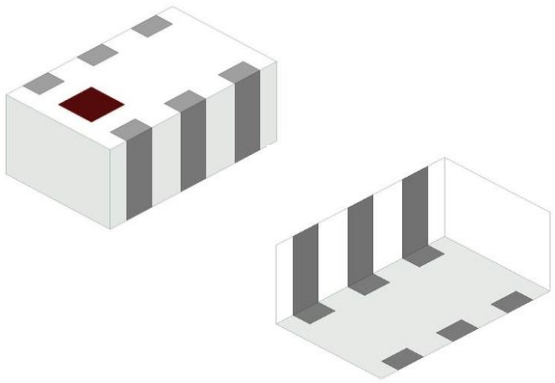
2.4GHz Impedance-matched Balun-filter for Texas Instruments CC26xx-Q1 series chipsets operated on INTERNAL BIAS MODE

- 2400 – 2500MHz band
- SMD, EIA 0603
- Complete front-end solution
  - Integrated impedance-matching balun
  - Integrated harmonic filter for regulatory compliance
- Designed for use with Texas Instruments MCU part numbers:
  - CC2620
  - CC2630
  - CC2640, CC2642R, CC2642R1F
  - CC2650, CC2652R (RGZ)
- AEC-Q200 qualified version available



General Specifications[1]

Passband Frequency (MHz)	**2400 - 2500**
Unbalanced Impedance, Antenna-side (Ω)	50
Balanced Impedance, Transceiver-side (Ω)	Impedance match to Texas Instruments CC2620, CC2630, CC2640, CC2642R, CC2642R1F, CC2650, CC2652R (RGZ)
Insertion Loss (dB)	1.5 Typ. / 1.8 Max.
Return Loss (dB)	9.5 Min.
Phase Difference (Degree)	180 ± 10
Amplitude Difference (dB)	2.0 Max.
Attenuation	
Frequency Range (MHz) Attenuation (dB)	4800 – 5000 25 Min.
Frequency Range (MHz) Attenuation (dB)	7200 – 7500 20 Min.

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

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Maximum Ratings

Power Capacity (W)	2 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	45% - 75% RH +5 to +35 °C 18 Months Max.

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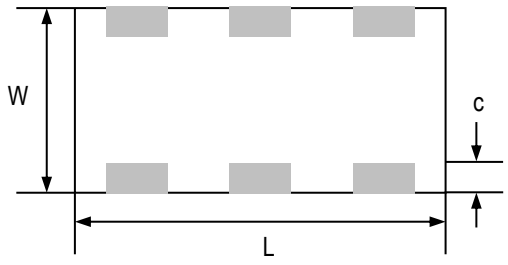
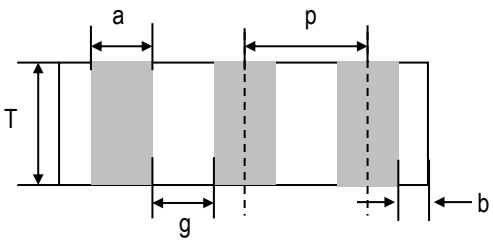
Mechanical Dimensions

	Inches			Millimeters		
L	0.063	±	0.004	1.60	±	0.10
W	0.031	±	0.004	0.80	±	0.10
T	0.024	±	0.004	0.60	±	0.10
a	0.008	±	0.004	0.20	±	0.10
b	0.008	+0.004/-0.006		0.20	+0.10/-0.15	
c	0.006	±	0.004	0.15	±	0.10
g	0.012	±	0.004	0.30	±	0.10
p	0.020	±	0.002	0.50	±	0.05

Bottom view



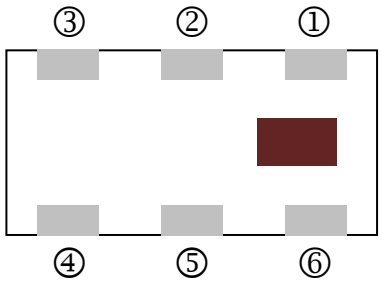
Side view



Terminal Configuration[2]

Pin Number	Function
1	Unbalanced 50Ω
2	NC
3	RF_N
4	RF_P
5	GND
6	GND

Top view



[2] The termination type is Nickel Tin. Go to: https://www.johansontechnology.com/ipcsoldering-profile for Typical Soldering Profile.

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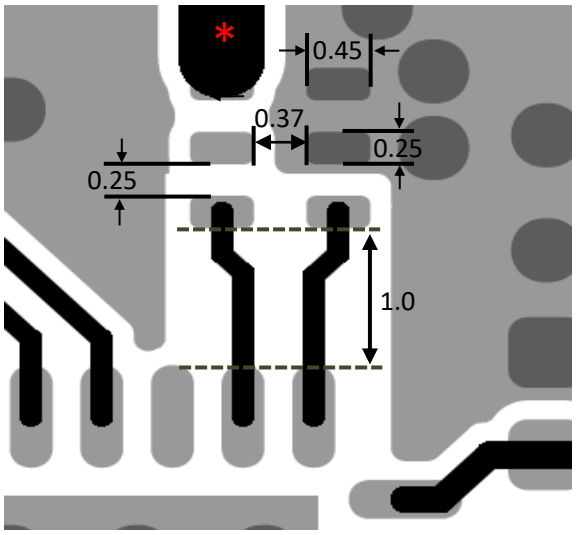
PCB Reference Design Layout

Units in mm



GND Plane and Solder

GND Via

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

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

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

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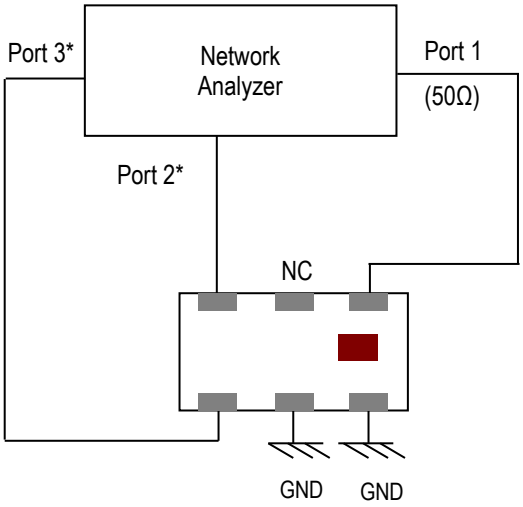
Measuring Diagram



*Ports 2 and 3: Conjugate match to TI CC26XX chipset

Port 1: Unbalanced

Ports 2 and 3: Balanced

Insertion Loss= S_{DS21}

Return Loss=S_{SS11}

Amplitude Difference = dB(S(2,1)/S(3,1))

Phase Difference = Phase(S(2,1)/S(3,1))

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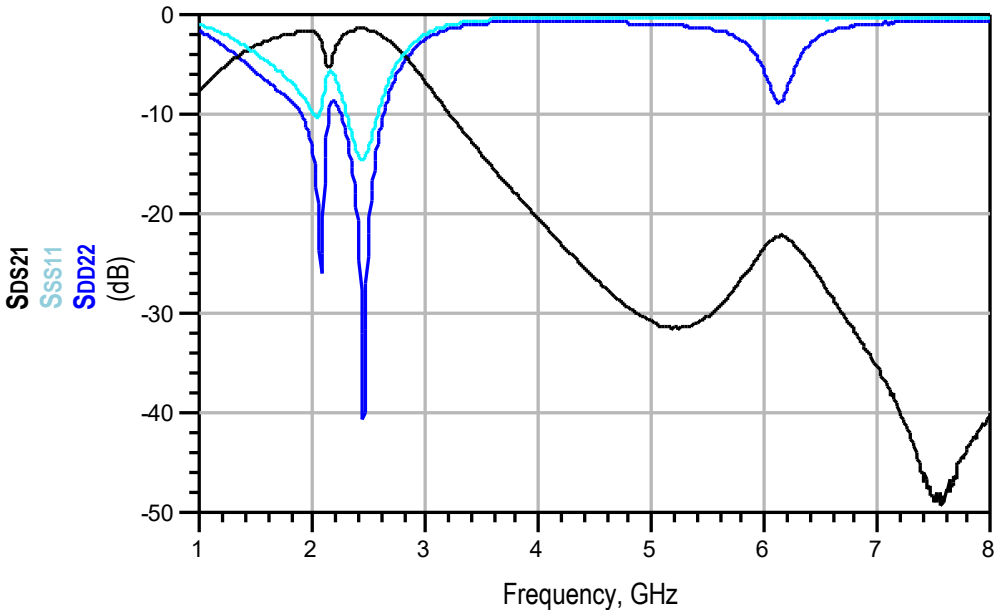
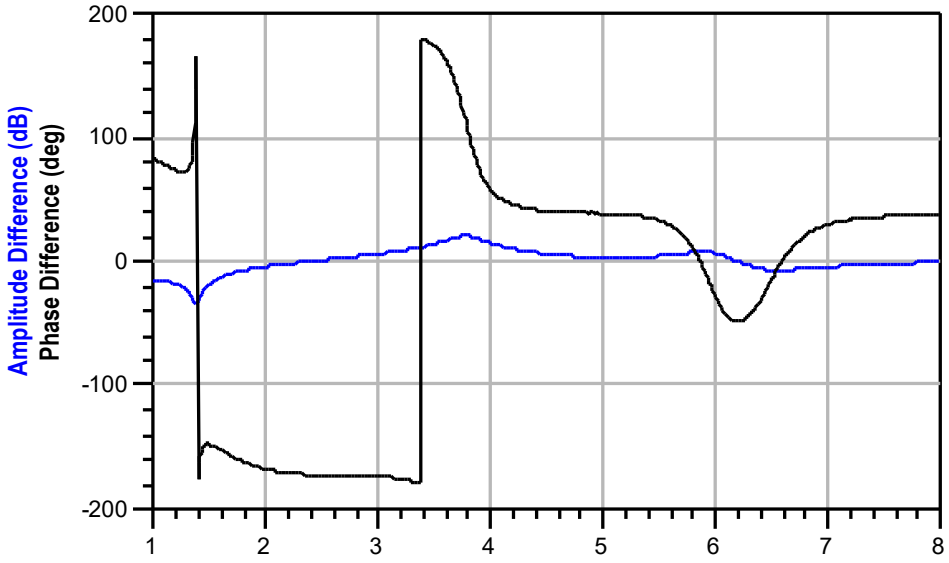
RF Measurement

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

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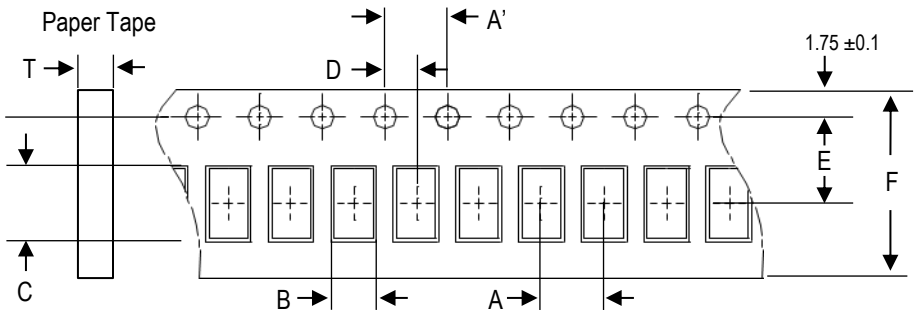
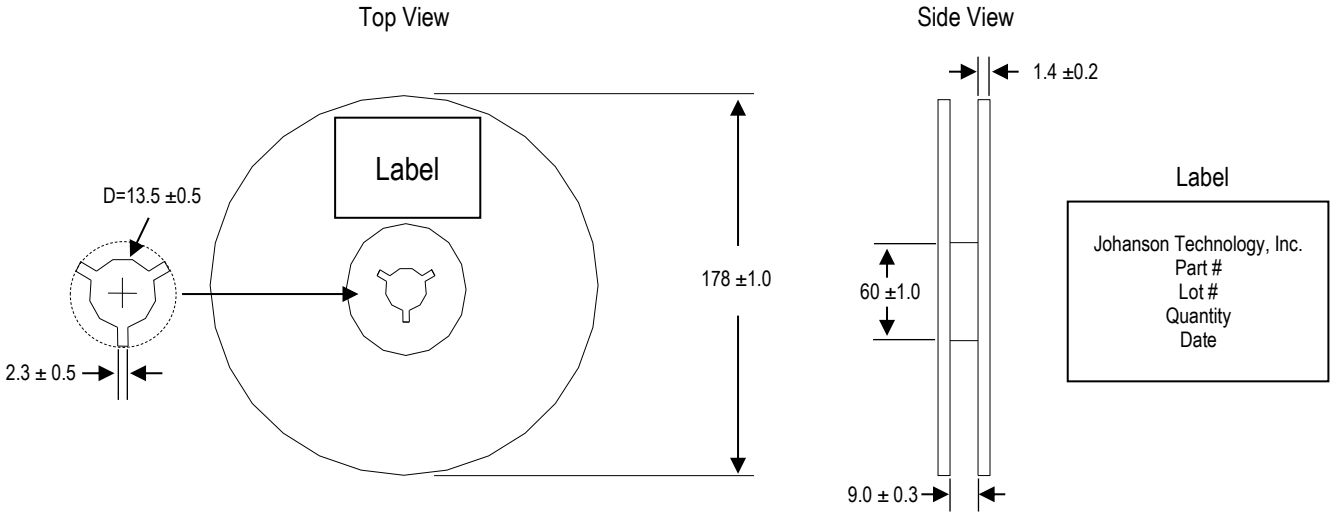
Tape and Reel Specification (Units in mm)

Tape Dimensions

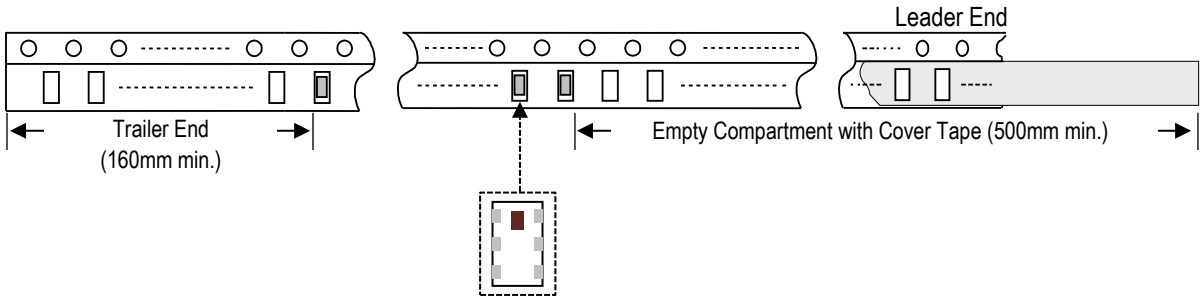


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ±0.1	4.0 ±0.1	1.1 ±0.1	1.92 ±0.1	2.0 ±0.1	3.5 ±0.1	8.0 ±0.1	0.75 ±0.05	4,000pcs	Paper

Reel Dimensions



Leader and Trailer Dimensions



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Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	2450BM14G0011001B	Nickel Tin
T & R (7" Reel Paper Tape)	2450BM14G0011001T (Qty: 4,000 pcs/reel)	

Important Links

2450BM14G0011001T Product Page

Texas Instruments Application Note SWRA572

More Texas Instruments Integrated Passive Devices

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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