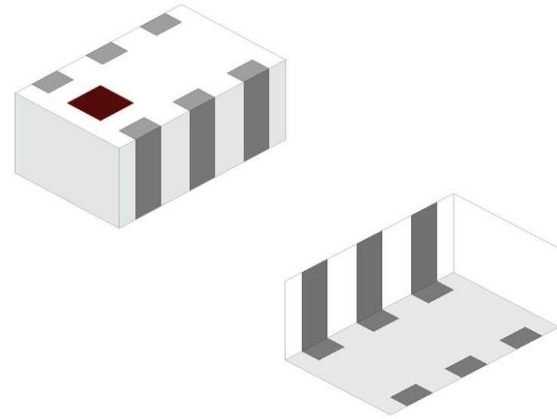


2.4GHz Impedance-matched Balun-filter for Texas Instruments CC26xx-Q1 series chipsets operated on INTERNAL BIAS MODE, AEC-Q200 Qualified

- 2400 – 2500MHz band
- SMD, EIA 0603
- AEC-Q200 qualified for automotive applications
- Complete front-end solution
 - Integrated impedance-matching balun
 - Integrated harmonic filter for regulatory compliance
- Designed for use with Texas Instruments MCU part numbers:
 - CC2640R2F-Q1
 - CC2642R-Q1
 - CC2662R-Q1



General Specifications¹

Passband Frequency (MHz)	2400 - 2500
Unbalanced Impedance, Antenna-side (Ω)	50
Balanced Impedance, Transceiver-side (Ω)	Impedance match to Texas Instruments CC2640R2F-Q1, CC2642R-Q1, CC2662R-Q1
Insertion Loss (dB)	1.5 Typ. (1.8 Max. -40°C to +105°C)
Return Loss (dB)	9.5 Min.
Phase Difference (Degree)	180 \pm 10
Amplitude Difference (dB)	2.0 Max.
Attenuation	
Frequency Range (MHz)	4800 – 5000
Attenuation (dB)	25 Min.
Frequency Range (MHz)	7200 – 7500
Attenuation (dB)	20 Min.

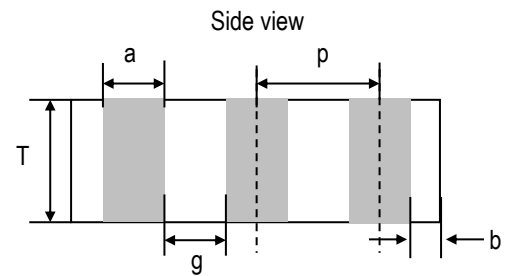
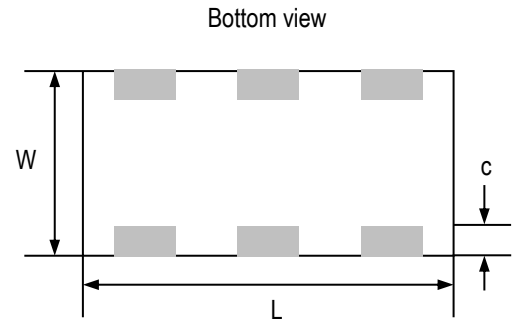
¹ Typical value represents average measurement at 25°C. Min./Max. values represent measurements over specified operating temperature.

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.

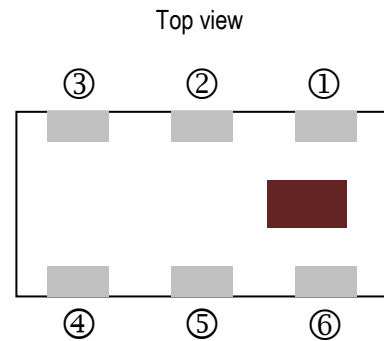
Mechanical Dimensions

	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



Terminal Configuration²

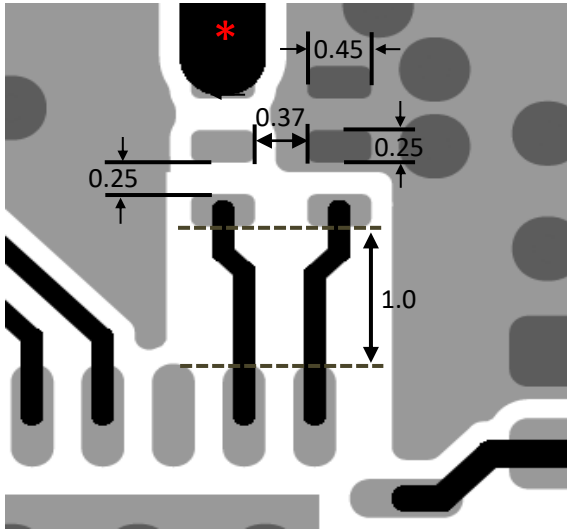
Pin Number	Function
1	Unbalanced 50Ω
2	NC
3	RF_N
4	RF_P
5	GND
6	GND





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

PCB Reference Design Layout

Units in mm



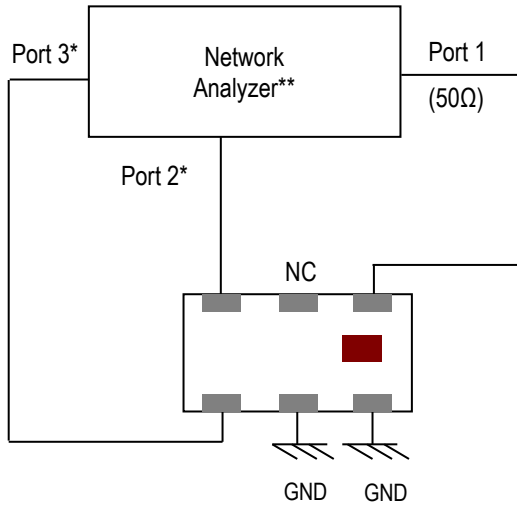
-  GND Plane and Solder
-  GND Via

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>

Measuring Diagram



Port 1: Unbalanced

Ports 2 and 3: Balanced

Insertion Loss = S_{DS21}

Return Loss = S_{SS11}

Amplitude Difference = $\text{dB}(S(2,1)/S(3,1))$

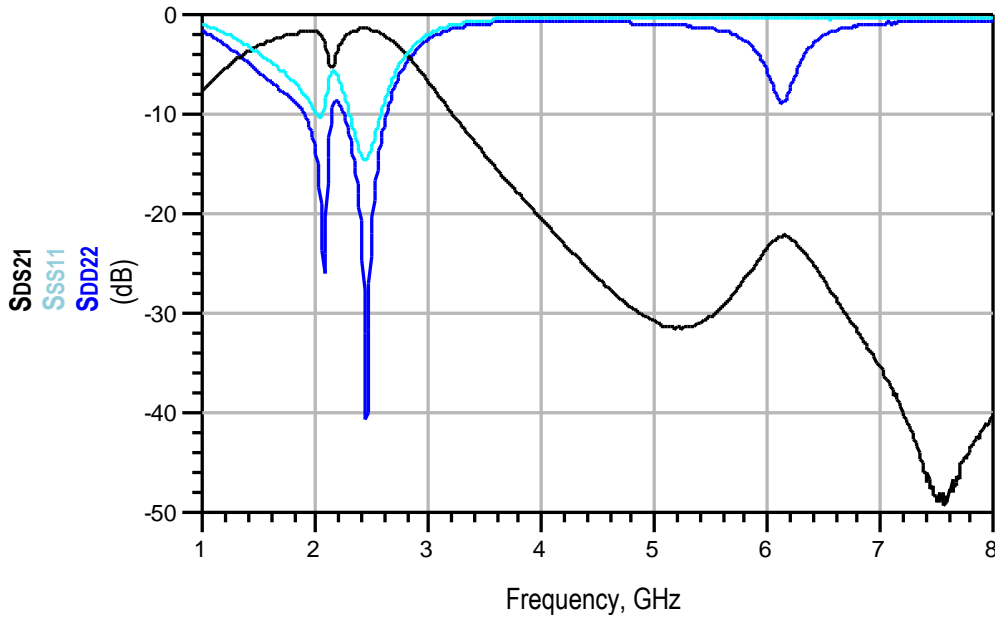
Phase Difference = $\text{Phase}(S(2,1)/S(3,1))$

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

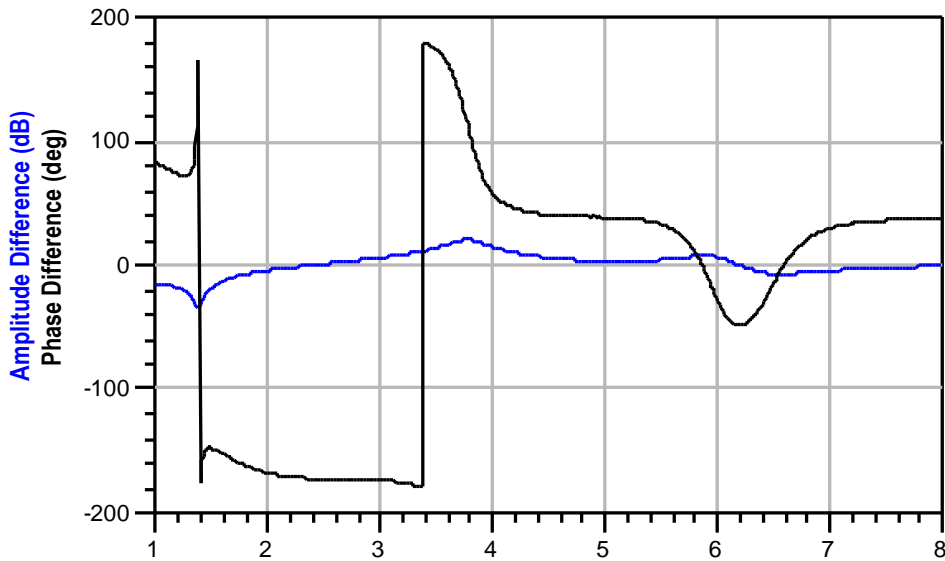
** Agilent E5071B

RF Measurement

Insertion Loss, Return Loss, Attenuation



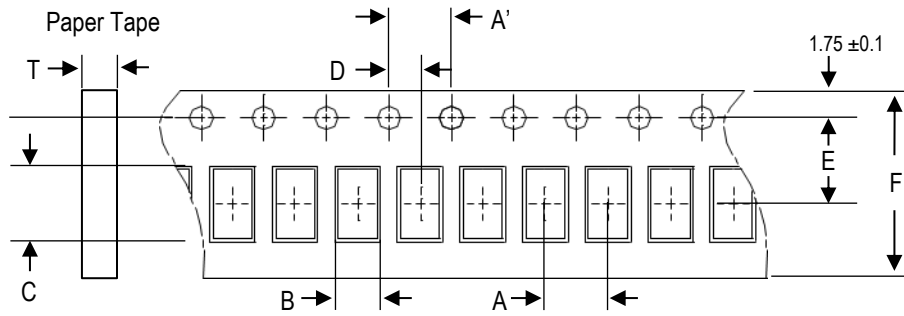
Phase Difference, Amplitude Difference



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

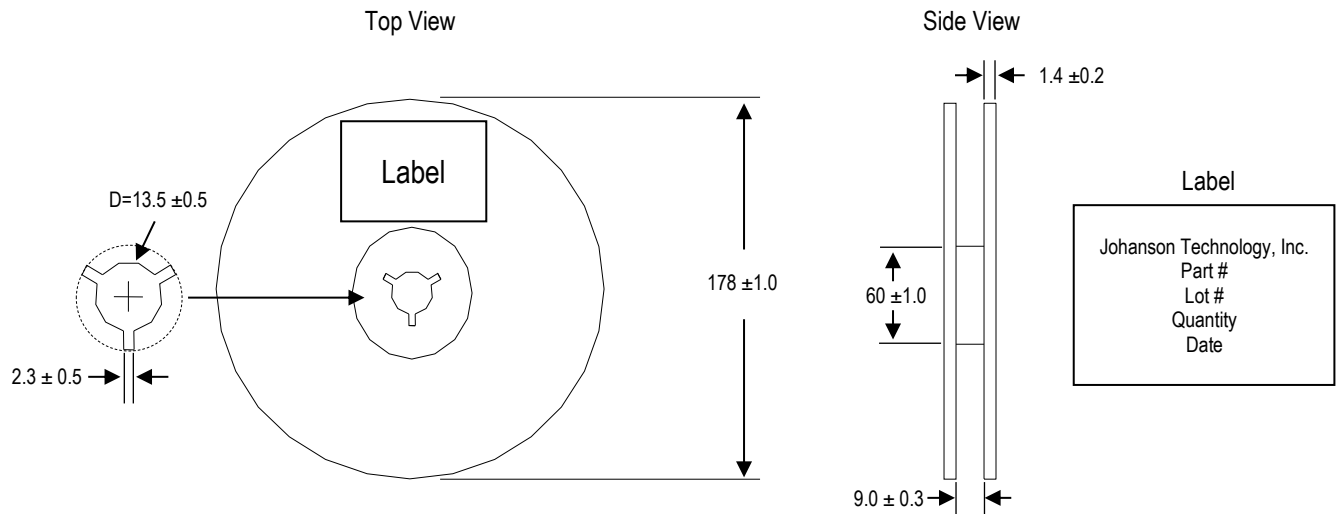
Tape and Reel Specification (Units in mm)

Tape Dimensions

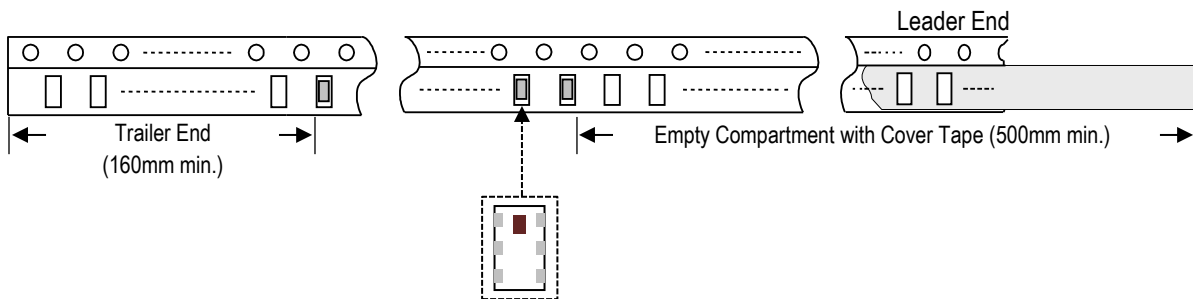


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ± 0.1	4.0 ± 0.1	1.1 ± 0.1	1.92 ± 0.1	2.0 ± 0.1	3.5 ± 0.1	8.0 ± 0.1	0.75 ± 0.05	4,000pcs	Paper

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	2450BM14G0011002B	Nickel/Tin
T & R (7" Reel Paper Tape)	2450BM14G0011002T (Qty: 4,000 pcs/reel)	

Important Links

[2450BM14G0011002T Product Page](#)

[Texas Instruments Application Note SWRA572](#)

[More RF Baluns](#)

[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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