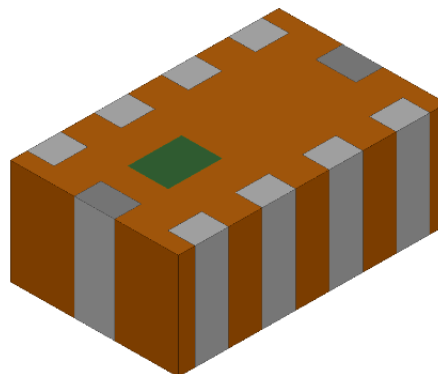


902 – 928 MHz Impedance-matched Filter for Semtech SX126x Series Transceiver Chipsets

- 902 - 928 MHz passband
- Designed for Semtech chipsets:
 - SX1261
 - SX1262
 - LLCC68
- For Sub-GHz ISM applications such as sensors, asset tracking, IoT, general consumer electronics, etc.
- EIA 0805 SMD (2.0mm x 1.25mm x 0.8mm)



General Specifications¹

| | | Impedance match for: | |
|--|-----------------|----------------------------|----------|
| Impedance, Transceiver Side (Ω) | 902 - 928 MHz | SX1261 SX1262 LLCC68 | |
| Impedance, Antenna Side (Ω) | 902 - 928 MHz | 50 | |
| Insertion Loss, TX (dB) | 902 - 928 MHz | | 1.1 Max. |
| Insertion Loss, RX (dB) | 902 - 928 MHz | | 1.4 Max. |
| Return Loss (dB) | 902 - 928 MHz | 12 Min. | |
| Attenuation (dB) | 1804 – 1856 MHz | 25 Min. | |
| | 2706 – 2784 MHz | 35 Min. | |

Maximum Ratings

| | |
|---|------------------------------|
| Power Capacity (W) | 2 Max. (CW) |
| Operating Temperature ($^{\circ}\text{C}$) | -40 to +85 |
| Recommended Storage Conditions Post-installation ($^{\circ}\text{C}$) | -40 to +85 |
| Recommended Storage Conditions and Period for Unused T&R Product ² | 45% - 75% RH |
| | +5 to +35 $^{\circ}\text{C}$ |
| | 18 Months Max. |

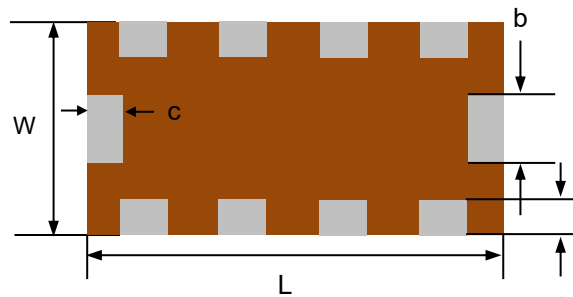
¹ Typical value represents average measurement at 25 $^{\circ}\text{C}$. Min./Max. values represent measurements over specified operating temperature.

² This is a silver-leaded part. Storage period is 18 months in vacuum sealed bag and 1 week after opened. Please keep un-used parts in vacuum sealed bags. SAC 305 solder is recommended. For more information go to: <https://www.johansontechnology.com/silverleads-profile>

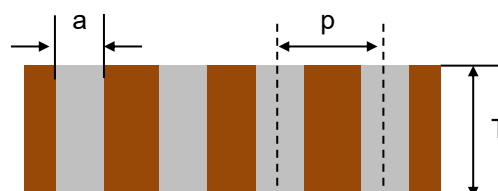
Mechanical Dimensions

| | Inches | | | Millimeters | | |
|----------|--------|---------------|-------|-------------|-------------|------|
| L | 0.079 | ± | 0.006 | 2.00 | ± | 0.15 |
| W | 0.049 | ± | 0.004 | 1.25 | ± | 0.10 |
| T | 0.031 | ± | 0.004 | 0.80 | ± | 0.10 |
| a | 0.010 | ± | 0.004 | 0.25 | ± | 0.10 |
| b | 0.012 | ± | 0.006 | 0.30 | ± | 0.15 |
| c | 0.008 | +0.004/-0.006 | | 0.20 | +0.10/-0.15 | |
| p | 0.020 | ± | 0.004 | 0.50 | ± | 0.10 |

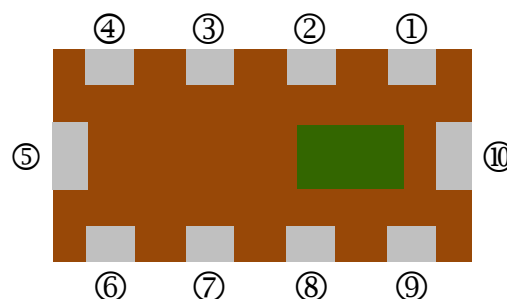
Bottom view



Side view



Top view



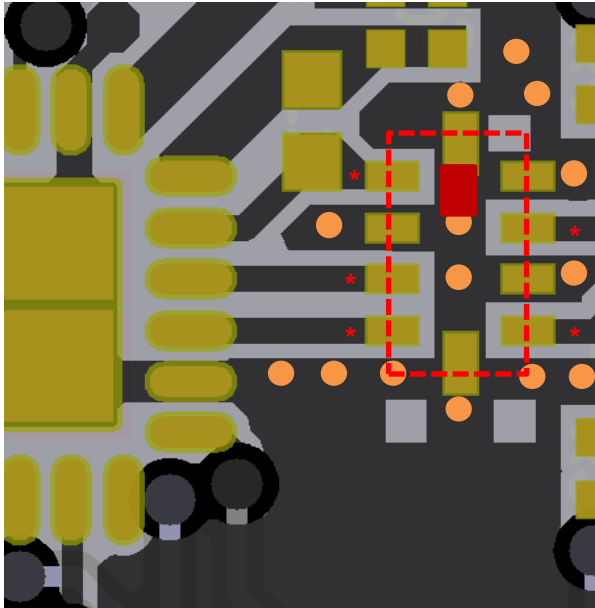
Terminal Configuration³




| Pin Number | Function |
|------------|----------|
| 1 | RFO |
| 2 | GND |
| 3 | RFI_N |
| 4 | RFI_P |
| 5 | GND |
| 6 | SW_RFI |
| 7 | GND |
| 8 | SW_RFO |
| 9 | GND |
| 10 | GND |

³ The termination type is Silver. Go to: <https://www.johansontechnology.com/ipcsoldering-profile> for Typical Soldering Profile.

Recommended PCB Layout

Note: Mount device with colored mark facing up.



-  Solder Resist
-  Land
-  GND Via (\varnothing 0.2mm)

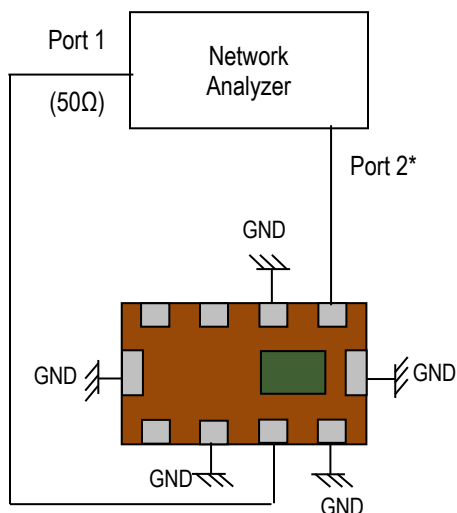
NOTE: GND via placement is crucial to the harmonic attenuation capability of the filter.

* Transmission line width should be designed to match 50 Ω characteristic impedance, depending on PCB material and thickness.

If you'd like the CAD PCB layout or have any questions,
contact our application engineers at <https://www.johansontechnology.com/ask-a-question>

Measuring Diagram

TX Path



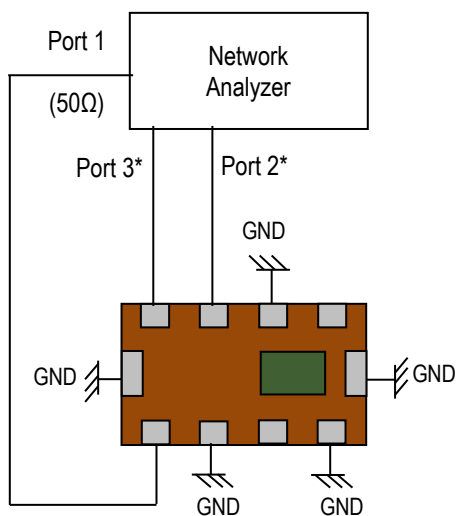
Port 1: Antenna port

Port 1 Load impedance: 50Ω

Port 2: RFO

*Port 2 Load impedance: Complex conjugate match to SEMTECH SX1261, SX1262, LLCC68

RX Path



Port 1: Antenna port

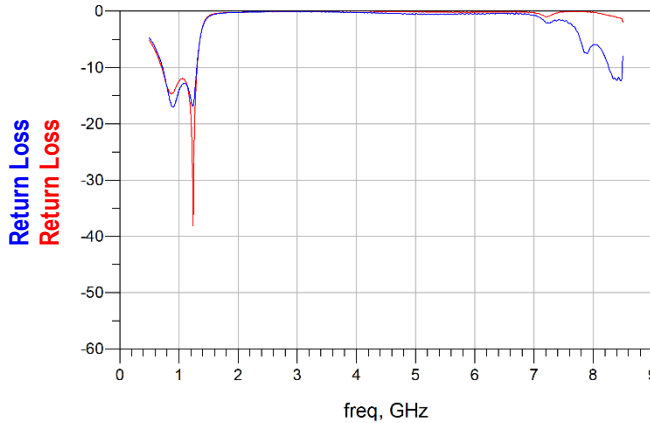
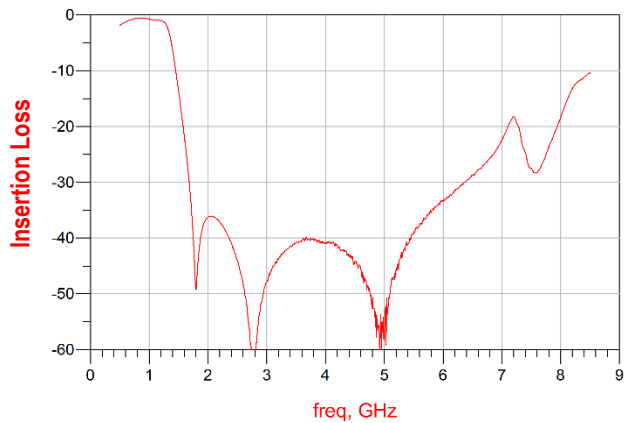
Port 1 Load impedance: 50Ω

Ports 2 and 3: RFI Balanced Port

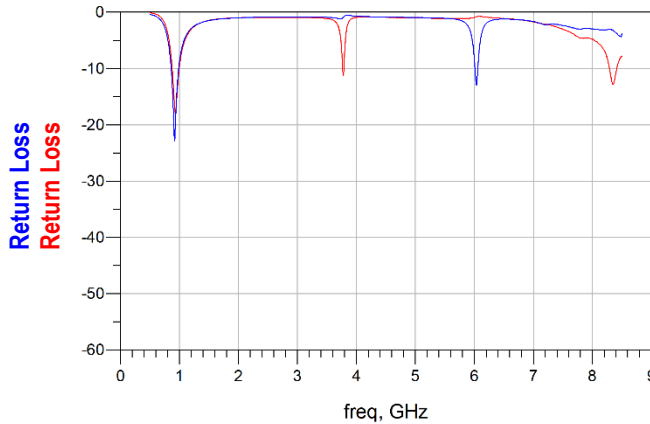
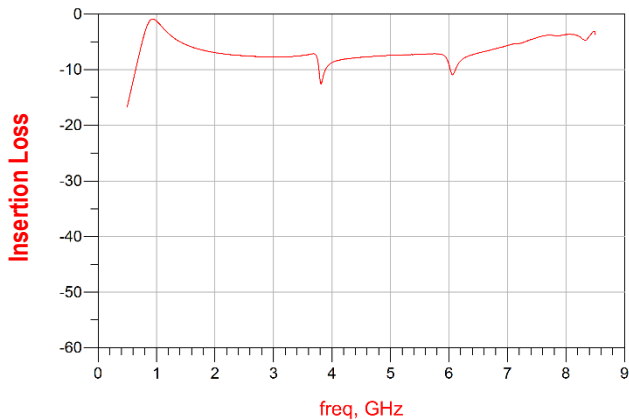
*Port 2 and 3 Load impedance: Complex conjugate match to SEMTECH SX1261, SX1262, LLCC68

RF Measurement (T = 25°C)

RFO Path Insertion Loss, Return Loss



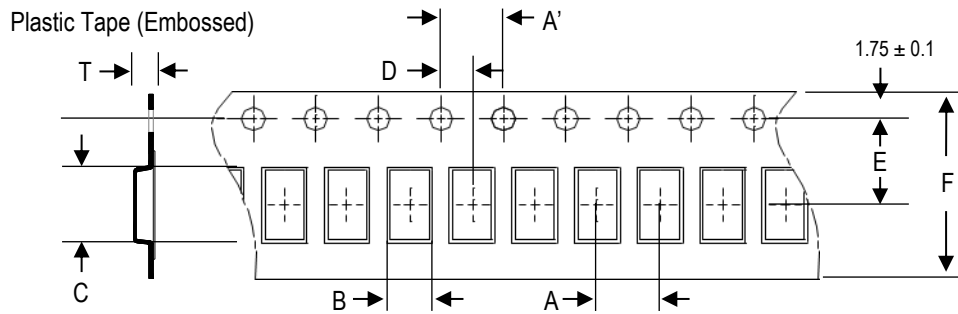
RFI Path Insertion Loss, Return Loss



S-parameter and layout file available upon request. Please contact us at <https://www.johansontechnology.com/ask-a-question>.

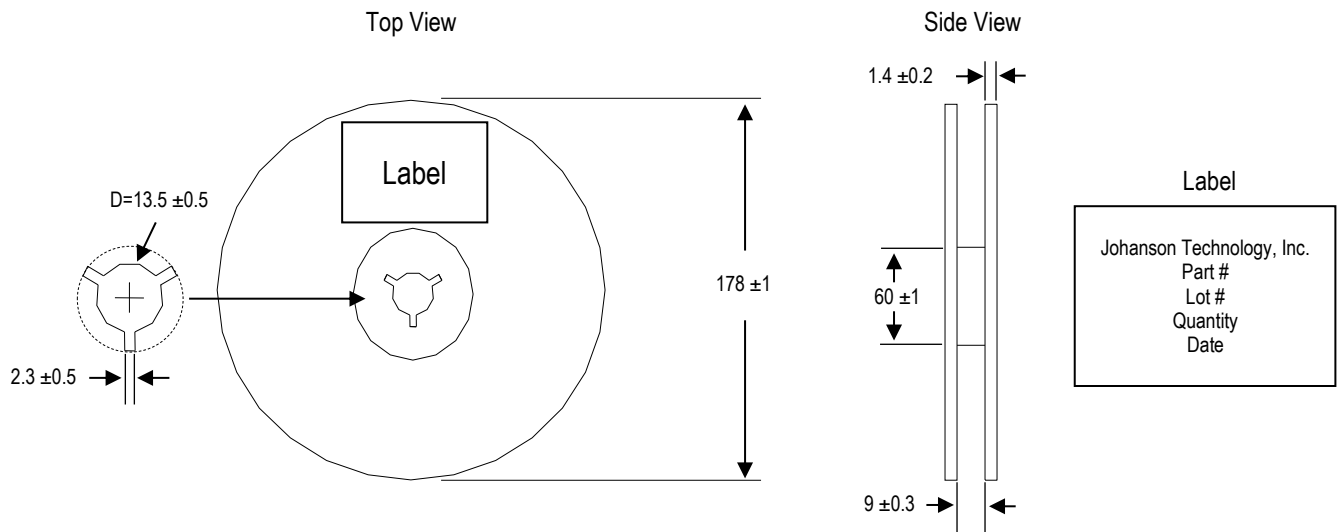
Tape and Reel Specification (Units in mm)

Tape Dimensions

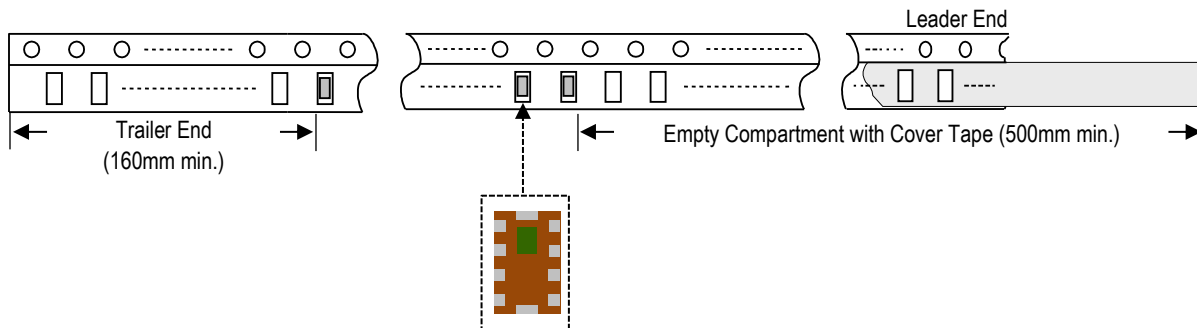


| A | A' | B | C | D | E | F | T | Quantity/reel | Tape material |
|---------|---------|-----------|-----------|----------|---------|---------|-----------|---------------|--------------------|
| 4.0±0.1 | 4.0±0.1 | 1.35±0.05 | 2.15±0.05 | 2.0±0.05 | 3.5±0.1 | 8.0±0.1 | 1.00±0.05 | 4,000pcs | Plastic (Embossed) |

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Number

| Packaging Style | Part Number | Termination |
|-------------------------------|---|-------------|
| Bulk (loose pcs.) | 0900FM15D0039001B | Silver |
| T & R (7" Reel Embossed Tape) | 0900FM15D0039001E (Qty: 4,000 pcs/reel) | |

Important Links

[2450FM15D0039001E Product Page](#)

[More Semtech Reference Designs](#)

[Sub-GHz Antennas](#)

[Antenna Tuning, Optimization, and Validation Services](#)

[Soldering Information](#)

[MSL Information](#)

[Packaging Information](#)

[Recommended Storage Condition and Max Shelf Life](#)

[RoHS Compliance](#)

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