

# High Frequency Ceramic Solutions

## Miniature Impedance-matched Filter for Semtech SX1261, SX1262, LLCC68

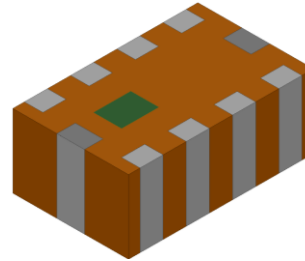
P/N 0900FM15D0039

Detail Specification 8/13/2020

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### General Specifications

Part Number	0900FM15D0039
Frequency (MHz)	862 - 870, 902 - 928
Insertion loss (dB)	0.8 typ. (1.4 max.)
Return Loss (dB)	12 min.
Input Impedance (Toward Chipset)	Conjugate Impedance matched to Semtech SX1261, SX1262, LLCC68
Output Impedance (ANT)	50Ω
Power Capacity (W)	2 max. (CW)
DC Rating (V)	5 max. (400mA max.)



For the Full App Note and Layout Files, go to:  
<https://www.johansontechnology.com/semtech>

or Contact our RF engineers directly at:  
<https://www.johansontechnology.com/ask-a-question>

<b>Attenuation (dB)</b>		<b>Reel Quantity</b>	4,000 pcs/reel
1724 - 1856MHz	25 min.	<b>Operating Temperature</b>	-40 to +85°C
2586 - 2784MHz	35 min.	<b>Recommended Storage Conditions for unused T&amp;R product*</b>	+5 to +35°C Humidity: 45-75%RH 18 months max. 1 week after opened

\*This is a silver-leaded part. Please keep unused parts in vacuum sealed bags. For more information go to:  
<https://www.johansontechnology.com/silverleads-profile>

### Part Number Explanation

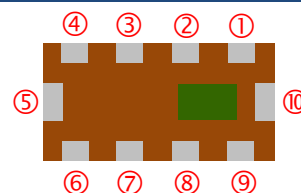
P/N Suffix	Packaging Style	Bulk	Suffix = S	E.g. 0900FM15D0039S
		T & R	Suffix = E	E.g. 0900FM15D0039E
	Termination Style	Ag	Suffix = None	E.g. 0900FM15D0039(E or S)

### Mechanical Dimensions

	In	mm	
L	0.079 ± 0.006	2.00 ± 0.15	 <Side View>
W	0.049 ± 0.004	1.25 ± 0.10	
T	0.031 ± 0.004	0.80 ± 0.10	 <Bottom View>
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 +0.1/-0.15	
p	0.020 ± 0.004	0.50 ± 0.10	

### Terminal Configuration

N°	Pin	N°	Pin
1	RFO	6	SW_RFI
2	GND	7	GND
3	RFI_N	8	SW_RFO
4	RFI_P	9	GND
5	GND	10	GND



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Ver. 1.3

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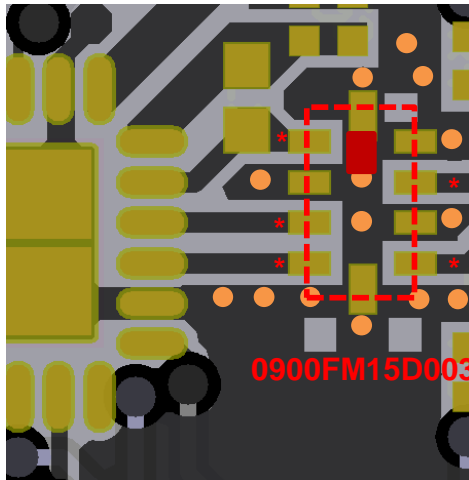
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## Reference Layout

Units in mm



-  Solder Resist
-  Land
-  GND Via ( $\phi$  0.2mm)

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

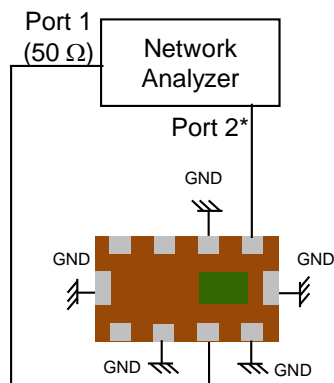
Application Note can be found at:  
<https://www.johansontechnology.com/0900FM15D0039>

For Gerber/layout files or a free layout review, contact our RF engineers directly at:  
<https://www.johansontechnology.com/ask-a-question>

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

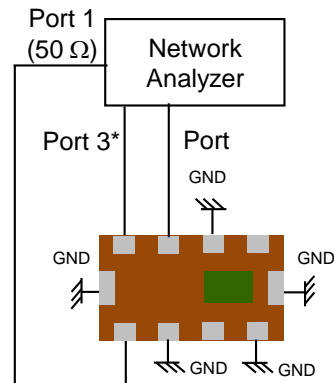
## Measurement Schematic

RFO Path



Port 1: Antenna Port  
 Port 1 Load impedance: 50 $\Omega$   
 Port 2: RFO  
 \*Port 2 Load impedance:  
 Complex conjugate match to SEMTECH SX1261/2

RFI Path



Port 1: Antenna Port  
 Port 1 Load impedance: 50 $\Omega$   
 Ports 2 and 3: RFI Balanced Port  
 \*Port 2 and 3 Load impedance:  
 Complex conjugate match to SEMTECH SX1261/2

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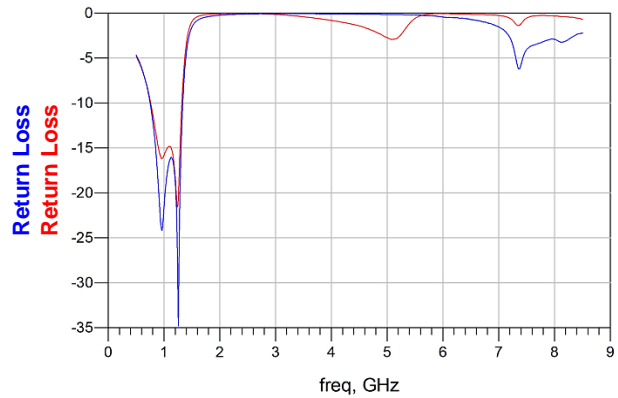
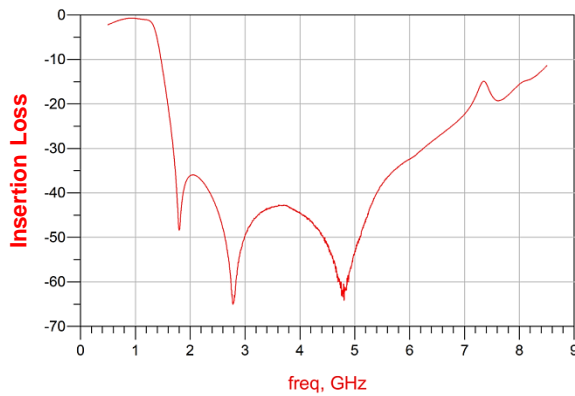
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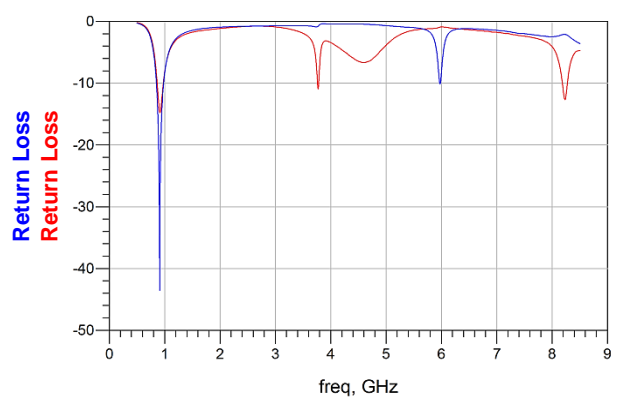
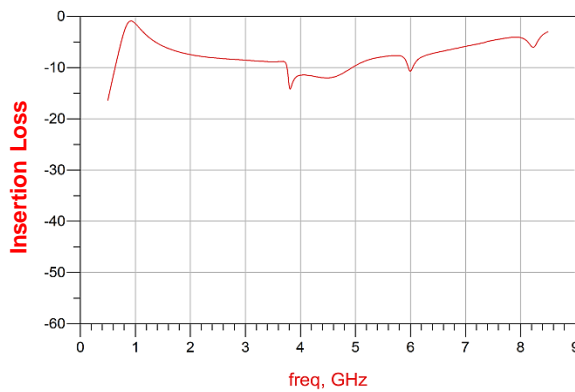
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## Typical Electrical Characteristics (T=25°C)

### RFO Path Insertion Loss, Return Loss



### RFI Path Insertion Loss, Return Loss



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## 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>

## Silver Termination Information

<https://www.johansontechnology.com/silverleads-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/technical-notes/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 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 an L/C discrete solution.

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