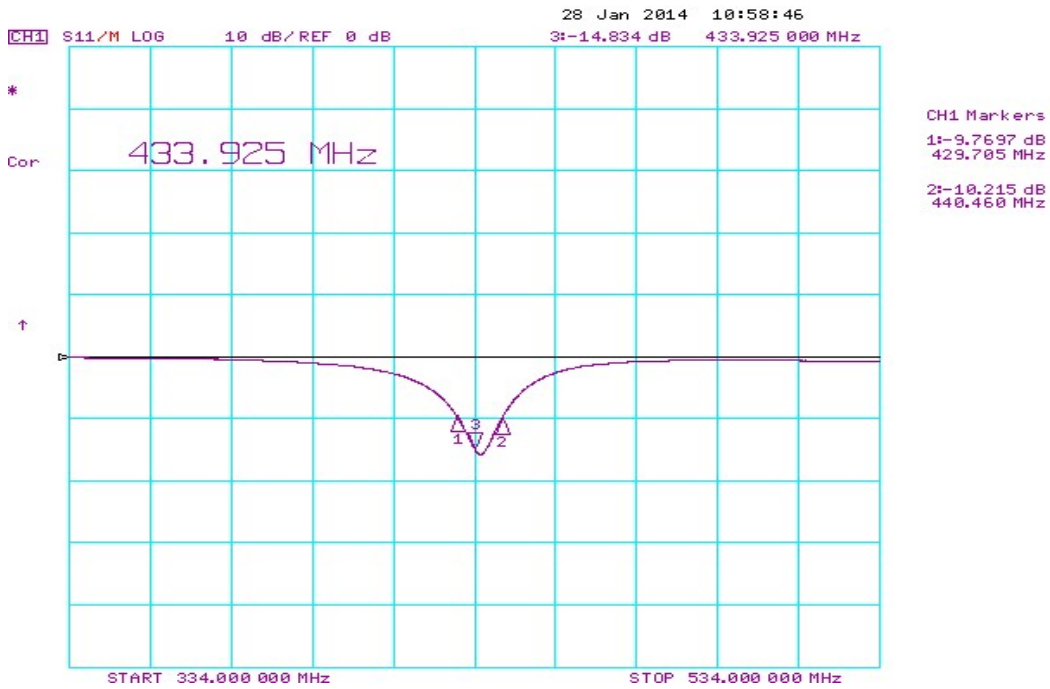
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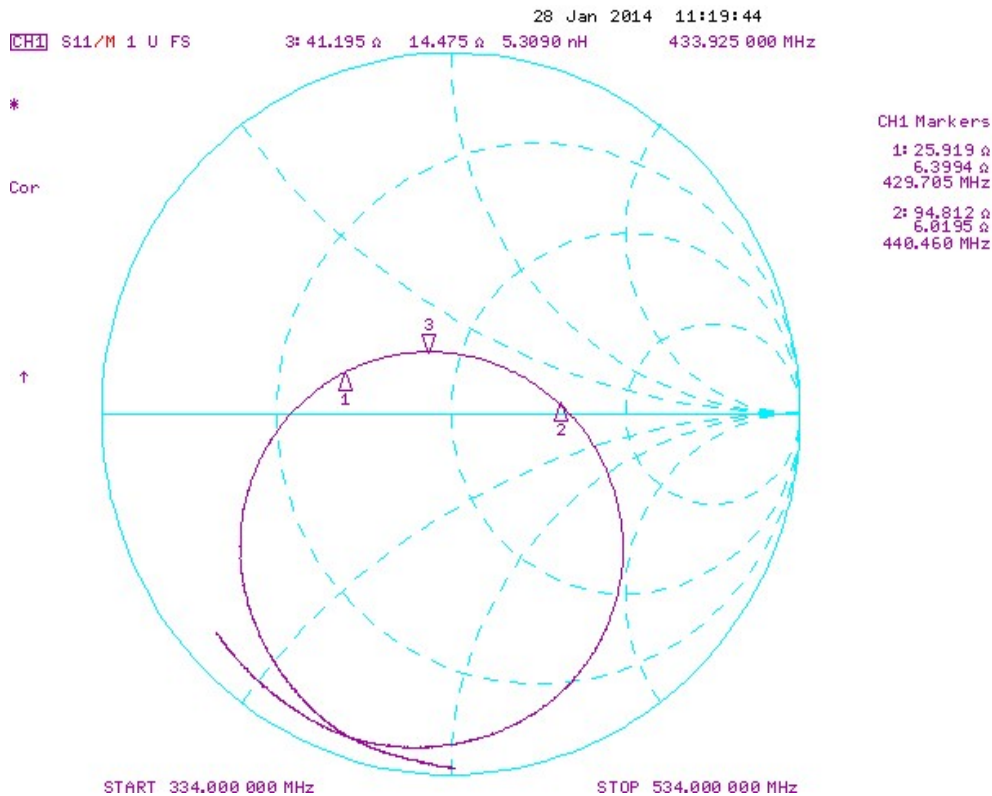
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(a) Return Loss (S11 / VSWR)



(b) Smith Chart Loss (S11 / VSWR)



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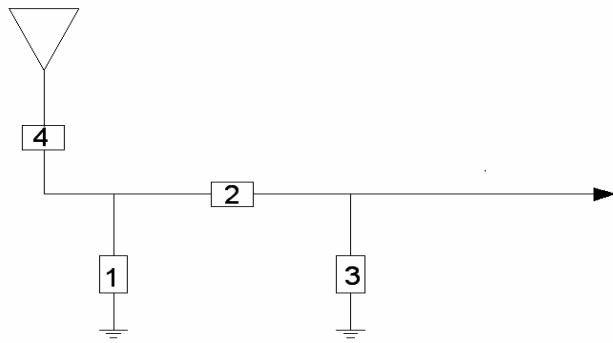
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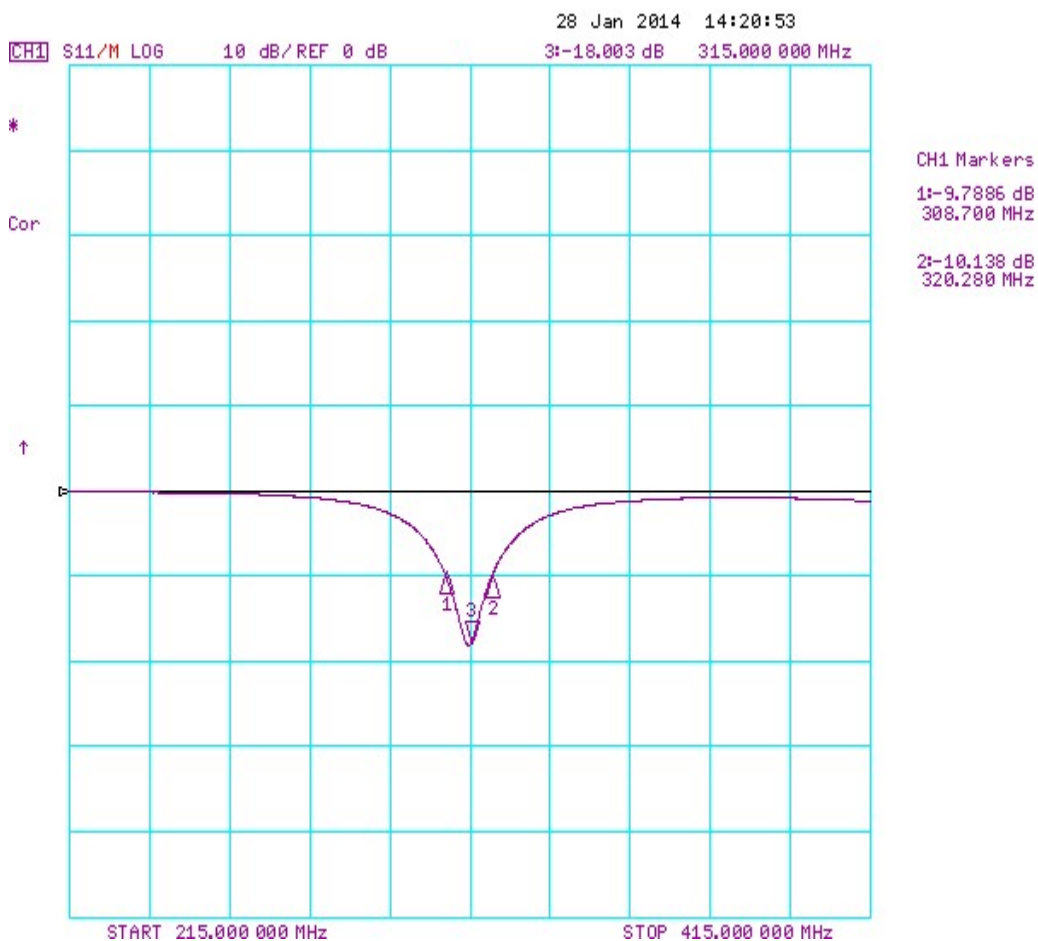
8.2 Matching circuit for 315MHz

Antenna



| System Matching Circuit Component | | |
|-----------------------------------|-------------|---------------|
| Location | Description | Vendor |
| 1 | 47nH | DARFON(0402)- |
| 2 | 2.7pF | YAGEO (0402) |
| 3 | 1pF | YAGEO (0402) |
| 4 | 100nH | DARFON(0402) |

(a) Return Loss (S11 / VSWR)



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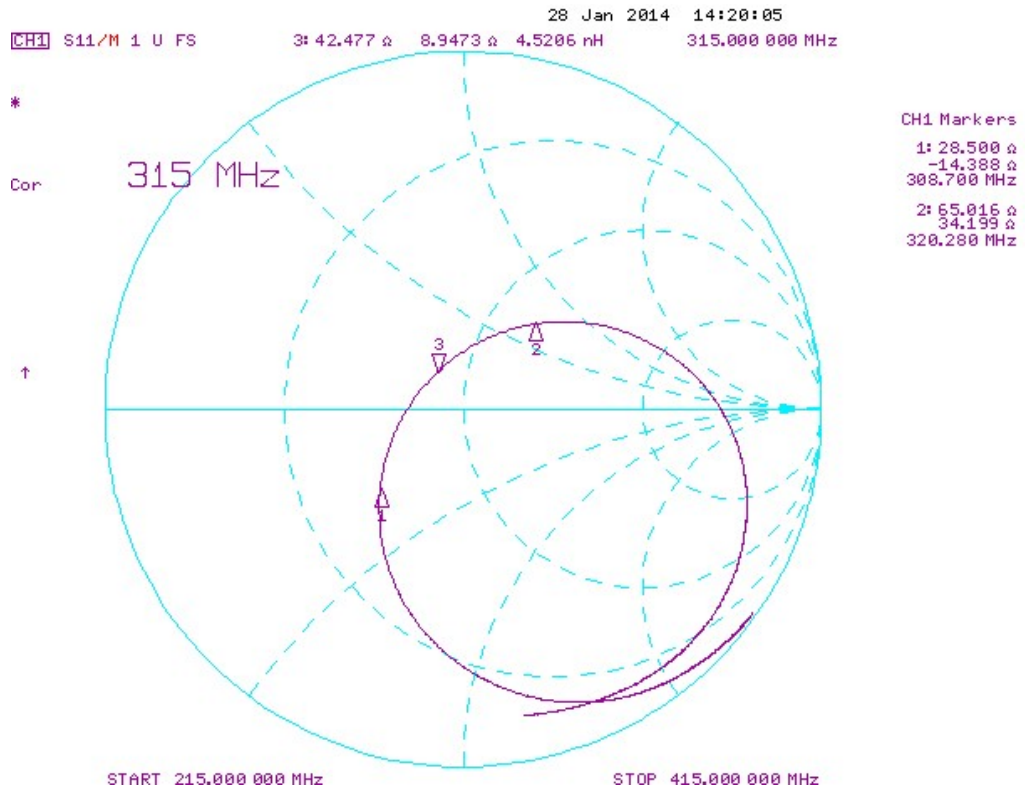
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(b) Smith Chart Loss (S11 / VSWR)



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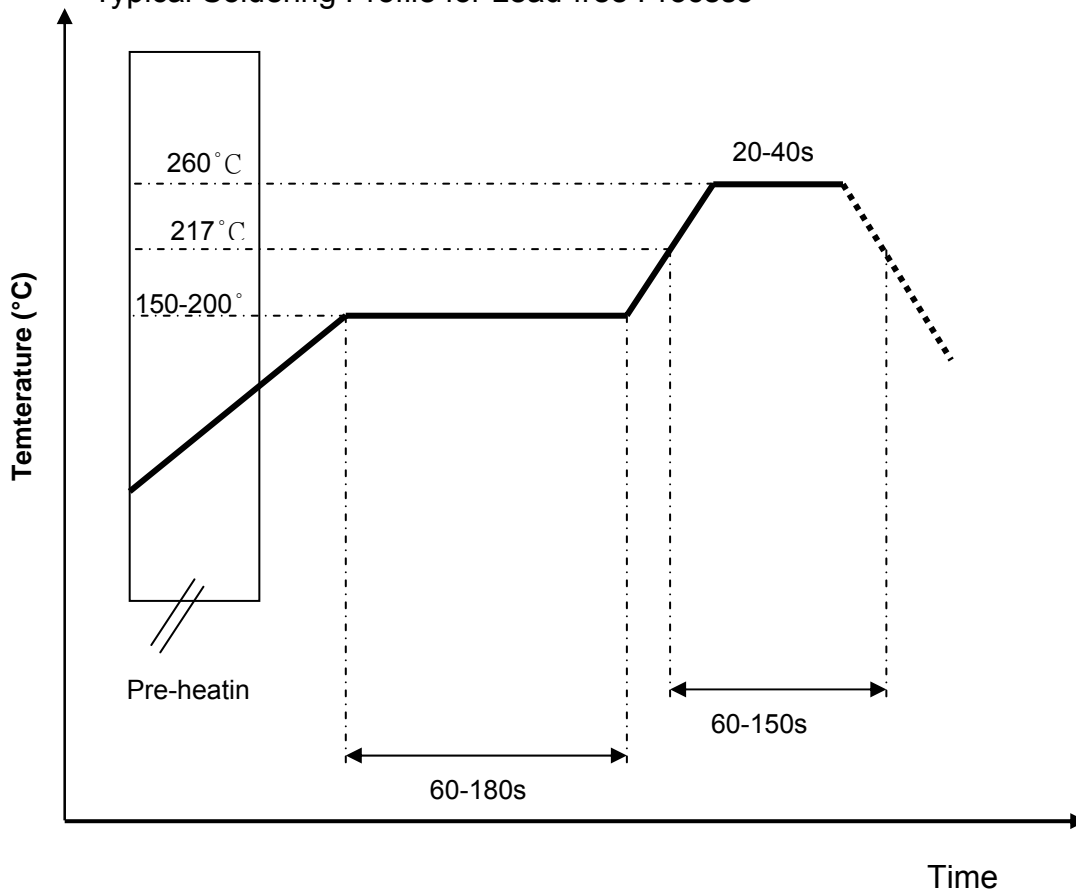
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9. Soldering Conditions:

Typical Soldering Profile for Lead-free Process



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