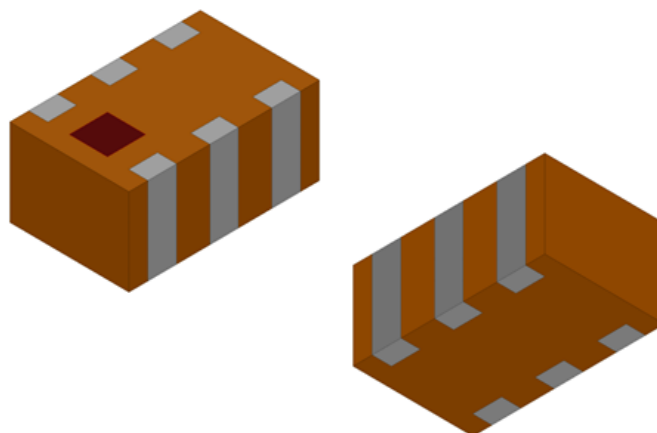




902 – 928 MHz Integrated Balun-filter for Texas Instruments Chipsets

- 902 - 928 MHz ISM bands
- SMD, EIA 0805
- Complete front-end RF solution
 - Integrated impedance-matching balun and filter
 - Integrated harmonic filter for regulatory compliance
- Designed for use with Texas Instruments MCU chipsets and series:
 - CC110X, CC111X, CC113X, CC115X
 - CC110L, CC113L, CC115L
 - CC430, RF430



General Specifications¹

Passband Frequency (MHz)	902 - 928
Unbalanced Impedance, Antenna-side (Ω)	50
Balanced Impedance, Transceiver-side (Ω)	Impedance match to Texas Instruments CC110X, CC111X, CC113X, CC115X, CC110L, CC113L, CC115L, CC430, RF430
Insertion Loss (dB)	2.0 Max
Return Loss (dB)	9.5 Min.
Phase Difference (Degree)	180 ± 15
Amplitude Difference (dB)	1.5 Max.
Attenuation	
Frequency Range (MHz)	745
Attenuation (dB)	5 Min.
Frequency Range (MHz)	1830
Attenuation (dB)	30 Min.
Frequency Range (MHz)	2745
Attenuation (dB)	40 Min.
Frequency Range (MHz)	3660
Attenuation (dB)	45 Min.

¹ Typical value represents average measurement at 25°C. Min./Max. values represent measurements over specified operating temperature.

Maximum Ratings

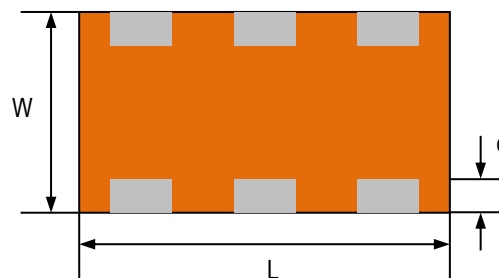
Power Capacity (W)	1 Max. (CW)
Operating Temperature (°C)	-40 to +105
Recommended Storage Conditions post-installation (°C)	-40 to +105
Recommended Storage Conditions and Period for Unused T&R Product ²	45% - 75% RH
	+5 to +35 °C
	18 Months Max.

² 18 months max. in vacuum sealed bag and 1 week after opened. Please keep unused parts in vacuum sealed bags. For more info go to <https://www.johansontechnology.com/silverleads-profile>.

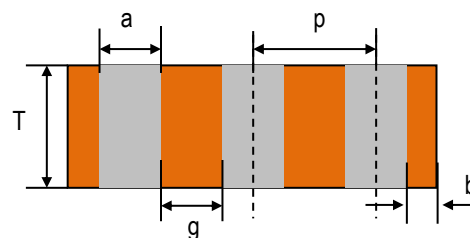
Mechanical Dimensions

	Inches			Millimeters		
L	0.079	±	0.004	2.00	±	0.10
W	0.049	±	0.004	1.25	±	0.10
T	0.028	±	0.004	0.70	±	0.10
a	0.012	±	0.004	0.30	±	0.10
b	0.008	±	0.004	0.20	±	0.10
c	0.012	+0.004/-0.008		0.30	+0.1/-0.2	
g	0.014	±	0.004	0.35	±	0.10
p	0.026	±	0.002	0.65	±	0.05

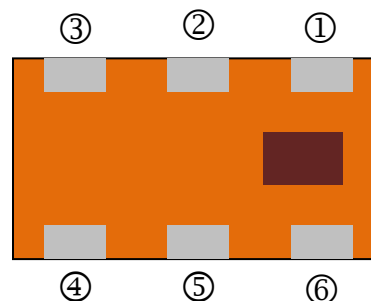
Bottom view



Side view



Top view

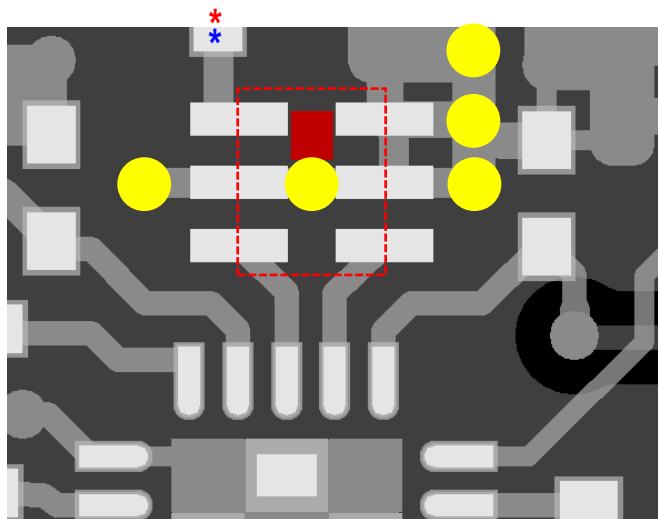


Terminal Configuration³

Pin Number	Function
1	Unbalanced
2	GND
3	Balanced Port
4	Balanced Port
5	GND
6	GND

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

PCB Reference Design Layout



-  Solder Resist
-  Solder Pads
-  GND Via

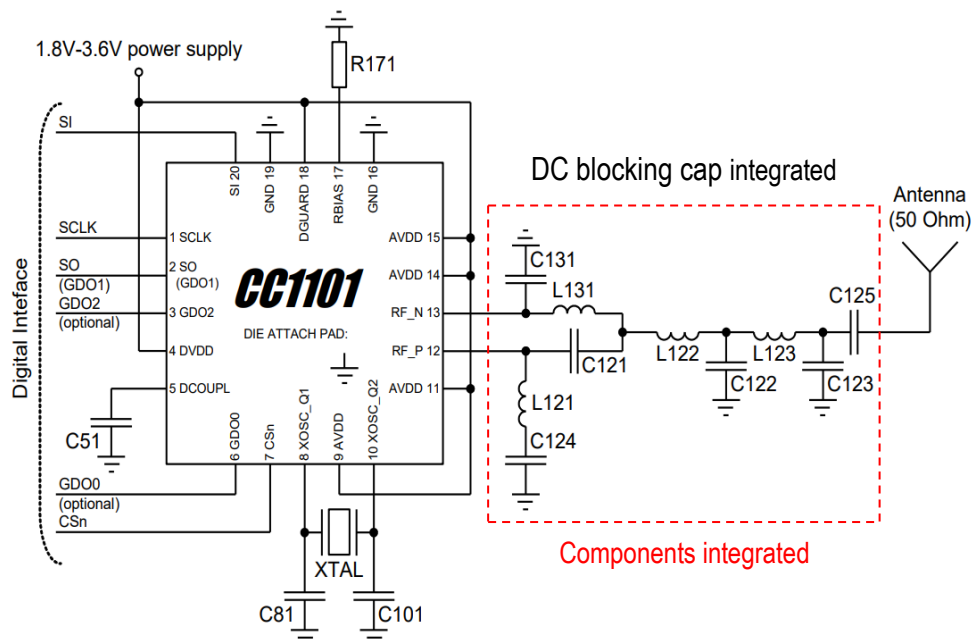
NOTE: GND via placement is crucial to the harmonic attenuation capability of the filter.

* DC-blocking capacitor embedded. External DC-blocking cap not necessary.

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

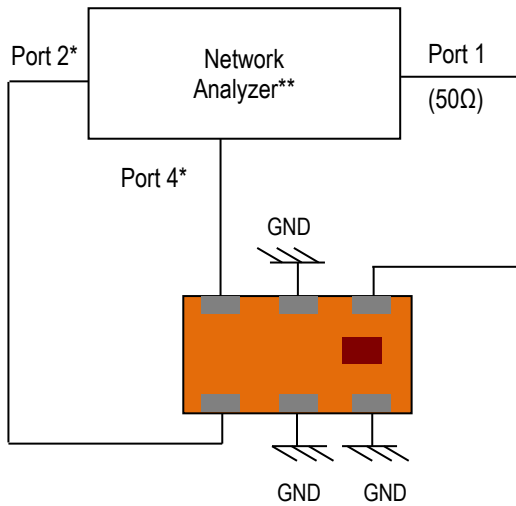
We recommend designers to follow the official reference design in [Texas Instruments Design Note DN025](https://www.ti.com/lit/zip/dn025).

Equivalent Integrated Circuit



If you would like the full reference design package or have any questions, contact our application engineers at <https://www.johansontechnology.com/ask-a-question>

Measuring Diagram



Port 1: Unbalanced

Ports 2 and 4: Balanced

Insertion Loss = S_{DS21}

Return Loss = S_{SS11}

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

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

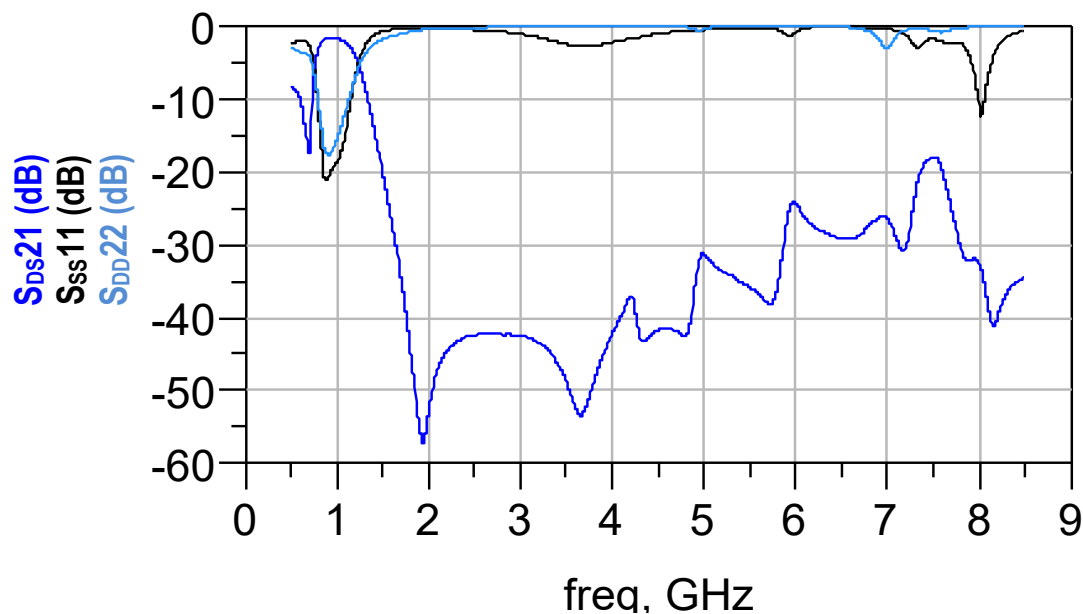
*Ports 2 and 4: Conjugate match to TI chipsets (Page 1)

** E5071B from Agilent

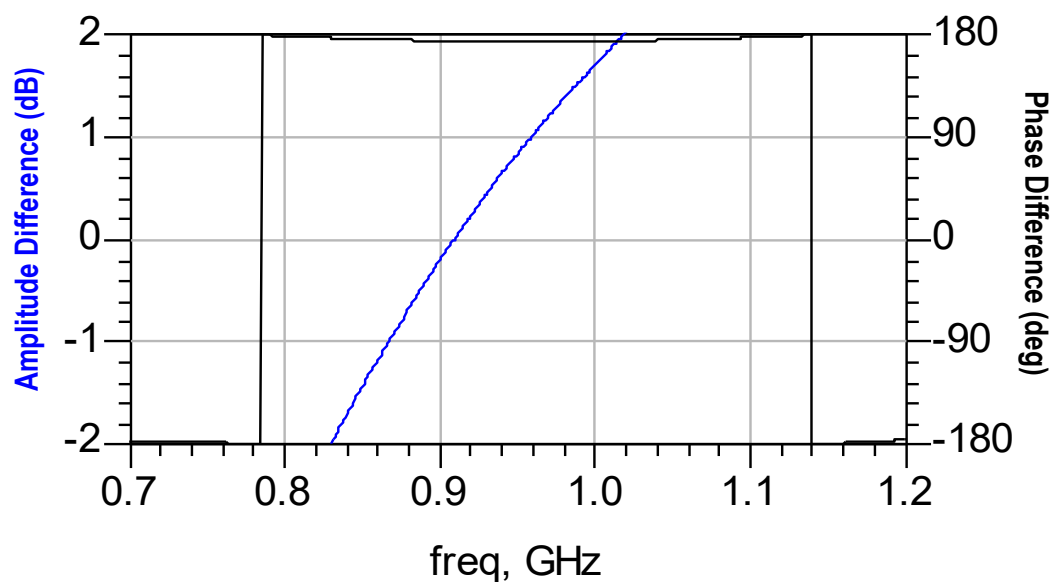


RF Measurement

Insertion Loss, Return Loss, Attenuation



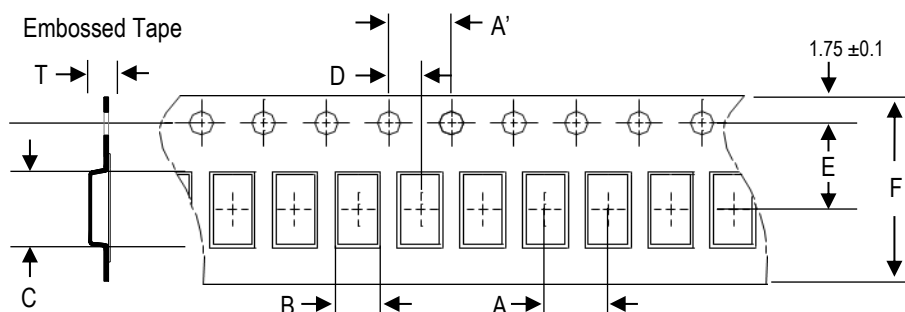
Phase Difference, Amplitude Difference



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

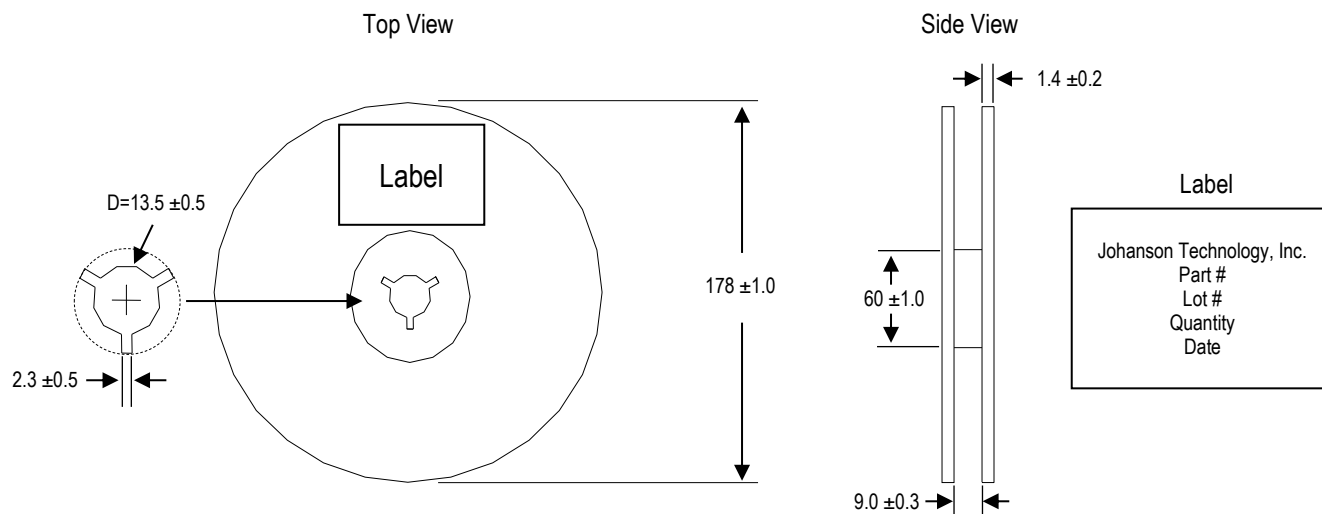
Tape and Reel Specification (Units in mm)

Tape Dimensions

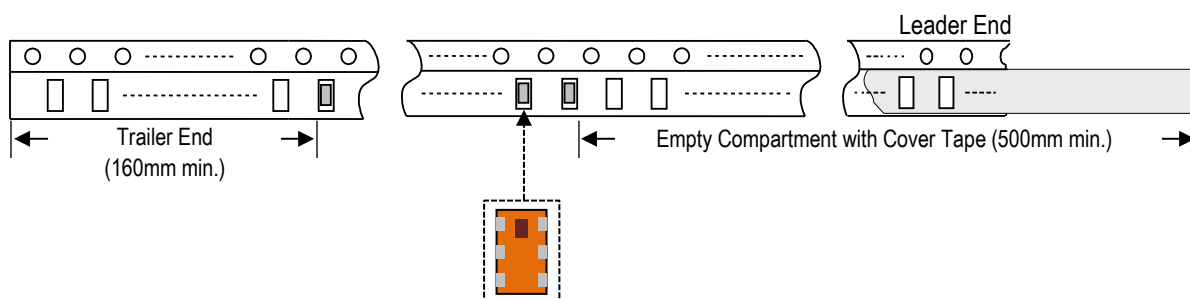


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ± 0.1	4.0 ± 0.1	1.35 ± 0.05	2.15 ± 0.05	2.0 ± 0.05	3.5 ± 0.1	8.0 ± 0.1	1.00 ± 0.05	4,000 pcs	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	0915BM15A0001001B	Silver
T & R (7" Reel Embossed Tape)	0915BM15A0001001E (Qty: 4,000 pcs/reel)	

Important Links

[0915BM15A0001001E Product Page](#)

[Texas Instruments Design Note DN025](#)

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

[Soldering Information](#)

[MSL Information](#)

[Packaging Information](#)

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

[RoHS Compliance](#)

Contact our application engineers for a PCB layout review.

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