

High Frequency Ceramic Solutions

862 - 928MHz Integrated Impedance-matched Balun Filter for Analog Devices, Inc. ADF7023, ADF7023-J, and ADF7024

P/N: 0900PC15F0030

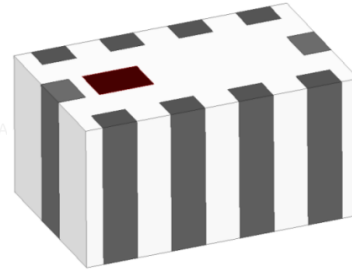
Detail Specification: 1/4/2018

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Do you need a small sub-GHz antenna? Go to: www.johansontechnology.com/antennas

General Specifications

| | |
|-----------------------------------|--|
| Part Number | 0900PC15F0030 |
| Frequency (MHz) | 862 - 928 |
| Unbalanced Impedance (Ω) | 50 |
| Balanced Impedance (Ω) | Impedance matched to Analog Devices, Inc. ADF7023, ADF7023-J, ADF7024 |
| Insertion Loss (dB) | 1.8 typ (2.3 max.) |
| Return Loss (dB) | 10 min. |
| Phase Balance (deg) | 180 \pm 15 |
| Amplitude Difference (dB) | 2.0 max. |
| Attenuation (dB @MHz) | 33 min. @1736 - 1856 40 min. @2604 - 2784 40 min. @3472 - 3712 35 min. @4340 - 4640 |
| Power Capacity (W) | 3 max. CW |
| Operating Temperature | -40°C to +85°C |
| Quantity/Reel | 4,000 |



Analog Devices, Inc. Approved!

| | |
|---|---|
| Storage Temperature Range | -40°C to +85°C |
| Storage Period | 18 months max |
| Recommended Storage Conditions for unused T&R product | +5 ~ +35 °C, Humidity 45~75%RH, 18 mos. max |

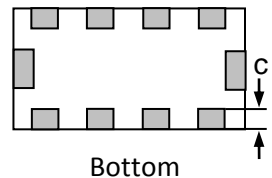
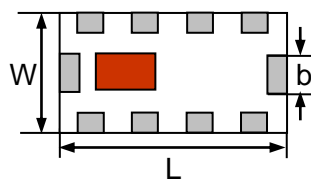
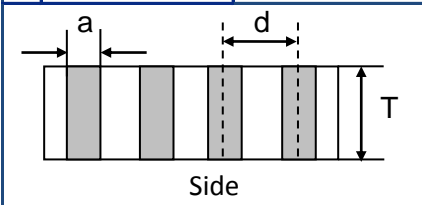
For more Analog Devices, Inc. matched balun-filters, go to: www.johansontechnology.com/analog

Part Number Explanation

| P/N Suffix | Packing Style | Bulk | Suffix = S | eg. 0900PC15F0030S |
|------------|---------------|----------|---------------|---------------------------|
| | | T & R | Suffix = E | eg. 0900PC15F0030E |
| | | 100% Tin | Suffix = None | eg. 0900PC15F0030(E or S) |

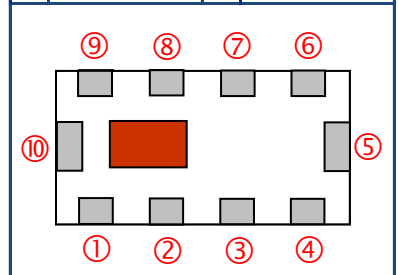
Mechanical Dimensions

| | In | mm |
|---|---------------------|-----------------|
| L | 0.079 \pm 0.008 | 2.00 \pm 0.2 |
| W | 0.049 \pm 0.008 | 1.25 \pm 0.2 |
| T | 0.039 max. | 1.00 max. |
| a | 0.010 \pm 0.004 | 0.25 \pm 0.1 |
| b | 0.012 \pm 0.006 | 0.30 \pm 0.2 |
| c | 0.008 +0.004/-0.006 | 0.20 +0.1/-0.15 |
| d | 0.020 \pm 0.004 | 0.50 \pm 0.1 |



Terminal Configuration

| No. | Function | No. | Function |
|-----|----------|-----|----------------|
| 1 | GND | 6 | TX |
| 2 | GND | 7 | RX_N |
| 3 | ANT | 8 | RX_P |
| 4 | GND | 9 | DC Feed or GND |
| 5 | GND | 10 | GND |



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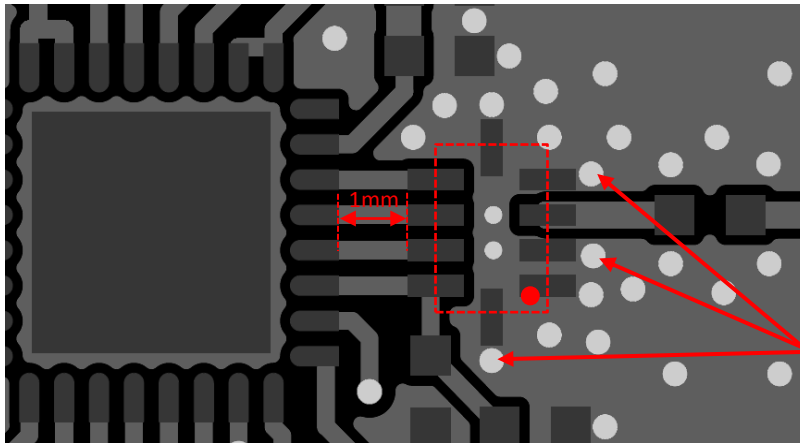
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Pad-Soldermask Guidelines (with DC Feed)



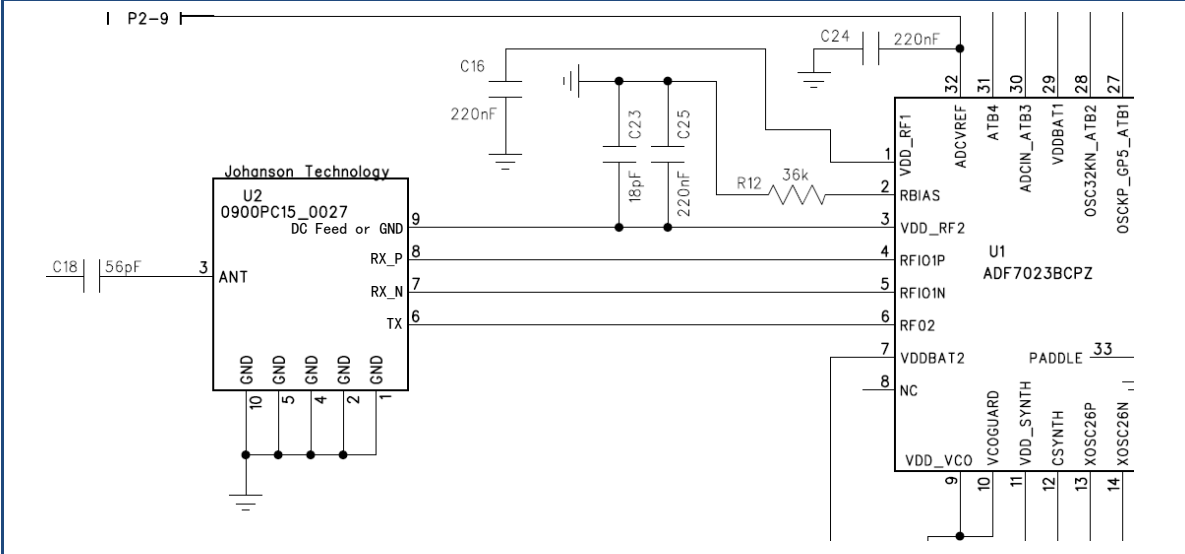
- GND Pads
- Solder Pads
- GND via (ϕ 0.20&0.35)

GND vias are crucial for filter harmonic attenuation

For reference design package and PCB CAD files, please contact us at:

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PCB Reference Design Schematic



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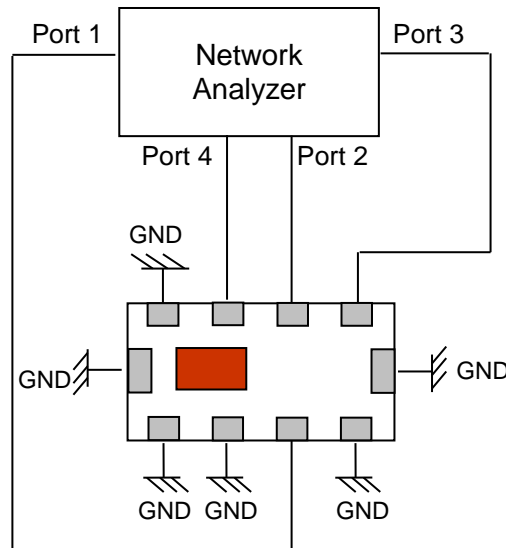
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Measuring Diagram



Tx mode:

Port 1 Load Impedance : 50Ω

Port 3 Load impedance: Complex conjugate to $Z_{IC,TX\ on}$ of ADF7023, ADF7023-J, ADF7024

Port 2 and 4 Load impedance: $Z_{IC,RX\ off}$ of ADF7023, ADF7023-J, ADF7024

$$IL = S_{31}$$

$$RL = S_{11} / S_{33}$$

Rx mode:

Port 1 Load impedance: 50Ω

Port 2 and 4 Load impedance: Complex conjugate to $Z_{IC,RX\ on}$ of ADI ADF7023, ADF7023-J ADF7024

Port 3 Load impedance: $Z_{IC,TX\ off}$ of ADI ADF7023, ADF7023-J, ADF7024

$$IL = S_{DS21}$$

$$RL = S_{SS11} / S_{DD22}$$

$$\text{Amp_balance} = \text{dB}(S(1,2)/S(1,4))$$

$$\text{Phase_balance} = \text{Phase}(S(1,2)/S(1,4))$$

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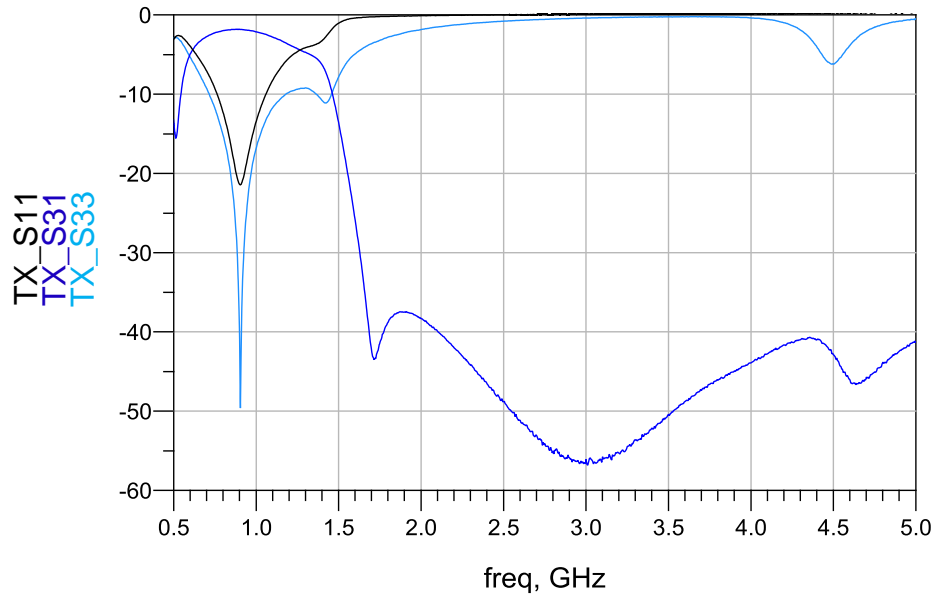
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Typical Electrical Characteristics (T=25°C)

Transmit Mode Insertion Loss, Return Loss, and Attenuation



If you would like the measured s-parameters, contact us at:

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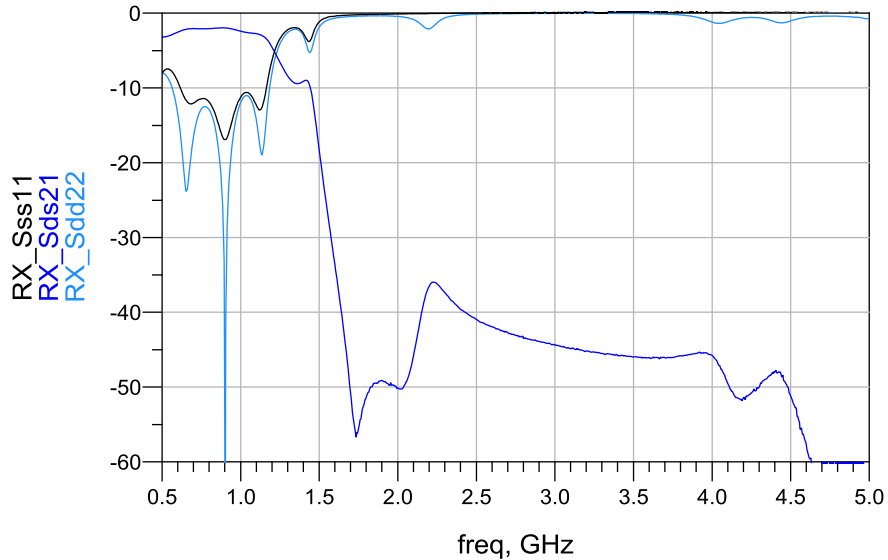
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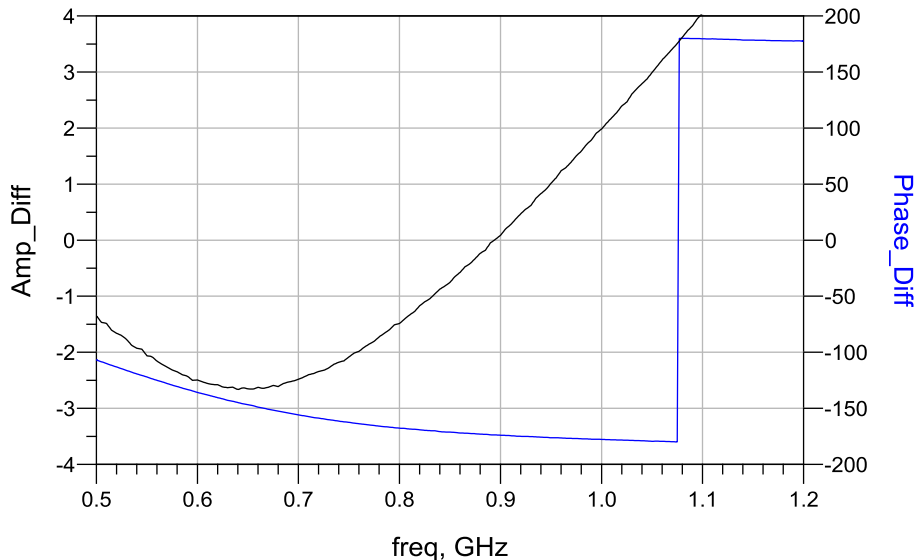
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Typical Electrical Characteristics (T=25°C)

Receive Mode Insertion Loss, Return Loss, and Attenuation



Receive Mode Phase Balance, Amplitude Difference



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Application Notes, Layout Files, and more

www.johansontechnology.com/analog

Small SMD 900MHz (or 2.4G, 5G) antennas at:

www.johansontechnology.com/antennas

RoHS Compliance

www.johansontechnology.com/rohs-compliance

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

Antenna layout and tuning techniques

www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services

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MSL Info

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Recommended Storage Condition and Max Shelf Life

www.johansontechnology.com/recommended-storage-conditions

Packaging information

www.johansontechnology.com/tape-reel-packaging

Would you like us to review your layout for free? Need an embedded antenna recommendation for your application?

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