

Description

RSFD2503C is a high performance duplexer designed for applications in LTE Band7 (2500~2570 MHz UL, 2620~2690 MHz DL).

RSFD2503C is designed with ROFS's MEMS BAW technology, which provides high Q filters and first-class reliability. Low insertion loss and return loss of Tx port reduce the current from power amplifier. High out-of-band attenuation in the Wi-Fi band coexist with Wi-Fi signal under working condition. High isolation of Rx port improve sensitivity in the receive band .

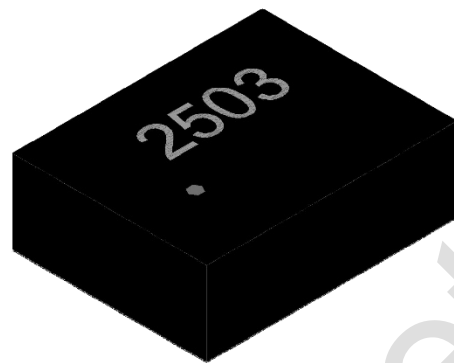
RSFD2503C uses chip scale packaging (CSP) technology to assembly the filters into a molded chip-on-board module with the footprint of 1.8mm x 1.4mm and height of 0.61mm.

Features

- Miniature Size
1.8 mm x 1.4 mm x 0.61 mm
- Insertion Loss:
 - Tx 1.8 dB Typ.
 - Rx 1.6 dB Typ.
- Tx-RX Isolation:
 - Tx Pass Band 53 dB Typ.
 - Rx Pass Band 61 dB Typ.
- Tx Input Power
 - 30 dBm
- ESD protection ability: Class1C
- Moisture Sensitivity: MSL3
- Storage Temperature: -40 to +85 °C

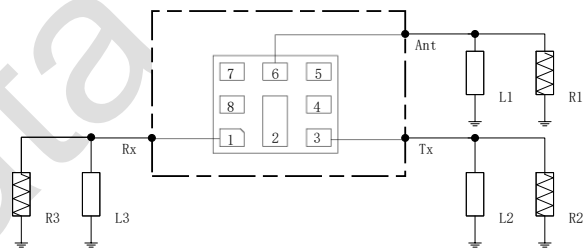
Environmental

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



8 Pin 1.8 x 1.4 x 0.61mm Package

Functional Block Diagram (Top Thru View)



| Reference Des. | Value | Description |
|----------------|-------|----------------|
| R1 | 50ohm | |
| R2 | 50ohm | |
| R3 | 50ohm | |
| L1 | 2.7nH | Ideal Inductor |
| L2 | 4.7nH | Ideal Inductor |
| L3 | 3.9nH | Ideal Inductor |

Pin Connection

| No. | Function |
|-----------|----------|
| 1 | Rx |
| 3 | Tx |
| 6 | Ant |
| 2,4,5,7,8 | Ground |

Electrical Specification

| Transmit Port to Antenna Port | | | | |
|---|-----|------|-----|------|
| Parameter (Operation Temperature: -20~85°C) | Min | Typ* | Max | Unit |
| Insertion Loss (2500~2570MHz) | / | 1.8 | 2.7 | dB |
| Ripple (2500~2570MHz) | / | 0.8 | 1.6 | dB |
| VSWR (2500~2570MHz,ANT Port) | / | 1.3 | 1.9 | / |
| VSWR (2500~2570MHz,TX Port) | / | 1.2 | 1.9 | / |
| Absolute Attenuation (500~8000MHz) | | | | |
| (500~1560MHz) | 33 | 40 | / | dB |
| (1565 ~1606MHz) | 32 | 39 | / | dB |
| (1805~1880MHz) | 30 | 36 | / | dB |
| (2110~2170MHz) | 29 | 35 | / | dB |
| (2300~2400MHz) | 23 | 29 | / | dB |
| (2400~2472MHz) | 36 | 41 | / | dB |
| (2472~2481MHz) | 22 | 33 | / | dB |
| (2620~2690MHz) | 52 | 59 | / | dB |
| (3400~3600MHz) | 44 | 51 | / | dB |
| (4500~5500MHz, <i>2fo</i>) | 32 | 38 | / | dB |
| (5600~7200MHz) | 26 | 33 | / | dB |
| (7200~8000MHz, <i>3fo</i>) | 19 | 25 | / | dB |
| Antenna Port to Receive Port | | | | |
| Parameter (Operation Temperature: -20~85°C) | Min | Typ* | Max | Unit |
| Insertion Loss (2620~2690MHz) | / | 1.6 | 2.5 | dB |
| Ripple (2620~2690MHz) | / | 0.6 | 1.4 | dB |
| VSWR (2620~2690MHz,ANT Port) | / | 1.6 | 2.0 | / |
| VSWR (2620~2690MHz,RX Port) | / | 1.6 | 2.0 | / |
| Absolute Attenuation (500~8000MHz) | | | | |
| (500~1680MHz) | 37 | 44 | / | dB |
| (1710~1785MHz) | 36 | 42 | / | dB |
| (1920~1980MHz) | 33 | 39 | / | dB |
| (2400~2500MHz) | 39 | 45 | / | dB |
| (2500~2570MHz) | 48 | 53 | / | dB |
| (2750~4900MHz) | 37 | 44 | / | dB |
| (4900~5600MHz, <i>2fo</i>) | 43 | 49 | / | dB |
| (5600~7400MHz) | 40 | 47 | / | dB |
| (7400~8000MHz, <i>3fo</i>) | 28 | 34 | / | dB |

Transmit Port to Receive Port

| Parameter(Operation Temperature: -20~85°C) | Min | Typ* | Max | Unit |
|--|-----|------|-----|------|
| Isolation | | | | |
| 2500~2570MHz | 50 | 53 | / | dB |
| 2620~2690MHz | 56 | 61 | / | dB |

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

* Typical value at 25±3 °C

Typical Performance at Tc=25°C

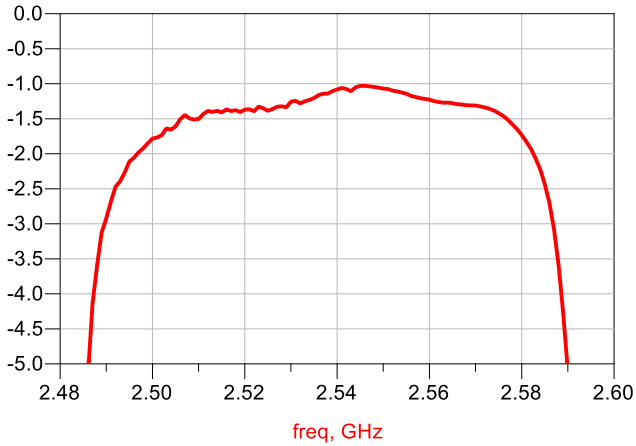


Figure1. TX-ANT Passband

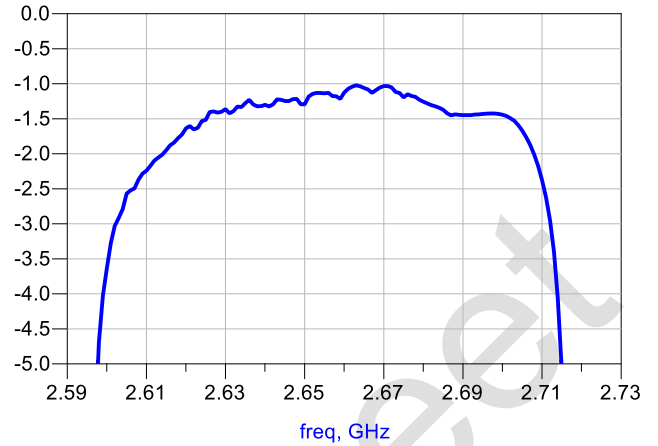


Figure2. ANT-RX Passband

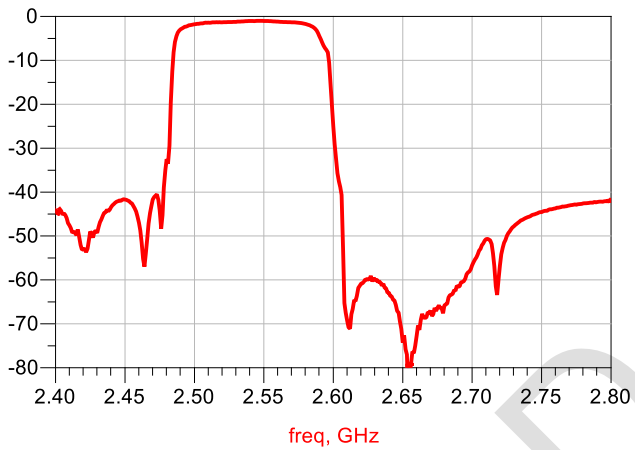


Figure3. TX-ANT

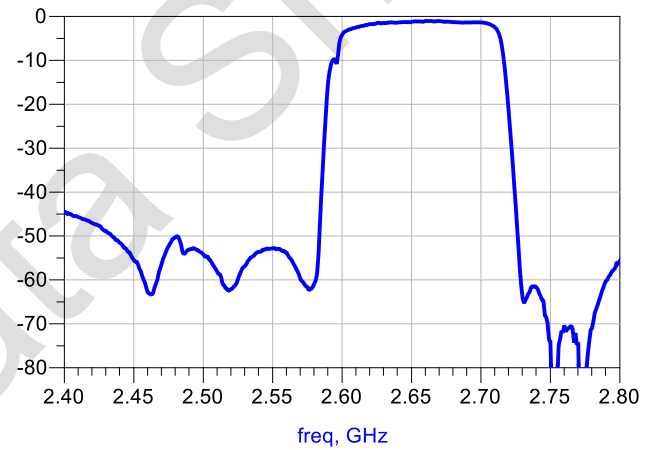


Figure4. ANT-RX

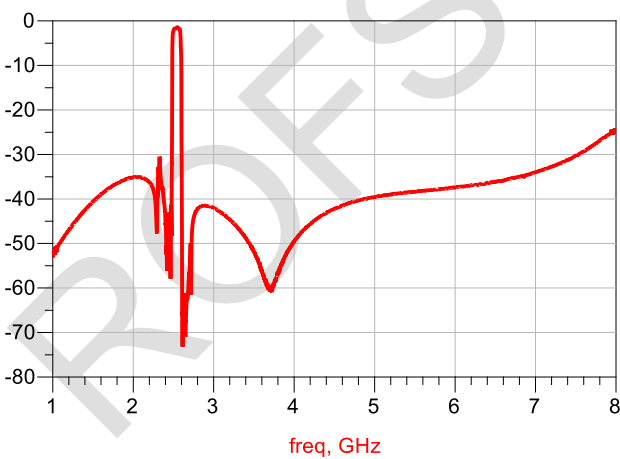


Figure5. TX-ANT Wideband

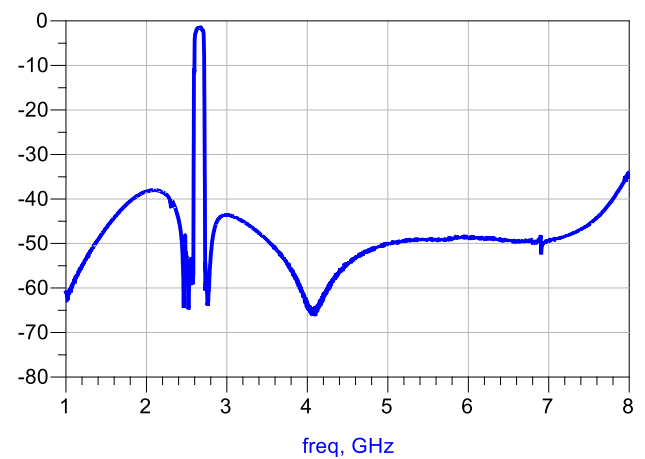


Figure6. ANT-RX Wideband

Typical Performance at Tc=25°C

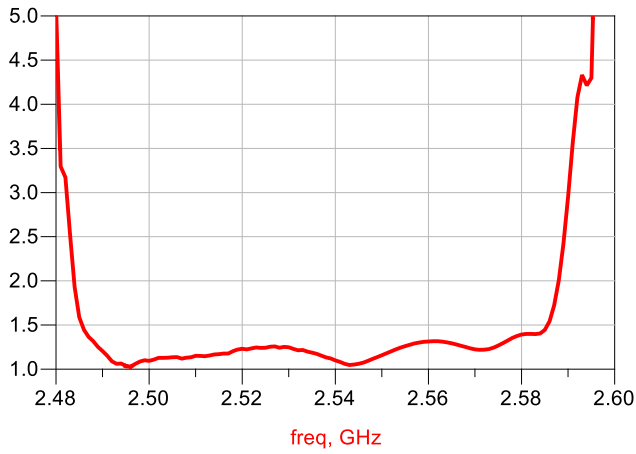


Figure7. TX Port VSWR

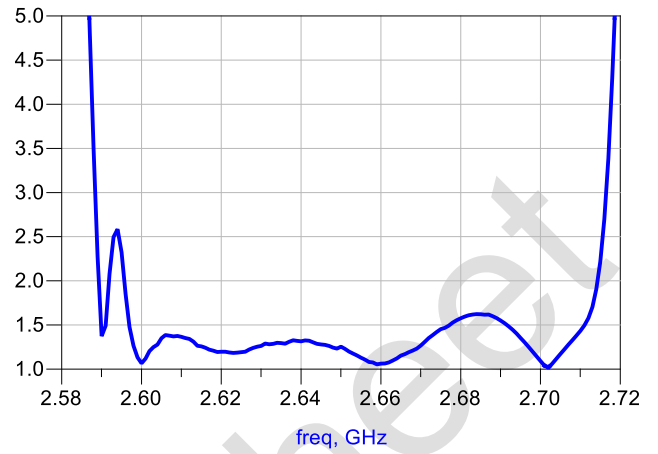


Figure8. RX Port VSWR

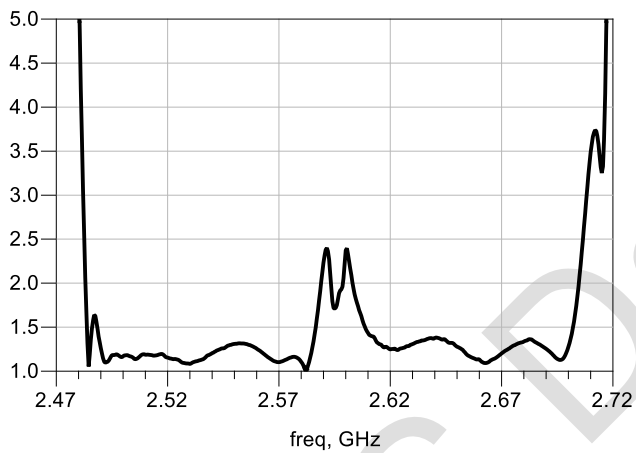


Figure9. Ant Port VSWR

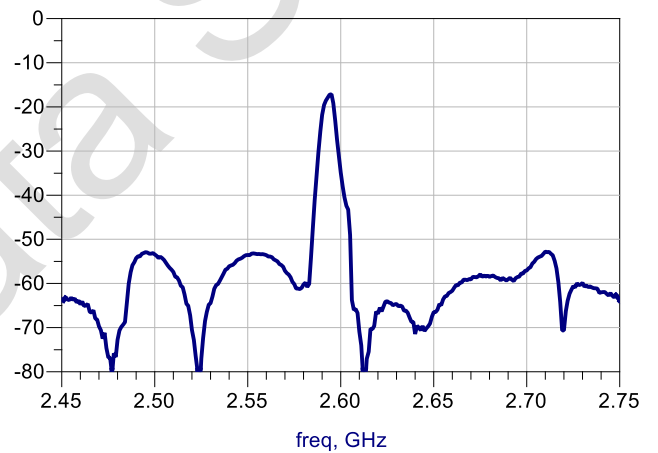
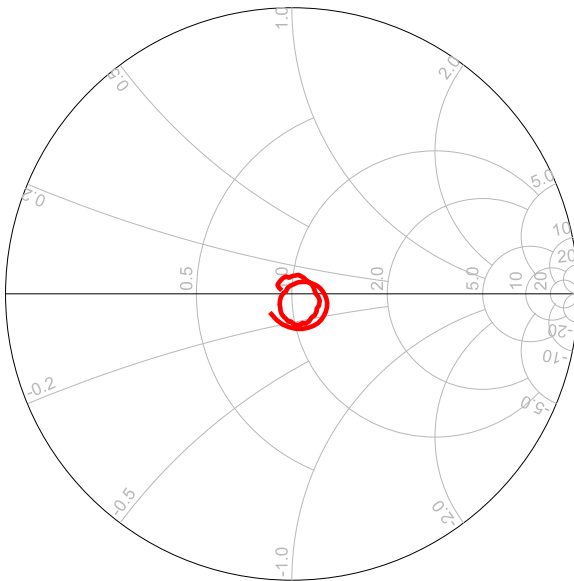


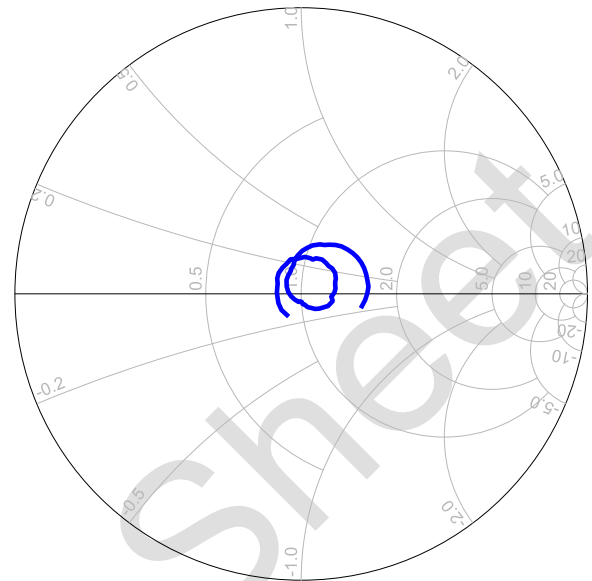
Figure10. TX - RX Isolation

Typical Performance at Tc=25°C



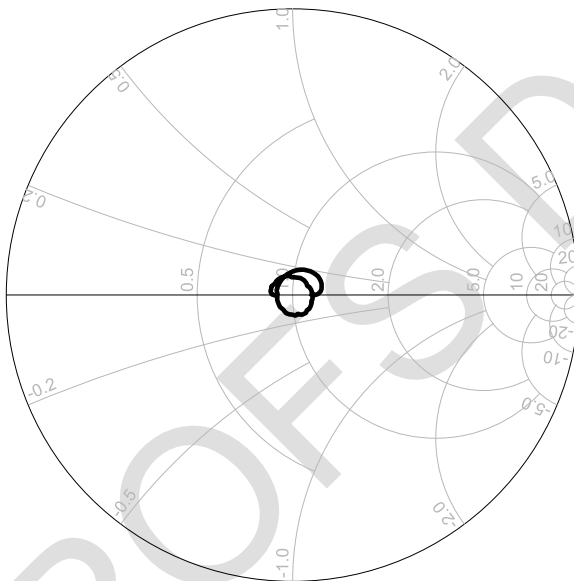
freq (2.500GHz to 2.570GHz)

Figure11. TX Smith Chart



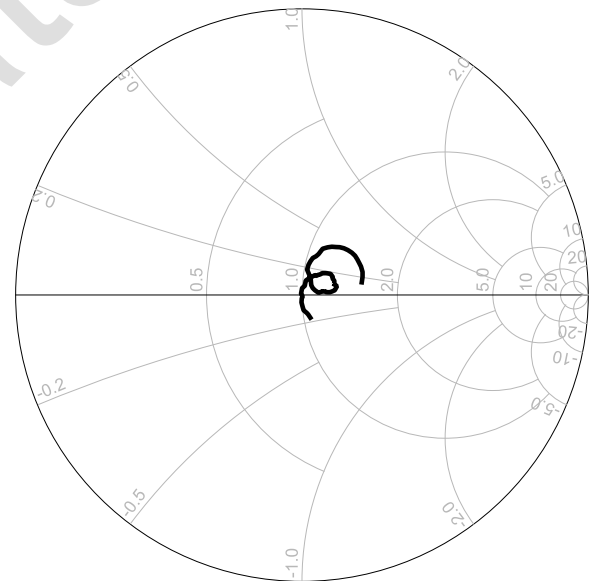
freq (2.620GHz to 2.690GHz)

Figure12. RX Smith Chart



freq (2.500GHz to 2.570GHz)

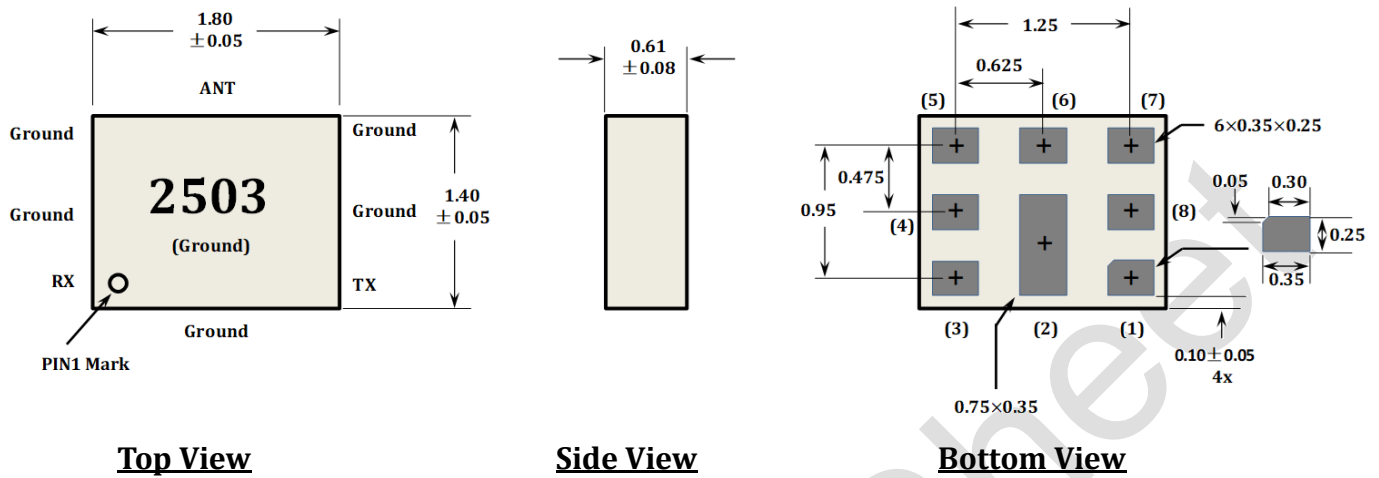
Figure13.Ant (Tx Pass Band) Smith Chart



freq (2.620GHz to 2.690GHz)

Figure14. Ant (Rx Pass Band) Smith Chart

Package Outline



Note:

1. Dimension: mm
2. Dimensions nominal unless otherwise noted
3. Contact area are gold plated
4. Pad(1)(2) is single size, others are same size
5. 2503 is product code

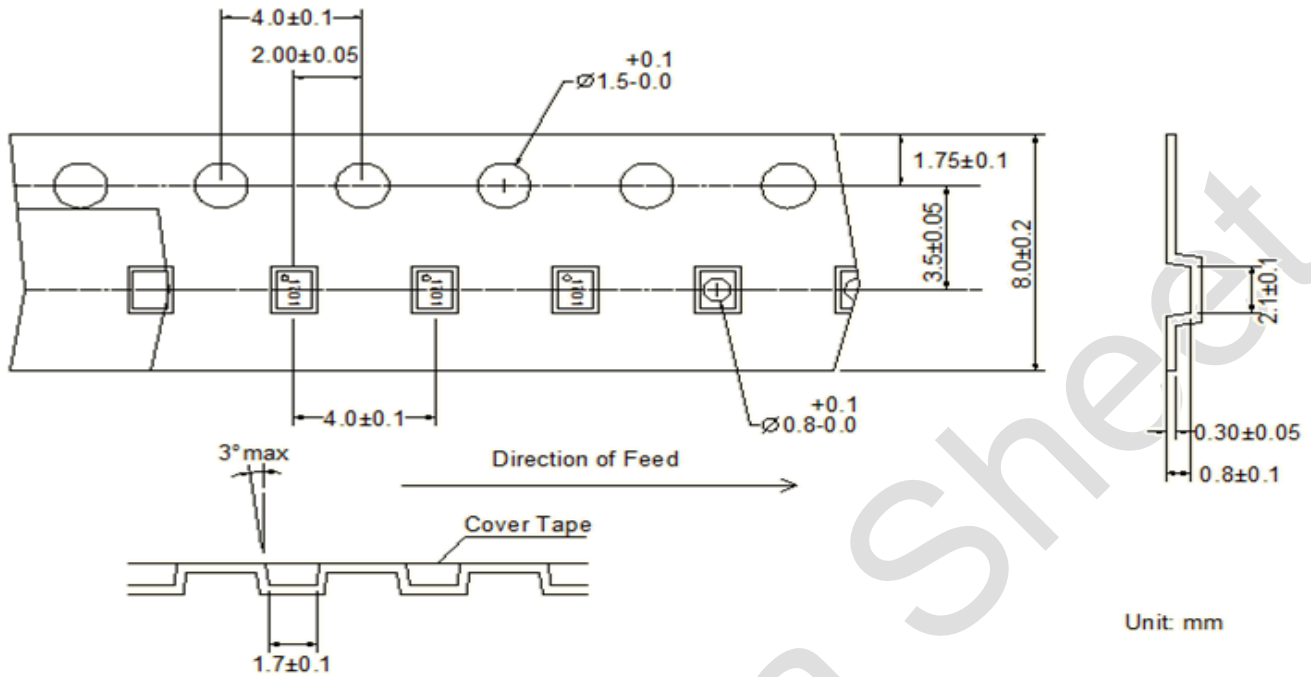
| No. | Function |
|-----------|----------|
| 1 | Rx |
| 3 | Tx |
| 6 | Ant |
| 2,4,5,7,8 | Ground |

Order Information

| P/N | Qty./Reel | Container |
|-----------|-----------|-------------|
| RSFD2503C | 4000 | 7 inch Reel |

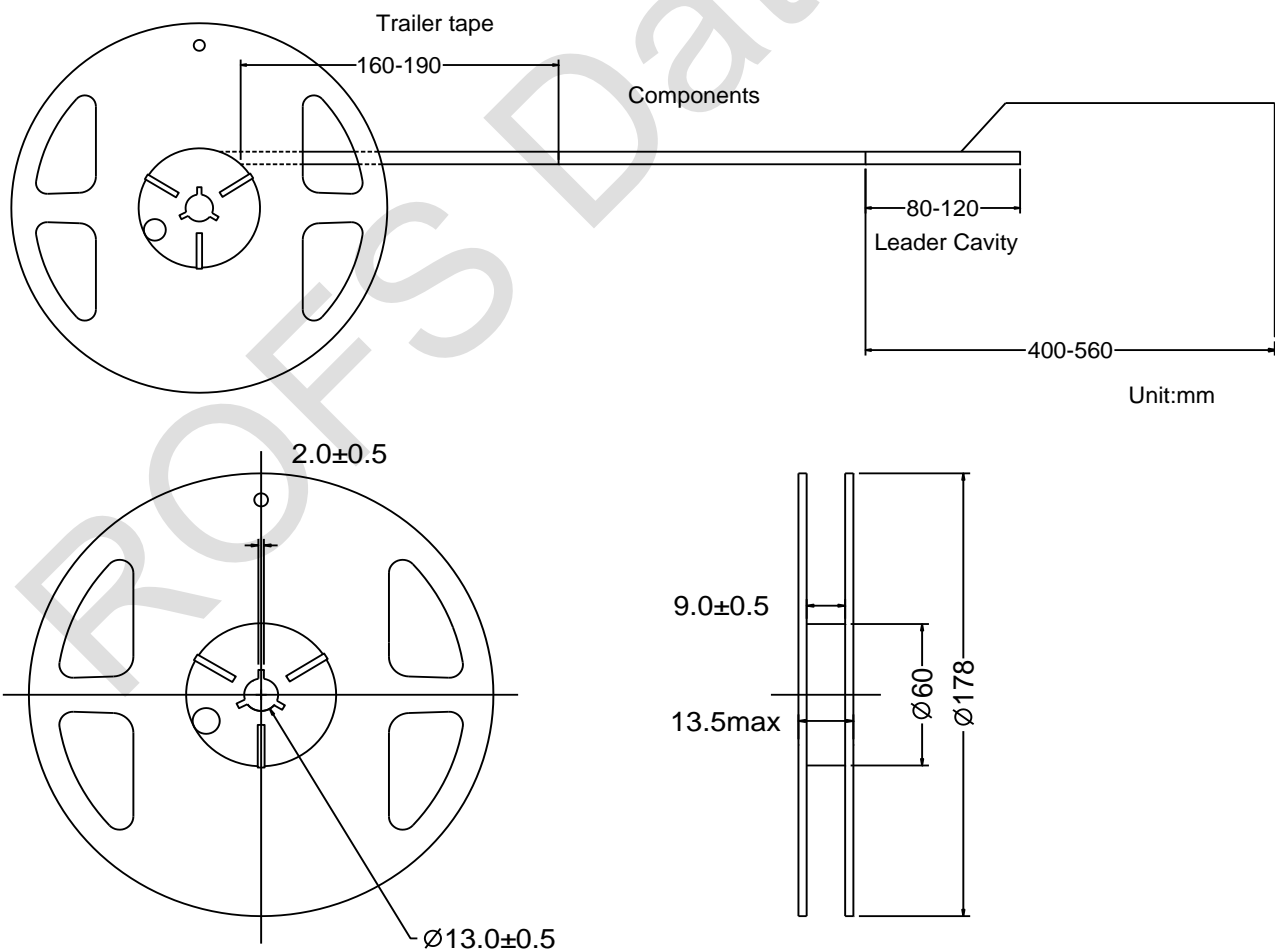
Packing

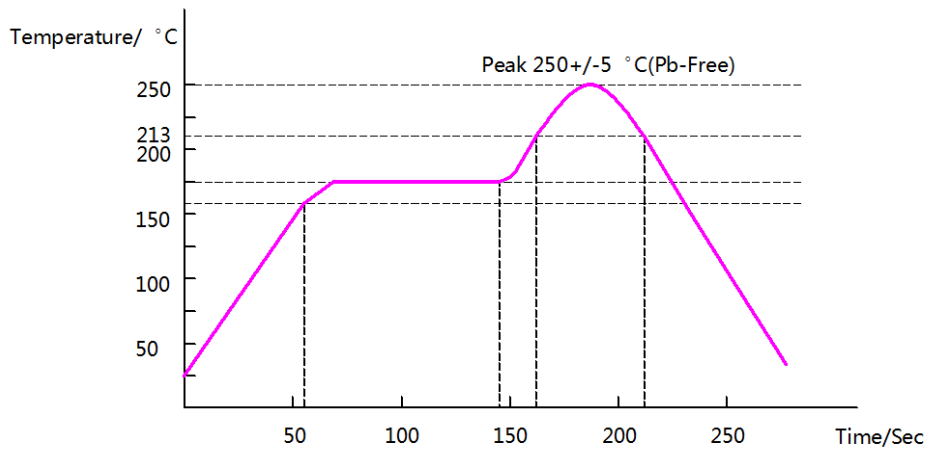
1. Tape Dimension



2. Reel Dimension

4000Pcs/Reel



Recommended Reflow Profile

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

Notes:

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

RSFD2503C Datasheet Modify History

| Revision | Description | Date |
|-----------------|----------------------|-------------|
| Rev 0 | Preliminary revision | 7/23/2019 |
| RevA | 增加 Min Max | 3/25/2020 |
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