

# High Frequency Ceramic Solutions

**Impedance-Matched Highly Integrated Ceramic Passive Component for Texas Instruments CC112x, CC117x & CC12xx**

**P/N 0900PC15J0013**

Detail Specification: 1/15/2013

Page 1 of 5

## General Specifications

|                    |                           |                        |                        |
|--------------------|---------------------------|------------------------|------------------------|
| <b>Part Number</b> |                           | 0900PC15J0013          |                        |
| <b>Frequency</b>   |                           | 868 ~ 928MHz           |                        |
| <b>Tx Mode</b>     | <b>Insertion Loss</b>     | 2.0 dB max.            |                        |
|                    | <b>Attenuation (min.)</b> | 35.0 min. @ 2 x fo MHz |                        |
|                    | <b>Attenuation (min.)</b> | TX-ANT                 | 35.0 min. @ 3 x fo MHz |
|                    | <b>Attenuation (min.)</b> |                        | 35.0 min. @ 4 x fo MHz |
|                    | <b>Attenuation (min.)</b> |                        | 35.0 min. @ 5 x fo MHz |
|                    | <b>Return Loss</b>        | TX & ANT               | 9.5 dB min.            |
| <b>Rx Mode</b>     | <b>Frequency Range</b>    | 868-915 MHz            |                        |
|                    | <b>Insertion Loss</b>     | 2.5 dB max.            |                        |
|                    | <b>Return Loss</b>        | TX-ANT                 | 9.5 dB min.            |
|                    | <b>Phase Diff. (deg)</b>  | 180±15                 |                        |
|                    | <b>Amp. Diff.</b>         | 2.0 dB max.            |                        |

|                                       |   |
|---------------------------------------|---|
| <b>Reel Quantity</b>                  | 4,000                                       |
| <b>Operating Temperature</b>          | -40 to +85°C                                |
| <b>Recommended Storage Conditions</b> | +5 ~ +35°C, Humidity: 45-75%RH, 18 mos. Max |

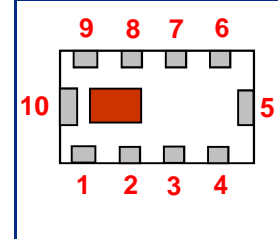


## Terminal Configuration

| No. | Function |
|-----|----------|
| 1   | LNA_N    |
| 2   | LNA_P    |
| 3   | TRX      |
| 4   | PA       |
| 5   | GND      |
| 6   | GND      |
| 7   | ANT      |
| 8   | GND      |
| 9   | GND      |
| 10  | GND      |

## Mechanical Dimensions

|   | In                 | mm              |
|---|--------------------|-----------------|
| L | 0.079 ± 0.008      | 2.00 ± 0.20     |
| W | 0.049 ± 0.008      | 1.25 ± 0.20     |
| T | 0.039 max.         | 1.0 max.        |
| a | 0.010 ± 0.004      | 0.25 ± 0.10     |
| b | 0.012 ± 0.006      | 0.30 ± 0.15     |
| c | 0.008 +.004/-0.006 | 0.20 +0.1/-0.15 |
| p | 0.020 ± 0.004      | 0.50 ± 0.10     |



## Mounting Considerations

\* Line width should be designed to provide 50 ohm impedance, depending on PCB material and thickness

Units: mm

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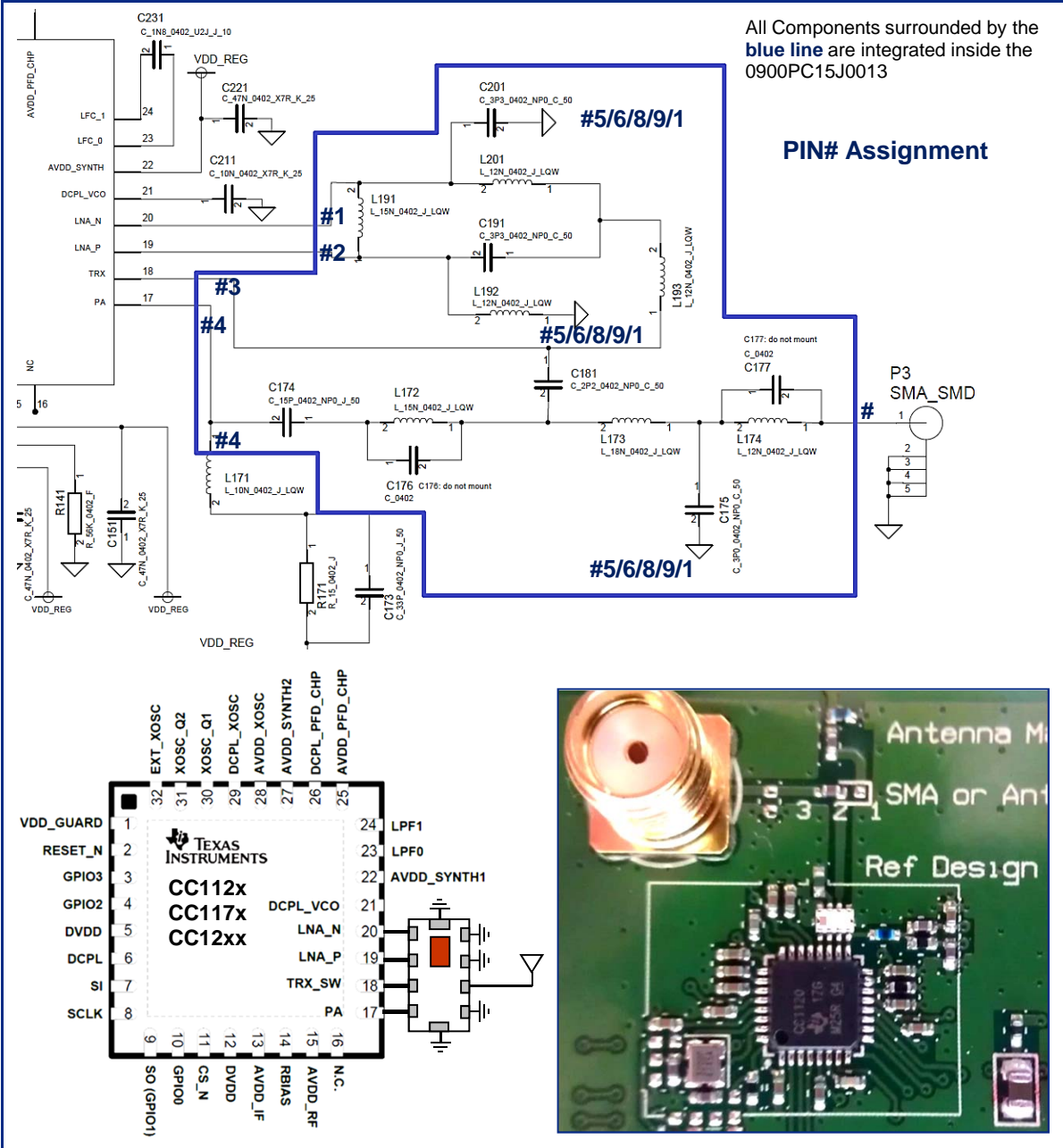
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Page 2 of 5

## Circuit Schematic and Application



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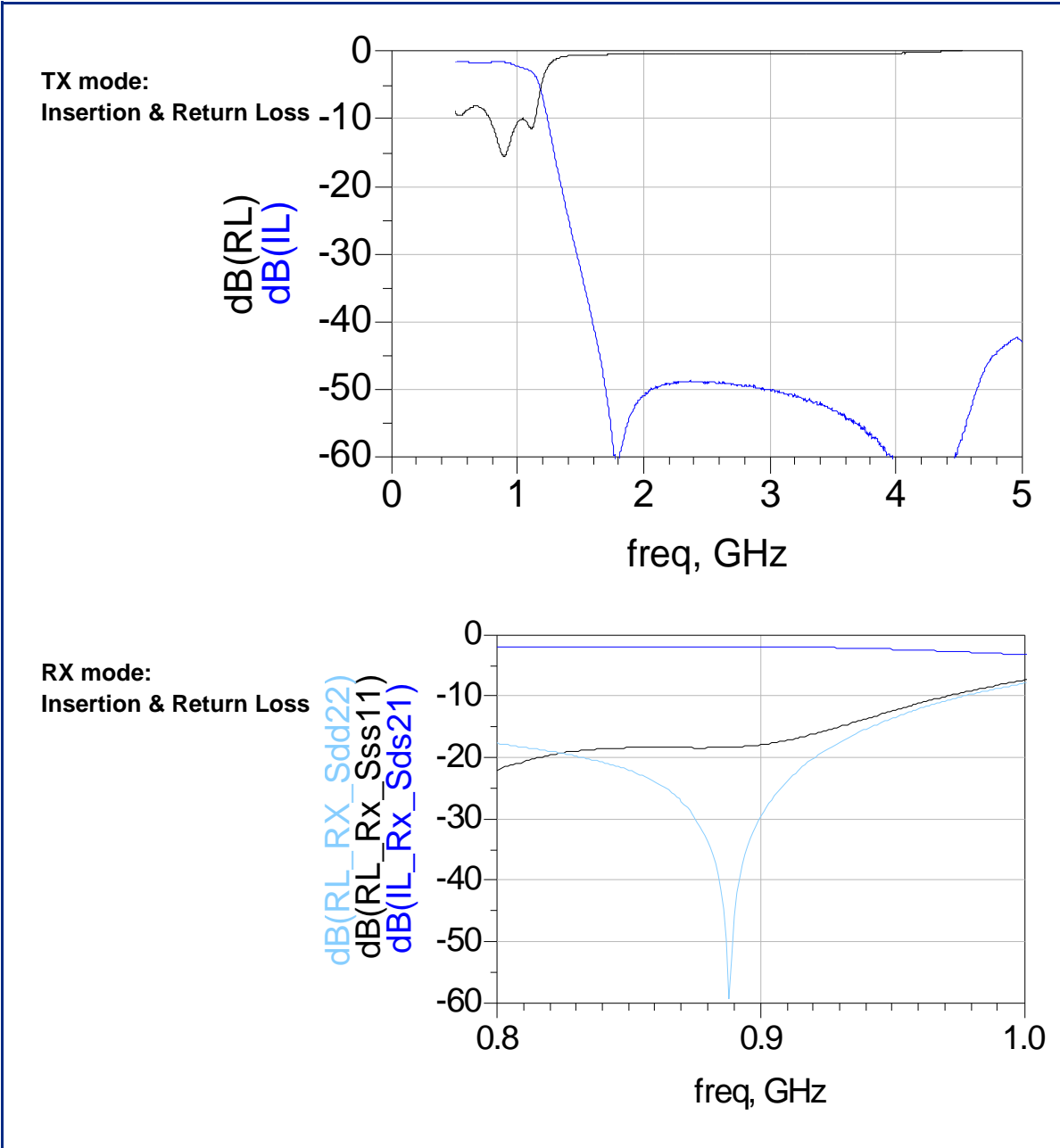
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P/N 0900PC15J0013

Detail Specification: 1/15/2013

Page 3 of 5

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



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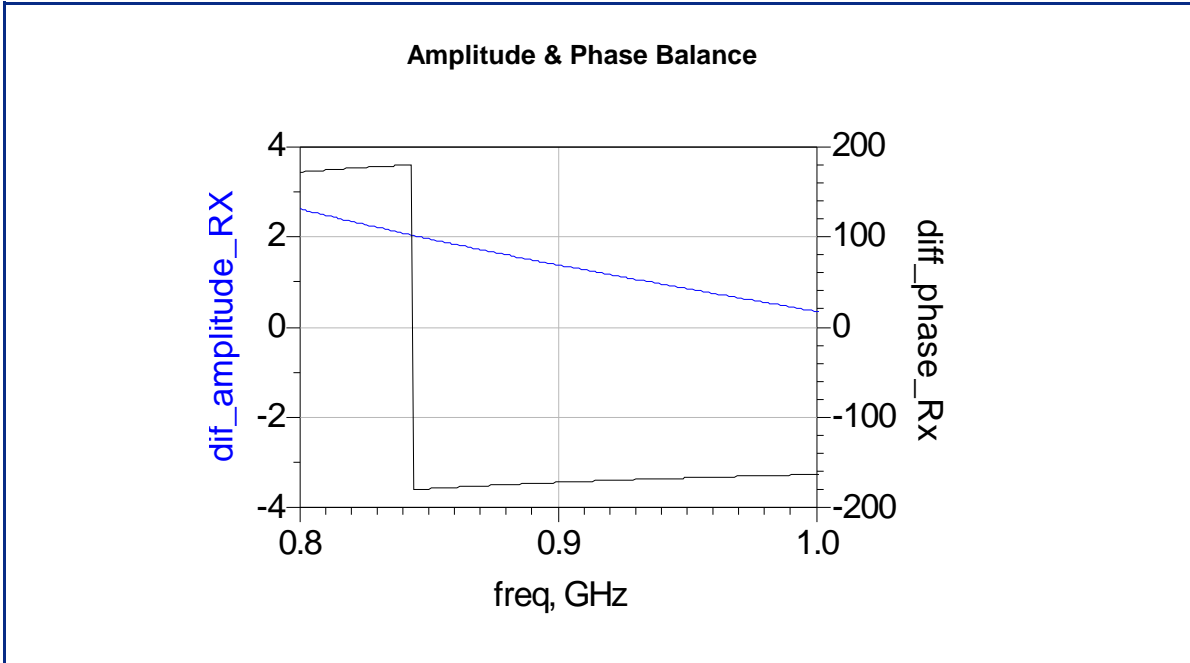
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Detail Specification: 1/15/2013

4 of 5

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



## P/N Ordering

|                          |                 |                        |                          |
|--------------------------|-----------------|------------------------|--------------------------|
| <b>Packaging Style*</b>  | Bulk            | Suffix = S             | Eg. 0900PC15J0013S       |
|                          | T & R           | Suffix = E             | Eg. 0900PC15J0013E       |
|                          | T & R (Reverse) | Suffix = R             | Eg. 0900PC15J0013R       |
| <b>Termination Style</b> | 100% Tin        | Suffix = None          | Eg. 0900PC15J0013(E/R/S) |
|                          | Tin / Lead      | Please consult Factory |                          |

\*<http://johansontechnology.com/en/integrated-passives/integrated-passive-tape-a-reel-packaging.html>



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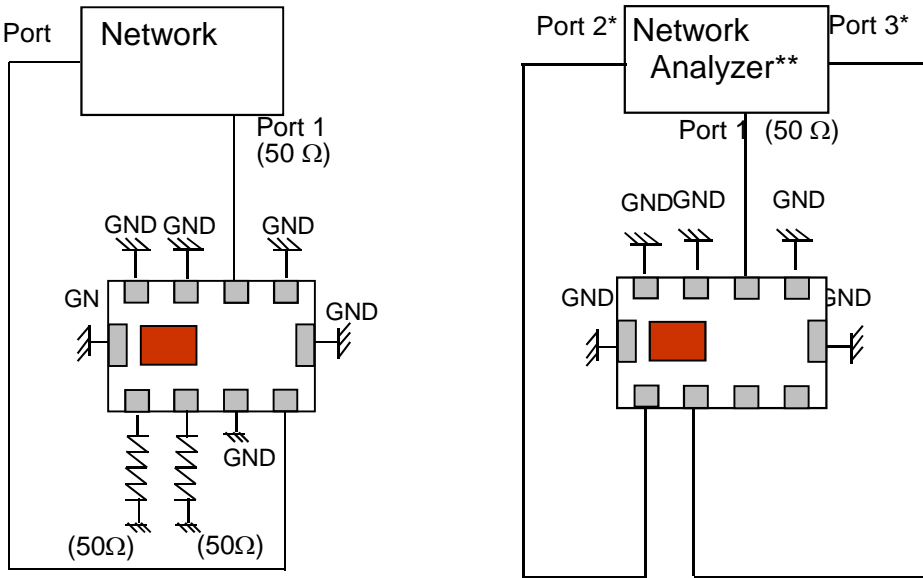
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Page 5 of 5

## Measuring Diagram



Tx :

Port1: Antenna Port  
Port1 Terminate impedance:  
50ohm  
Port2: PA Port  
Port2 Terminate impedance:  
Complex conjugate to  
impedance of TI CC112X PA  
pin  
IL = S21  
RL = S11 / S22  
\*\*E5071B / C from Agilent

RX:

Port 1: Antenna Port  
Port1 Terminate impedance: 50ohm  
Ports 2 and 3: Rx Balanced Port  
\*Port 2 and 3 Terminate impedance :  
Complex conjugate to 1/2 x (Balance  
impedance of TI CC112X LNA\_N /  
LNA\_P pins)  
IL=Sds21  
RL=Sss11 / Sdd22  
Amp\_balance = dB(S(3,1)/S(2,1))  
Phase\_balance = Phase(S(3,1)/S(2,1))

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