

# High Frequency Ceramic Solutions

## Miniature 2.45GHz Impedance Matched Front-End Filter Optimized for Semtech SX1280, SX1281

P/N 2450FM07D0034

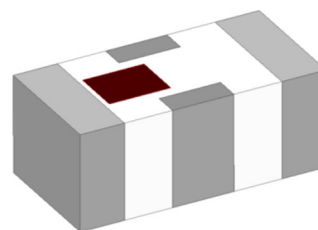
Detail Specification: 9/10/2019

Page 1 of 4

AEC-Q200 qualified component available, contact us at: [www.johansontechnology.com/ask-a-question](http://www.johansontechnology.com/ask-a-question)

### General Specifications

|                                              |                                             |
|----------------------------------------------|---------------------------------------------|
| Part Number                                  | 2450FM07D0034                               |
| Frequency (MHz)                              | 2400 - 2500                                 |
| Insertion loss (dB)                          | 0.75 Typ. (1.0 max.)                        |
| Return Loss (dB)                             | 14 Typ. (10 min.)                           |
| Input Impedance<br>(Terminal Toward Chipset) | Impedance matched to Semtech SX1280, SX1281 |
| Output Impedance                             | 50Ω                                         |
| Power Capacity                               | 3W max. (CW)                                |



| Attenuation (dB) |                     | Reel Quantity                                               | 10,000 pcs                                         |
|------------------|---------------------|-------------------------------------------------------------|----------------------------------------------------|
| 4800 - 5000MHz   | 35 Typ. (30 min.)   | Storage Temperature                                         | -40 to +85°C                                       |
| 7200 - 7500MHz   | 30 Typ. (25 min.)   | Operating Temperature                                       | -40 to +85°C                                       |
| 9600 - 10000MHz  | 30 Typ. (25 min.)   | Recommended Storage<br>Conditions for unused<br>T&R product | +5 to +35°C, Humidity:<br>45-75%RH, 18 mo.<br>Max. |
| 12000 - 12500MHz | 25 Typ. (20 min.)   |                                                             |                                                    |
| 14400 - 15000MHz | 9.5 Typ. (4.5 min.) |                                                             |                                                    |
| 16800 - 17000MHz | 8.0 Typ. (3.0 min.) |                                                             |                                                    |

This component is internally DC blocked. External DC blocking cap not needed!

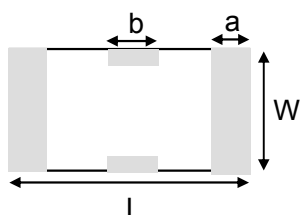
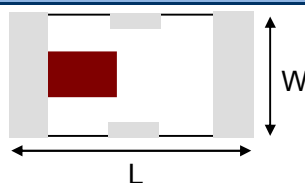
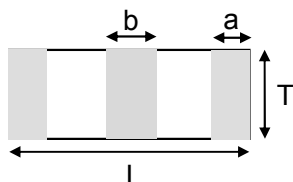
### Part Number Explanation

| P/N Suffix | Packaging Style   | Bulk     | Suffix = S    | E.g. 2450FM07D0034S        |
|------------|-------------------|----------|---------------|----------------------------|
|            |                   | T & R    | Suffix = T    | E.g. 2450FM07D0034T        |
|            | Termination Style | 100% Tin | Suffix = None | E.g. 2450FM07D0034(T or S) |

You can download the measured s-parameter file for this component at: <https://www.johansontechnology.com/semtech>

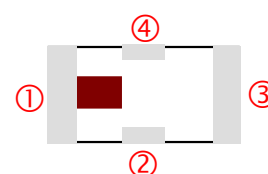
### Mechanical Dimensions

|   | In            | mm          |
|---|---------------|-------------|
| L | 0.039 ± 0.002 | 1.00 ± 0.05 |
| W | 0.020 ± 0.002 | 0.50 ± 0.05 |
| T | 0.016 max.    | 0.40 max.   |
| a | 0.007 ± 0.004 | 0.18 ± 0.10 |
| b | 0.010 ± 0.004 | 0.25 ± 0.10 |



### Terminal Configuration

| No. | Function                 |
|-----|--------------------------|
| 1   | IN (Toward the chipset)  |
| 2   | GND                      |
| 3   | OUT (Toward the antenna) |
| 4   | GND                      |



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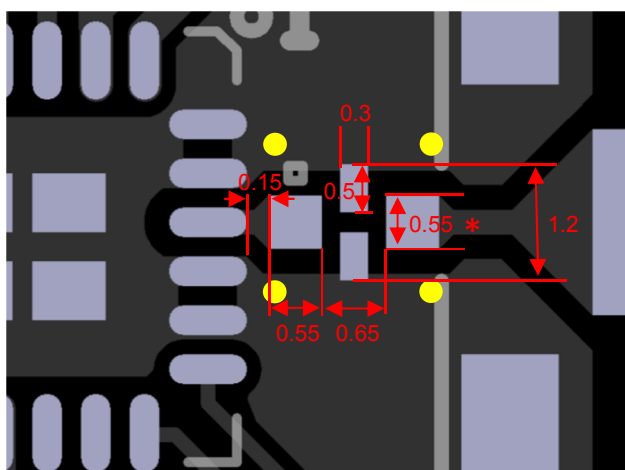
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Page 2 of 4

## Mounting Pad Dimensions



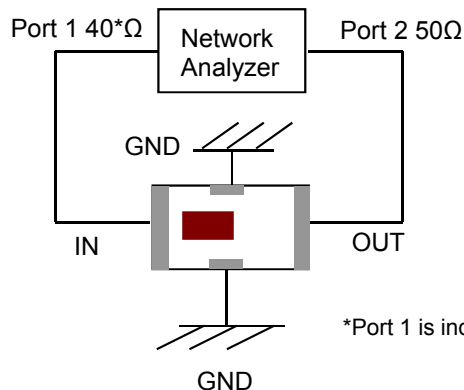
-  Solder Resist
-  Land
-  Through-hole ( $\phi 0.20$ )

\*Line width should be designed to match 50 $\Omega$  characteristic impedance, depending on PCB material and thickness.

Units in mm

Do you need the layout files of the above? Go to: <https://www.johansontechnology.com/ask-a-question>

## Measurement Schematic



Port 1: Filter IN (red marking side toward chipset)  
Port 2: Filter OUT (toward antenna)

\*Port 1 is indeed 40ohms!

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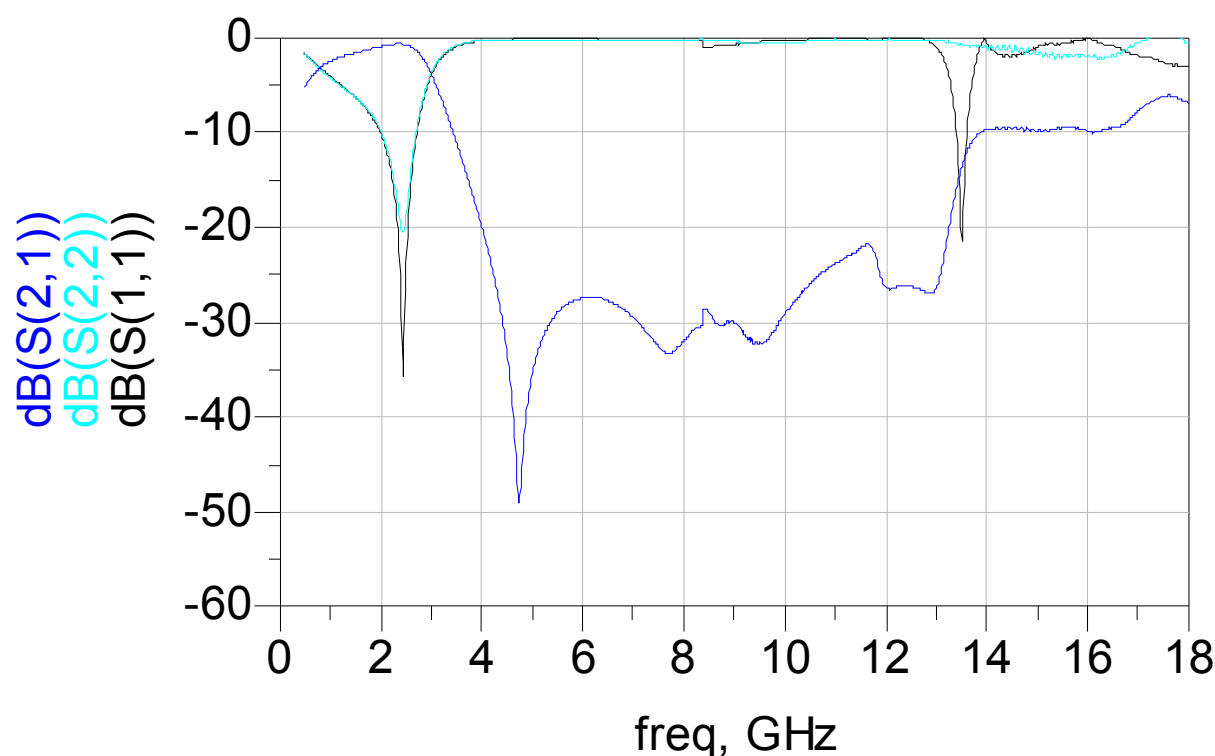
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Page 3 of 4

## Typical Electrical Characteristics (T=25°C)



If you would like recommendation on a mini 2.4G embedded antenna, free layout verification, reference design files (gerbers, schematic, etc) or s-parameter files, please contact us at:

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Page 4 of 4

## Application Notes, Layout Files, and more

<https://www.johansontechnology.com/semtech>

## Packaging information

<https://www.johansontechnology.com/tape-reel-packaging>

## Soldering Information

<https://www.johansontechnology.com/ipcsoldering-profile>

## MSL Info

<https://www.johansontechnology.com/msl-rating>

## Recommended Storage Condition and Max Shelf Life

<https://www.johansontechnology.com/recommended-storage-conditions>

## RoHS Compliance

<https://www.johansontechnology.com/rohs-compliance>

## Antenna layout and tuning techniques

<https://www.johansontechnology.com/tuning>

## Antenna layout review, tuning, and characterization services

<https://www.johansontechnology.com/ipc-antenna-services>

Johanson uses 6/6 RoHS Green Low-Temperature-Co-fired-Ceramic (LTCC) integrated passive technology in a 4-pin (Sn plated) monolithic structure. This component is 100% RF Tested, making it a more reliable system, impedance controlled environment, consistent-guaranteed RF performance in a very small RF front end-solution compared to the L/C discrete solution.



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