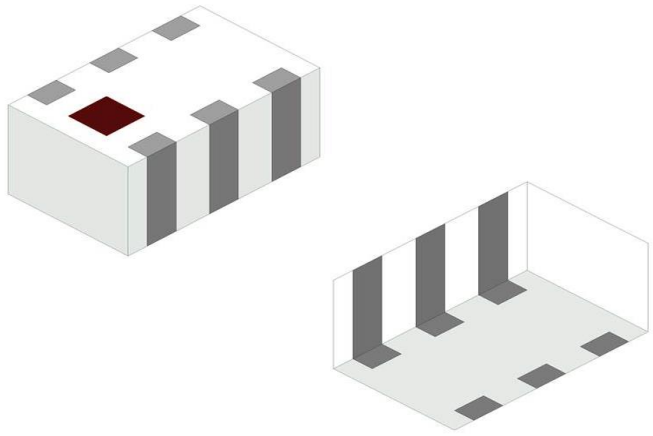
5.4 GHz RF 1:4 Balun

- 4900 - 5875 MHz, 50:200 (1:4) Impedance Ratio
- Wireless communication systems including: WiFi, 802.11, Public Safety, UNII, PtP, ISM
- SMD, EIA 0805
- RoHS compliant



General Specifications[1] [2]

Passband Frequency (MHz)	**4900 – 5875**
Unbalanced Impedance (Ω)	50
Balanced Impedance (Ω)	200
Insertion Loss (dB)	1.0 Max.
Return Loss (dB)	9.5 Min.
Phase Difference (degree)	180 ± 10
Amplitude Difference (dB)	2 Max.

Maximum Ratings

Power Capacity (W)	2 Max. (CW)
Operating Temperature (°C)	-40 to +85
Recommended Storage Conditions post-installation (°C)	-40 to +85
Recommended Storage Conditions and Period for Unused T&R Product	45% - 75% RH +5 to +35 °C 18 Months Max.

[1] Typical value represents average measurement at 25°C. Min./Max. values represent measurements over specified operating temperature.
[2] General specifications measured on Johanson's evaluation board P/N 5400BL15B0200001CE1.

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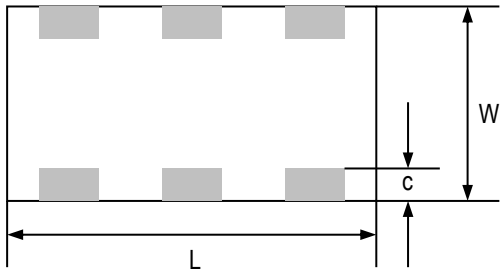
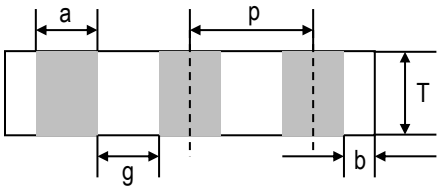
Mechanical Dimensions

	Inches			Millimeters		
L	0.079	±	0.004	2.00	±	0.10
W	0.049	±	0.004	1.25	±	0.10
T	0.037	±	0.004	0.95	±	0.10
a	0.012	±	0.004	0.30	±	0.10
b	0.008	±	0.004	0.20	±	0.10
c	0.012	+.004/-.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



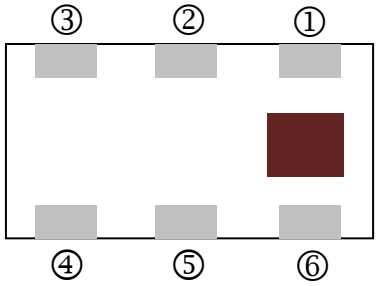
Side view



Terminal Configuration[3]

Pin Number	Function
1	Unbalanced Port (IN)
2	GND
3	Balanced Port (OUT1)
4	Balanced Port (OUT2)
5	GND
6	NC

Top view



[3] The termination type is Nickel Tin. Go to: https://www.johansontechnology.com/tech-notes/typical-soldering-profile-ipc for Typical Soldering Profile.

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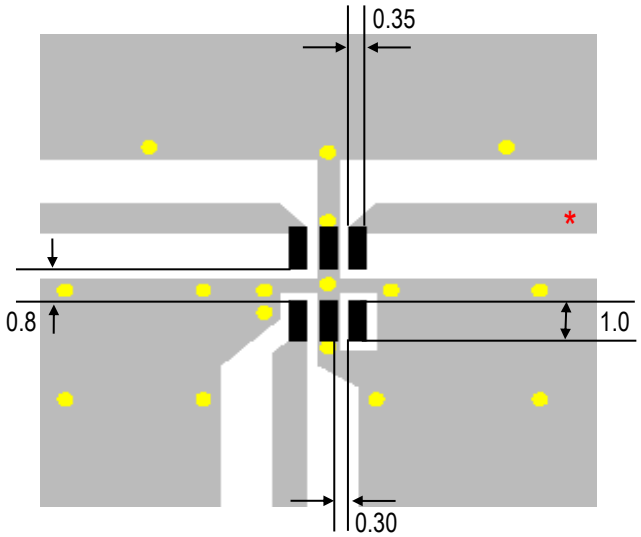
Recommended PCB Layout

Note: Mount device with colored mark facing up.



Units: mm

Solder Resist

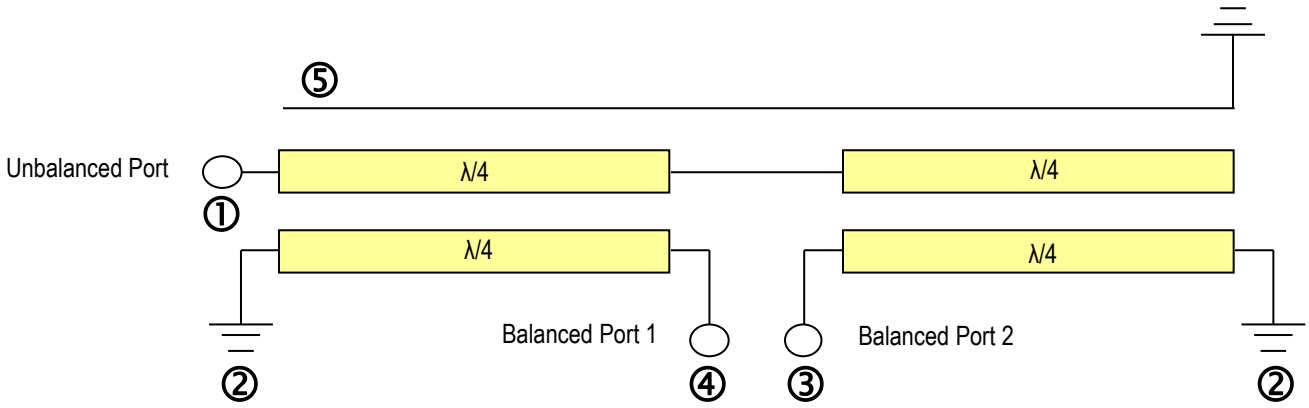
Land

Through-hole (Φ 0.3)

* Transmission line width 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

Equivalent Internal Circuit[4]



[4] Pin 6 is a floating pin (no internal connections) but it still must be soldered.

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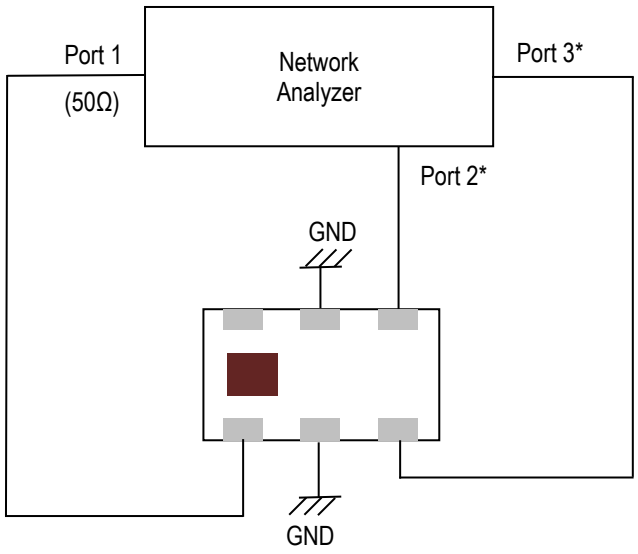
Measuring Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

Insertion Loss = S_{ds21}

Return Loss = S_{ss11}

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

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

*Impedance for Ports 2 and 3 = Balanced Impedance/2

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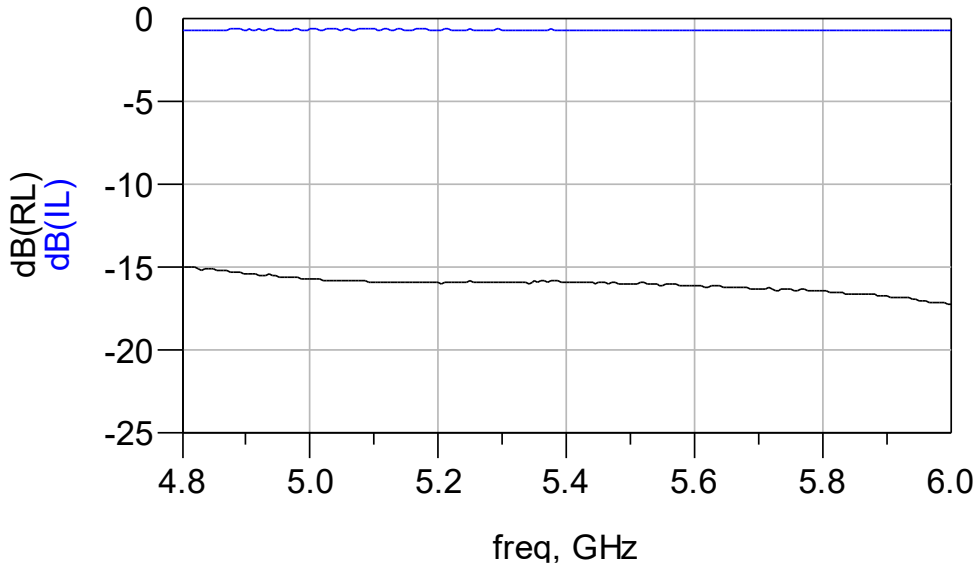
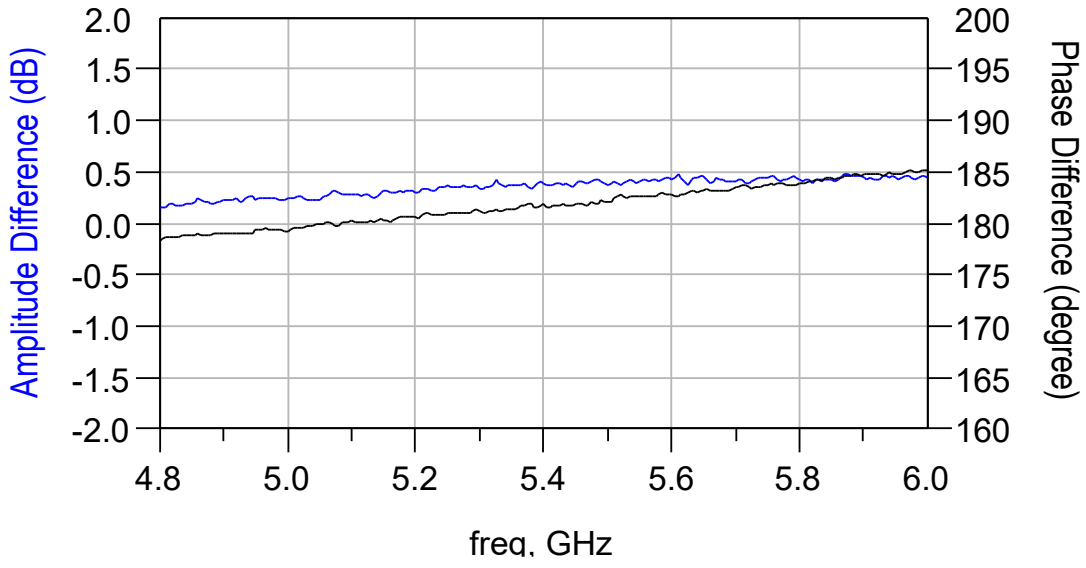
RF Measurement (T=25°C)

Insertion Loss and Return Loss



Phase Difference and 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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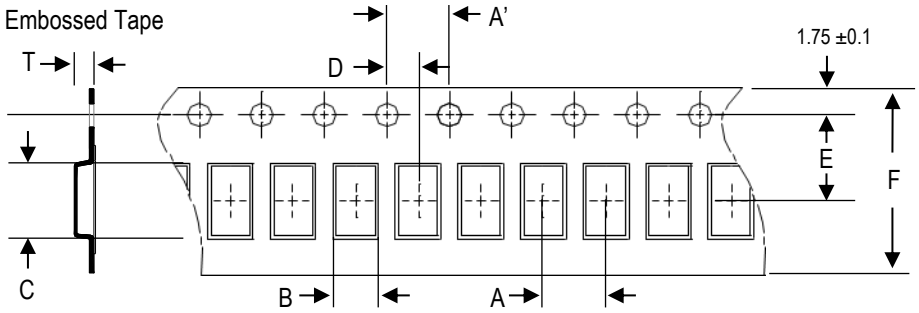
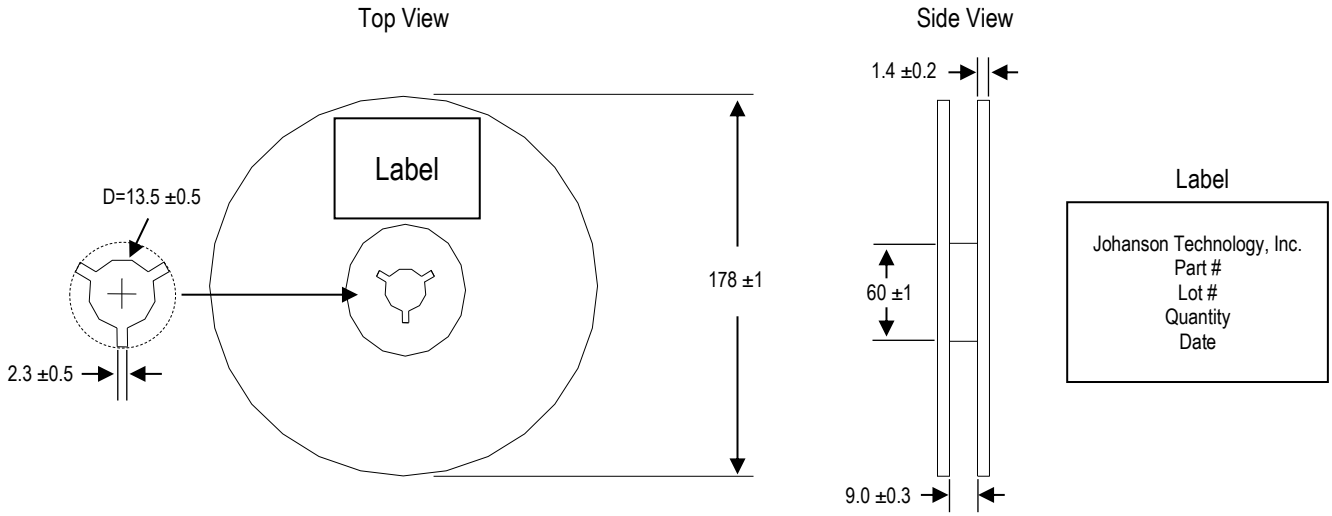
Tape and Reel Specification (Units in mm)

Tape Dimensions

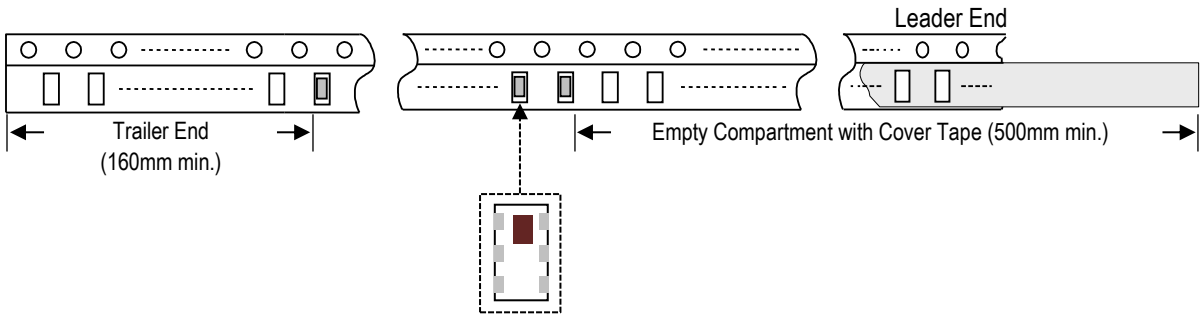


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ±0.1	4.0 ±0.1	1.35 ±0.05	2.15 ±0.05	2.0 ±0.05	3.5 ±0.1	8.0 ±0.1	1.08 ±0.05	4,000 pcs.	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



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Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	5400BL15B0200001B	Nickel Tin
T & R (7" Reel Embossed Tape)	5400BL15B0200001E (Qty: 4,000 pcs./reel)	
Evaluation Board with 3 SMA Connectors	5400BL15B0200001CE1	

Important Links

5400BL15B0200001E Product Page

More RF Baluns

Antenna Tuning, Optimization, and Validation Services

Soldering Information

MSL Information

Packaging Information

Recommended Storage Condition and Max Shelf Life

RoHS Compliance

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