

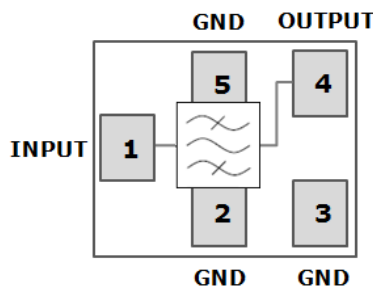
Description

RSFP2421E is a Wi-Fi bandedge filter, which is designed with Film Bulk Acoustic Resonator (FBAR) technology. The product can provide low insertion loss and steep skirt to enables coexistence of Wi-Fi and LTE signals within the same device or in close proximity to one another. The typical insertion loss in the pass band is less than 1.4dB. Typical rejection at the 2370-2390MHz is more than 44dB, at the 2483.5-2500MHz is more than 50dB.

For the chip package, the RSFP2421E uses advanced module packing techniques to achieve the industry standard 1.1x0.9x0.6mm footprint, include bumping and flip chip.

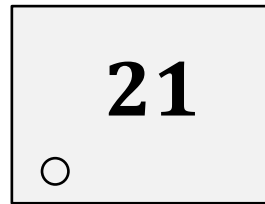
Functional Block Diagram

(Top Through view)

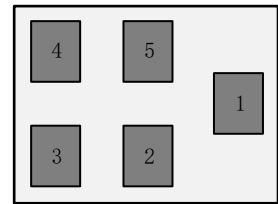


Pin Connection

| No. | Function |
|-------|----------|
| 1 | Input |
| 4 | Output |
| 2,3,5 | Ground |



Top View



Bottom View

Features

- For Wi-Fi - LTE coexistence application
- Plastic Chip Scale Package(CSP)
- Miniature Size: 1.1mm x 0.9 mm x 0.6 mm
- Fast Roll-off from Wi-Fi to near LTE Bands
- High Rejection at 2390 MHz, 2483.5 MHz, B38/B40/B7/B41.
- Low Temperature Coefficient of Frequency
- Storage temperature range: -40 to +150 °C
- Performance over - 40 to + 95° C
- Excellent ESD protection ability: TBD
- Moisture Sensitivity : MSL3

Applications

- Wi-Fi bandpass filter enables the coexistence of (LTE/TD-LTE) & Wi-Fi
- ISM band applications such as Smart Meters
- Portable Hotspots and Mobile Routers

Environmental

- Full implement with RoHS compliant
- Lead Free (Pb free)



Electrical Specifications

| Parameter (Operation Temperature: -20~85°C) | Min ⁽³⁾ | Typ ⁽¹⁾ | Max ⁽²⁾ | Max ⁽³⁾ | Unit |
|---|--------------------|--------------------|--------------------|--------------------|------|
| Insertion Loss⁽⁴⁾ | | | | | |
| 2402.5 – 2421.5 MHz (WiFi Ch.1) | / | 1.4 | 1.7 | 2.0 | dB |
| 2407.5 – 2426.5 MHz (WiFi Ch.2) | / | 1.1 | 1.4 | 1.6 | dB |
| 2412.5 – 2461.5 MHz (WiFi Ch.3 - 9) | / | 0.9 | 1.2 | 1.2 | dB |
| 2447.5 – 2466.5 MHz (WiFi Ch.10) | / | 1.0 | 1.3 | 1.4 | dB |
| 2452.5 – 2471.5 MHz (WiFi Ch.11) | / | 1.2 | 1.5 | 1.8 | dB |
| Amplitude Variation | | | | | |
| 2402.5 – 2421.5 MHz (WiFi Ch.1) | / | 1.1 | 1.4 | 2.3 | dB |
| 2407.5 – 2426.5 MHz (WiFi Ch.2) | / | 0.8 | 1.1 | 1.3 | dB |
| 2412.5 – 2461.5 MHz (WiFi Ch.3 - 9) | / | 0.6 | 0.9 | 0.9 | dB |
| 2447.5 – 2466.5 MHz (WiFi Ch.10) | / | 0.5 | 0.8 | 0.9 | dB |
| 2452.5 – 2471.5 MHz (WiFi Ch.11) | / | 0.7 | 1.0 | 1.3 | dB |
| VSWR | | | | | |
| 2402.5 – 2471.5 MHz Input Port/S11 | / | 1.3 | 1.8 | 2.0 | / |
| 2402.5 – 2471.5 MHz Input Port/S22 | / | 1.3 | 1.8 | 2.0 | / |
| Absolute Attenuation⁽⁵⁾ | | | | | |
| 0 – 2300 MHz | 16 | 31 | / | / | dB |
| 2300 – 2370 MHz | 21 | 33 | / | / | dB |
| 2370 – 2390 MHz | 26 | 44 | / | / | dB |
| 2483.5 – 2500 MHz | 20 | 50 | / | / | dB |
| 2500 – 2520 MHz | 28 | 38 | / | / | dB |
| 2520 – 2570 MHz | 20 | 26 | / | / | dB |
| 2570 – 2620 MHz | 19 | 23 | / | / | dB |
| 2620 – 2690 MHz | 18 | 22 | / | / | dB |
| 4800 – 5000 MHz | 33 | 39 | / | / | dB |

Notes: Data is the integrated value of the linear s-parameter over indicated band

(1) Integrated value within band at 25 °C

(2) Max value within band at 25 °C

(3) Min/Max value within band at the specified temperature

(4) Integrated value of the linear s-parameter over a 19 MHz range in the indicated band at the specified temperature

(5) Integrated value of the linear s-parameter over 5 MHz range at the specified temperature

| Transmit Port to Antenna Port | | | | | |
|---|--------------------|--------------------|--------------------|--------------------|------|
| Parameter (Operation Temperature: -40~95°C) | Min ⁽³⁾ | Typ ⁽¹⁾ | Max ⁽²⁾ | Max ⁽³⁾ | Unit |
| Insertion Loss⁽⁴⁾ | | | | | |
| 2402.5 – 2421.5 MHz (WiFi Ch.1) | / | 1.4 | 1.7 | 2.1 | dB |
| 2407.5 – 2426.5 MHz (WiFi Ch.2) | / | 1.1 | 1.4 | 1.6 | dB |
| 2412.5 – 2461.5 MHz (WiFi Ch.3 - 9) | / | 0.9 | 1.2 | 1.2 | dB |
| 2447.5 – 2466.5 MHz (WiFi Ch.10) | / | 1.0 | 1.3 | 1.5 | dB |
| 2452.5 – 2471.5 MHz (WiFi Ch.11) | / | 1.2 | 1.5 | 1.9 | dB |
| Amplitude Variation | | | | | |
| 2402.5 – 2421.5 MHz (WiFi Ch.1) | / | 1.1 | 1.4 | 2.7 | dB |
| 2407.5 – 2426.5 MHz (WiFi Ch.2) | / | 0.8 | 1.1 | 1.3 | dB |
| 2412.5 – 2461.5 MHz (WiFi Ch.3 - 9) | / | 0.6 | 0.9 | 0.9 | dB |
| 2447.5 – 2466.5 MHz (WiFi Ch.10) | / | 0.5 | 0.8 | 0.9 | dB |
| 2452.5 – 2471.5 MHz (WiFi Ch.11) | / | 0.7 | 1.0 | 1.6 | dB |
| VSWR | | | | | |
| 2402.5 – 2471.5 MHz Input Port/S11 | / | 1.3 | 1.8 | 2.0 | / |
| 2402.5 – 2471.5 MHz Input Port/S22 | / | 1.3 | 1.8 | 2.0 | / |
| Absolute Attenuation⁽⁵⁾ | | | | | |
| 0 – 2300 MHz | 16 | 31 | / | / | dB |
| 2300 – 2370 MHz | 21 | 33 | / | / | dB |
| 2370 – 2390 MHz | 24 | 44 | / | / | dB |
| 2483.5 – 2500 MHz | 17 | 50 | / | / | dB |
| 2500 – 2520 MHz | 28 | 38 | / | / | dB |
| 2520 – 2570 MHz | 20 | 26 | / | / | dB |
| 2570 – 2620 MHz | 19 | 23 | / | / | dB |
| 2620 – 2690 MHz | 18 | 22 | / | / | dB |
| 4800 – 5000 MHz | 33 | 39 | / | / | dB |

Notes: Data is the integrated value of the linear s-parameter over indicated band

(6) Integrated value within band at 25 °C

(7) Max value within band at 25 °C

(8) Min/Max value within band at the specified temperature

(9) Integrated value of the linear s-parameter over a 19 MHz range in the indicated band at the specified temperature

(10) Integrated value of the linear s-parameter over 5 MHz range at the specified temperature

Absolute Maximum Ratings

| | | |
|----------------------------------|-----|-----|
| Max RF Signal, CW, 25 °C, 20msec | +39 | dBm |
|----------------------------------|-----|-----|

Minimum Lifetime Ratings

| | | |
|--|-----|-----|
| 20MHz Modulation Signal, 55 °C, 5000 hrs | +29 | dBm |
|--|-----|-----|

Typical Performance at Tc=25 °C

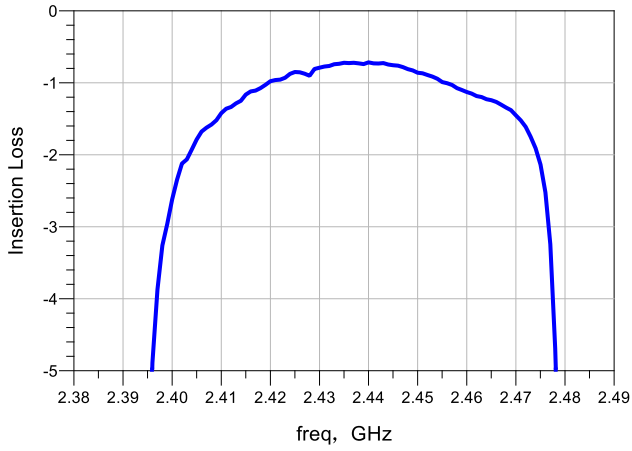


Figure.1 Passband Insertion Loss

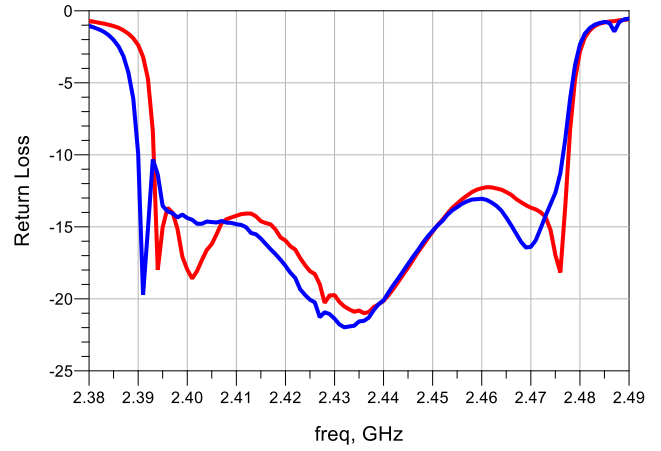


Figure.2 S11/S22 Return Loss

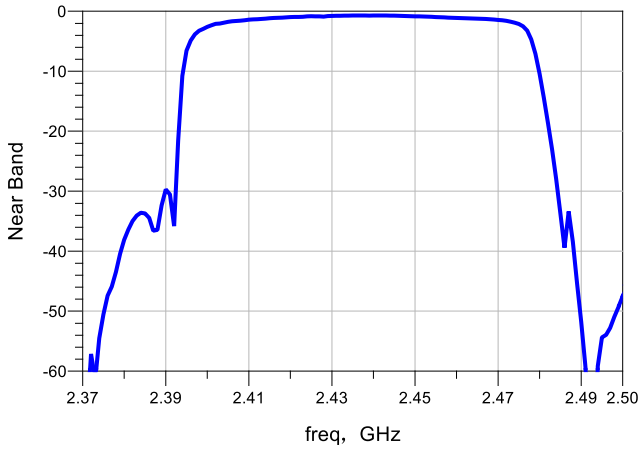


Figure.3 Narrowband Insertion Loss

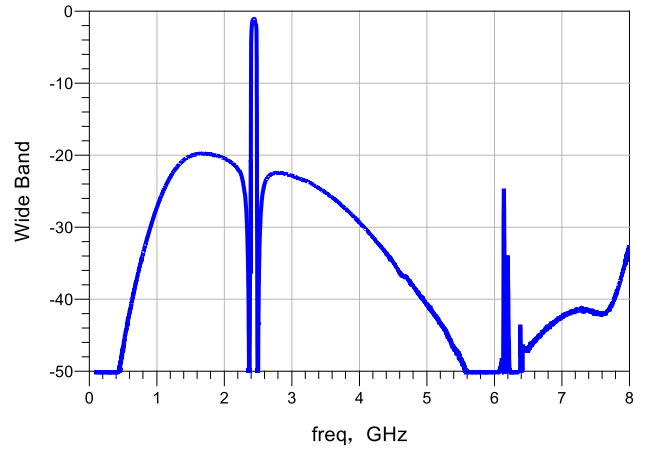
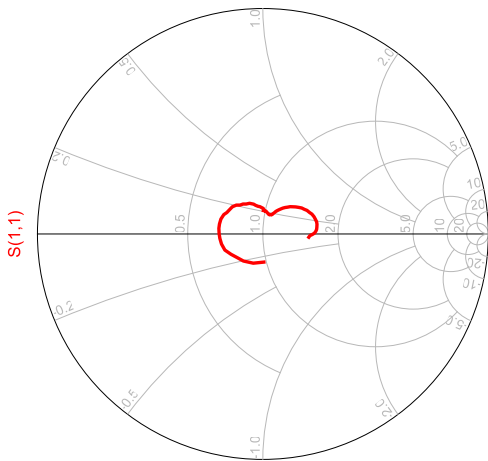
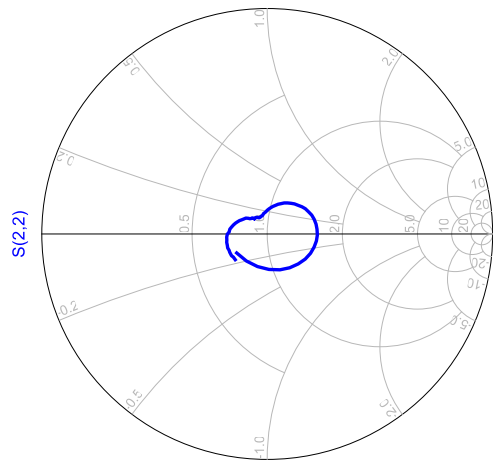


Figure.4 Wideband Insertion Loss



freq (2.402GHz to 2.471GHz)

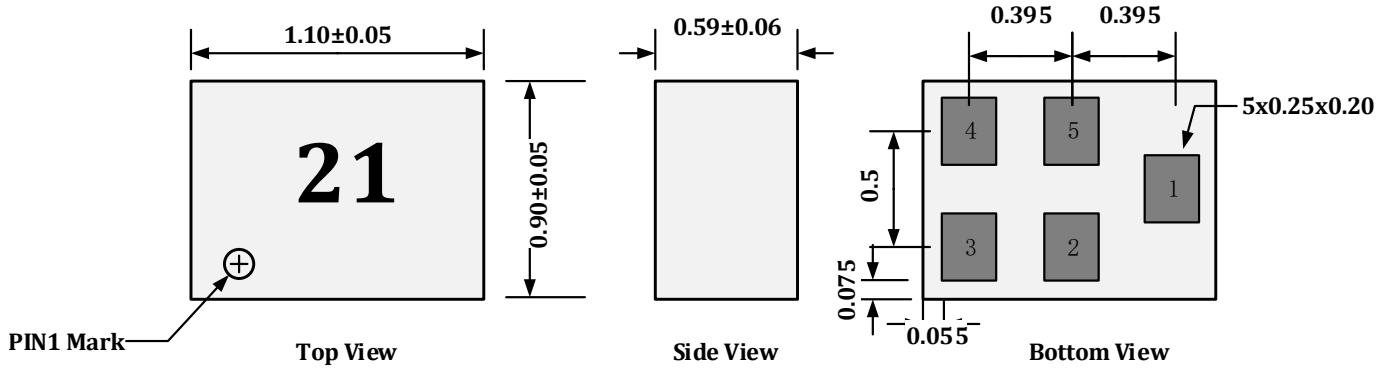
Figure.5 Input Smith Chart S11



freq (2.402GHz to 2.471GHz)

Figure.6 Output Smith Chart S22

Package Outline Drawing



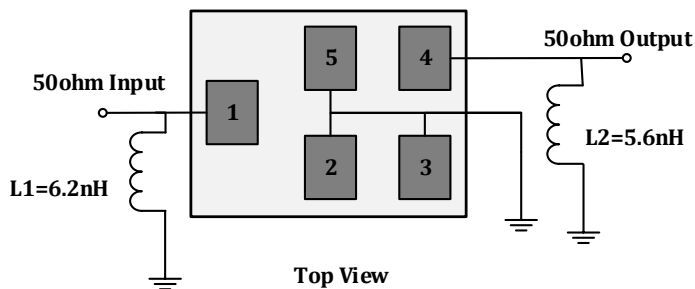
Notes:

1. Dimension: mm
2. Dimensions nominal unless otherwise noted
3. Contact area are gold plated
4. Pad(1) to (5) are same size
5. XX is ROFS inside code

Pin Connection:

- | | |
|-------|--------|
| 1 | Input |
| 4 | Output |
| 2,3,5 | Ground |

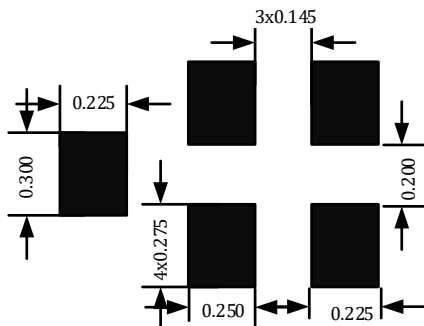
Test Circuit



Notes:

1. Matching component values shown are ROFS evaluation board results, please adjust component values by the actual use environment.

PCB Footprint

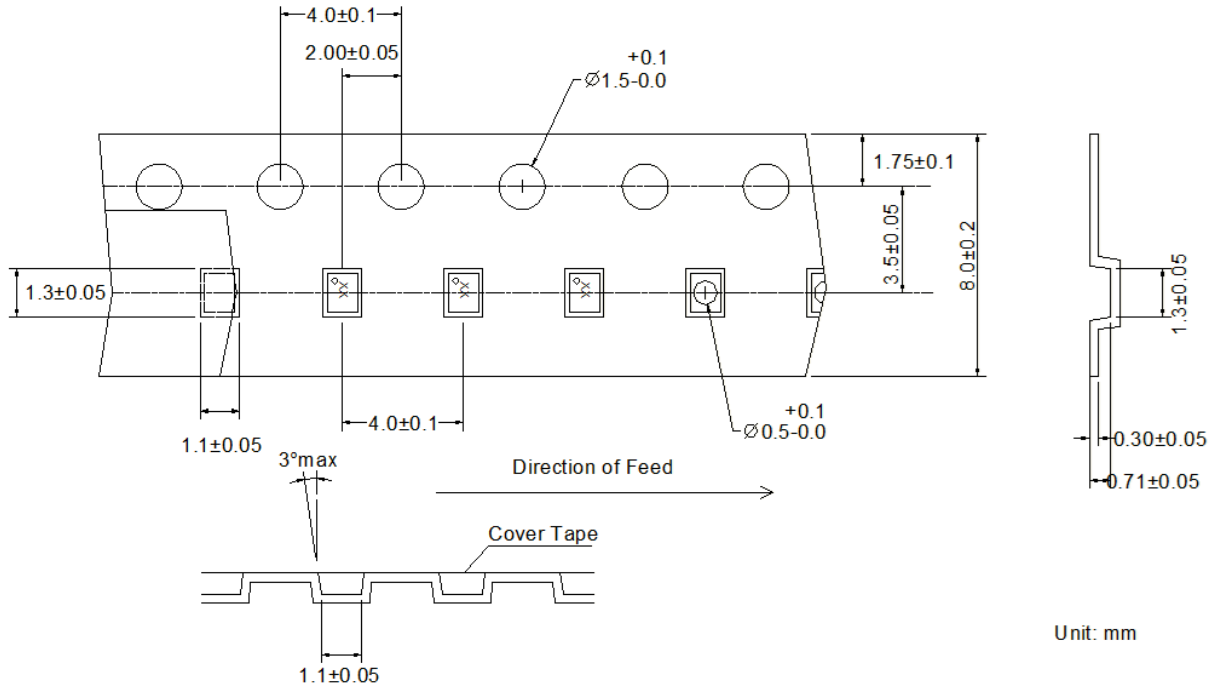


Notes:

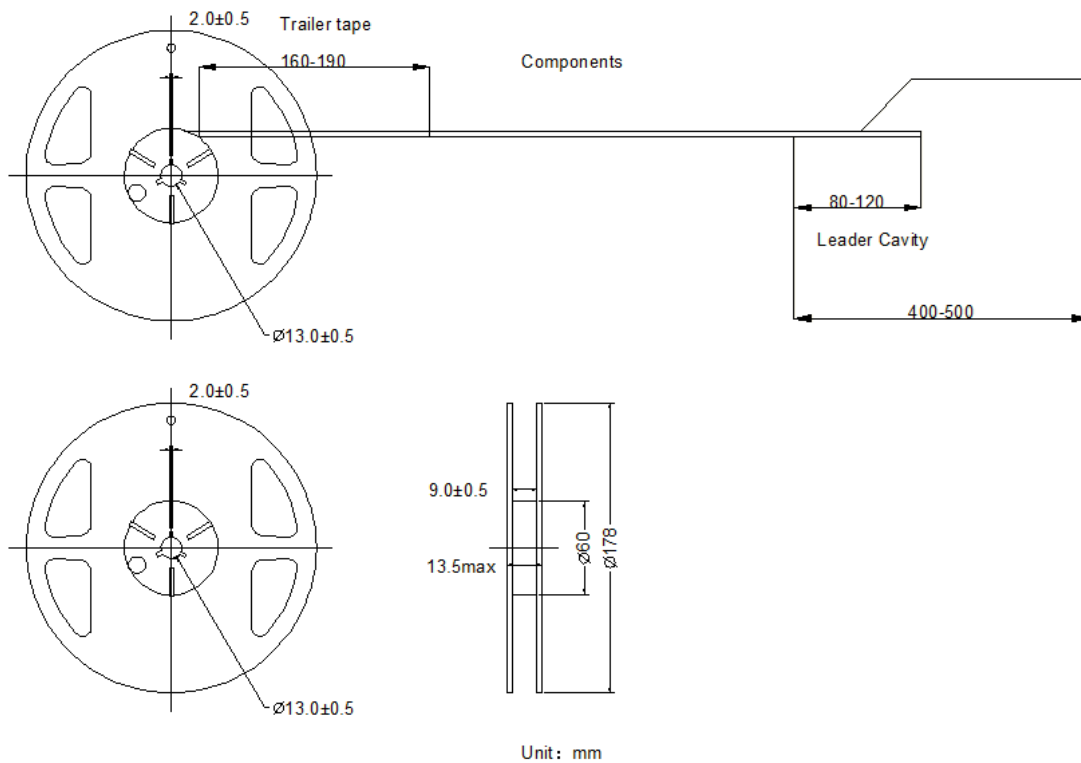
1. Black indicates metallized area.
2. This footprint represents a recommendation only, some modification may be necessary to suit end user assembly materials and processes.
3. For solder pad recommendation see mechanical information.
4. Dimensions shown are nominal in millimeters.

Packing

1. Tape Dimension

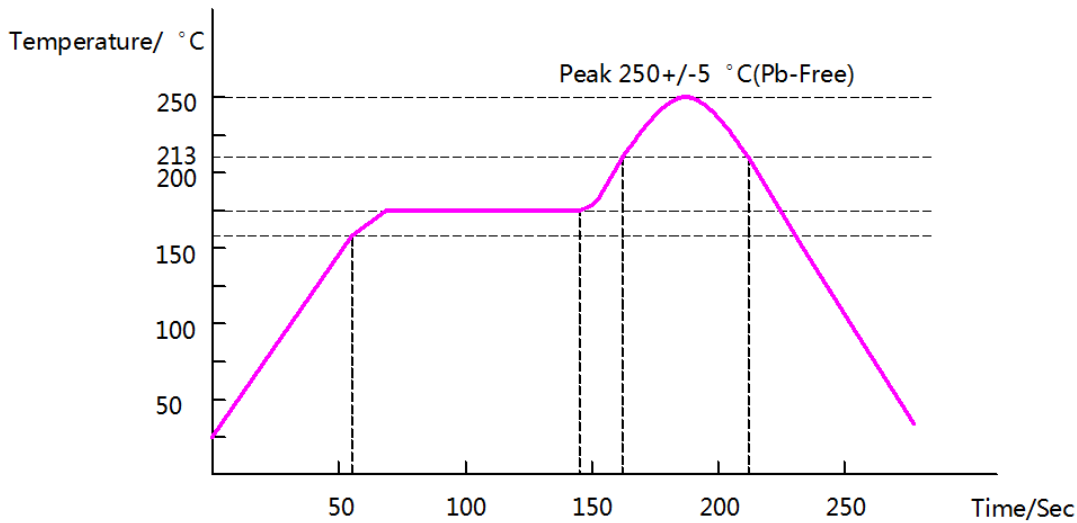


2. Reel Dimension



5000Pcs/Reel

Recommended IR Reflow Profile



Order Information

| Part Number | Qty Per Reel | Container |
|-------------|--------------|-------------|
| RSFP2421E | 5000 | 7 inch Reel |

For more information, please contact: rofs_sales1@rofsmicro.com

Notes:

The specification may be changed or the product had been discontinued, please check with our sales or product engineer before order.

