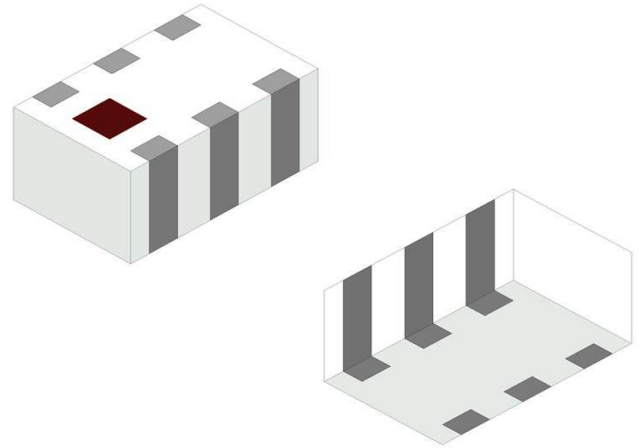




900 MHz RF 1:2 Balun

- 800 - 1000 MHz, 50:100 (1:2) Impedance Ratio
- Wireless communication systems using Sub-GHz protocols for smart home, general IoT, security, metering, lighting, cellular, agriculture, city and building automation, etc.
- SMD, EIA 1206
- RoHS compliant



General Specifications^{1 2}

Passband Frequency (MHz)	800 - 1000
Unbalanced Impedance (Ω)	50
Balanced Impedance (Ω)	100
Insertion Loss (dB)	1.0 Max.
Return Loss (dB)	9.5 Min.
Phase Difference (degree)	180 ± 10
Amplitude Difference (dB)	2.0 Max.

Maximum Ratings

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

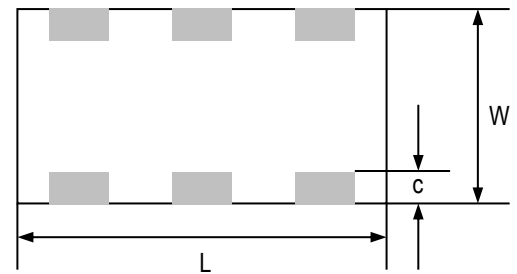
¹ Typical value represents average measurement at 25 $^{\circ}\text{C}$. Min./Max. values represent measurements over specified operating temperature.

² General specifications measured on Johanson's evaluation board PN 0900BL18B0100001CE1.

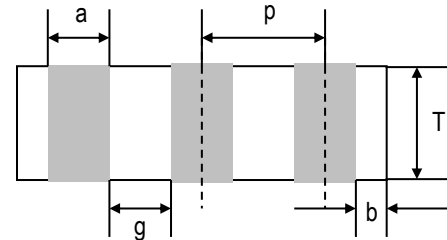
Mechanical Dimensions

	Inches			Millimeters		
L	0.126	±	0.006	3.20	±	0.15
W	0.063	±	0.006	1.60	±	0.15
T	0.037	±	0.004	0.95	±	0.10
a	0.022	±	0.006	0.55	±	0.15
b	0.013	±	0.006	0.33	±	0.15
c	0.012	±	0.004/-0.008	0.30	±	+0.1/-0.2
g	0.018	±	0.006	0.45	±	0.15
p	0.039	±	0.004	1.00	±	0.10

Bottom view



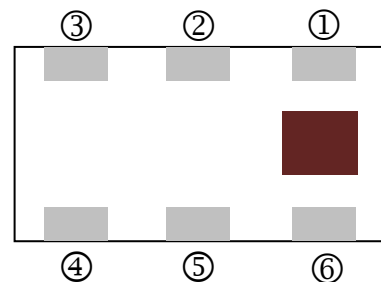
Side view



Terminal Configuration³

Pin Number	Function
1	GND or (DC feed + RF GND)
2	Unbalanced Port (IN)
3	GND or (DC feed + RF GND)
4	Balanced Port (OUT1)
5	NC
6	Balanced Port (OUT2)

Top view

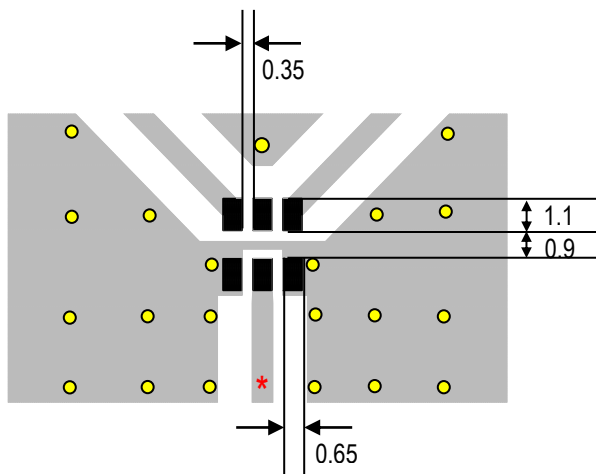


³ The termination type is Nickel Tin. Go to: <https://www.johansontechnology.com/tech-notes/typical-soldering-profile-ipc> for Typical Soldering Profile.

Recommended PCB Layout

Note: Mount device with colored mark facing up.

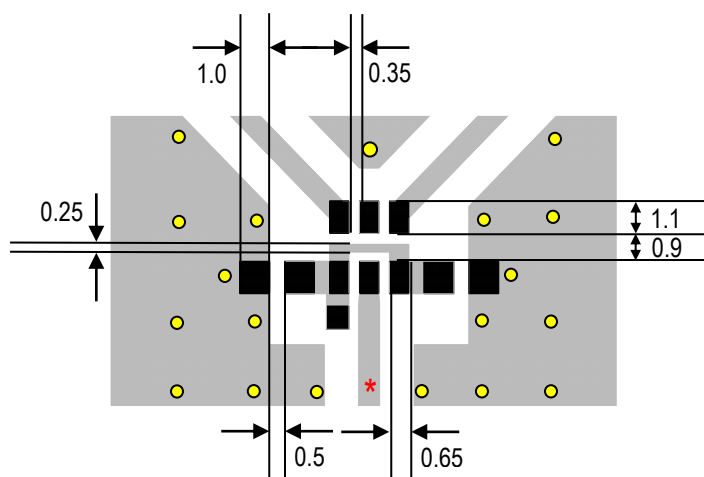
Without DC feed



Units: mm

-  Solder Resist
-  Land
-  Through-hole ($\phi 0.3$)

With DC feed**



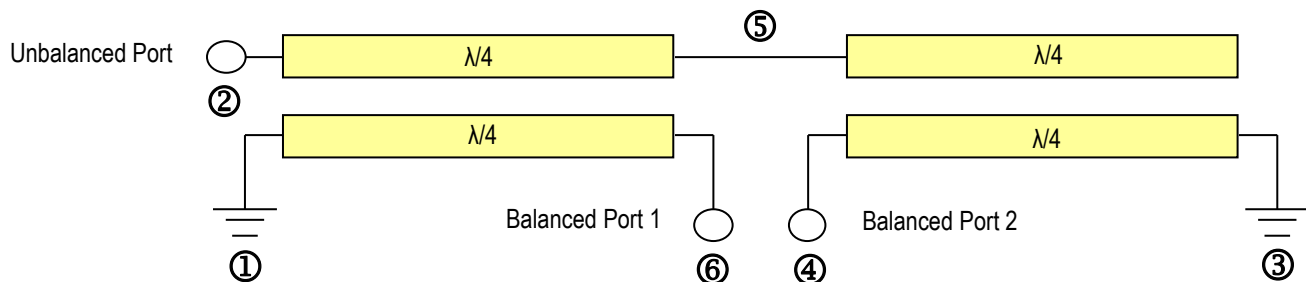
-  Solder Resist
-  Land
-  Through-hole ($\phi 0.3$)

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

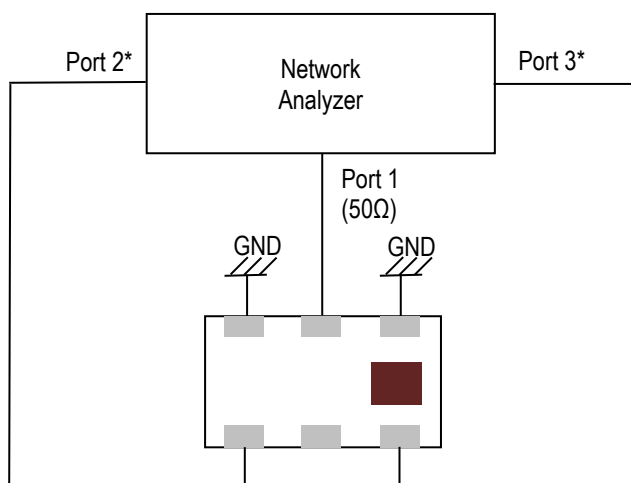
**Bypass capacitor should be connected when feeding DC power.

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



Measuring Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

$$\text{Insertion Loss} = S_{ds21}$$

$$\text{Return Loss} = S_{ss11}$$

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

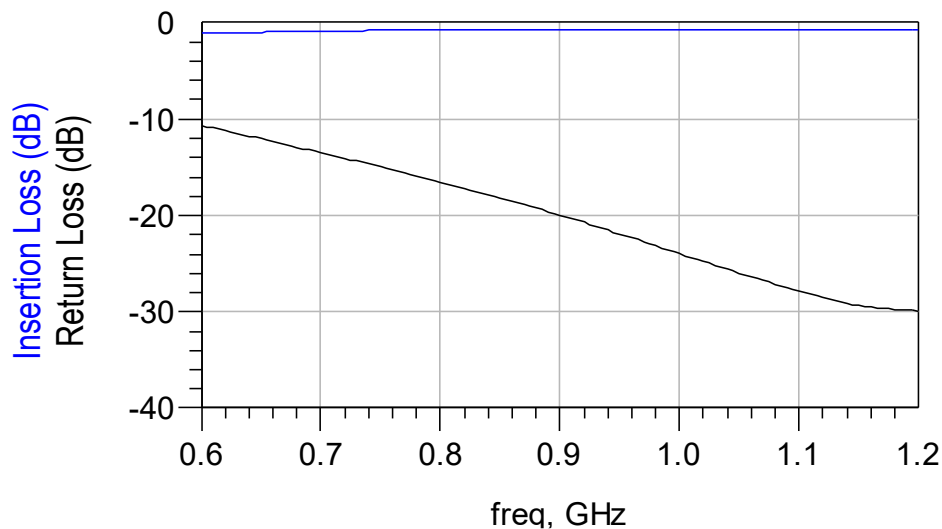
$$\text{Phase Balance} = \text{Phase}(S(2,1)/S(3,1))$$

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

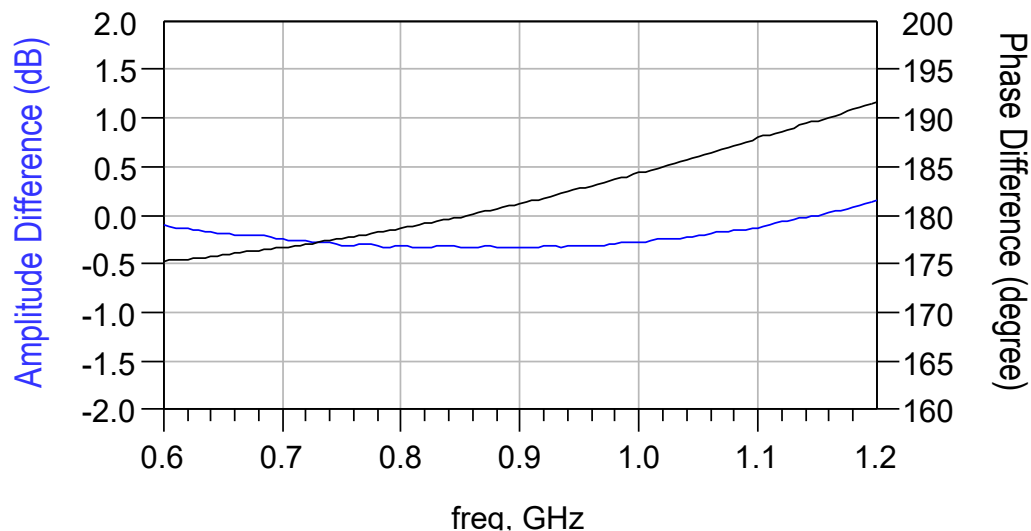


RF Measurement (T=25°C)

Insertion Loss, Return Loss



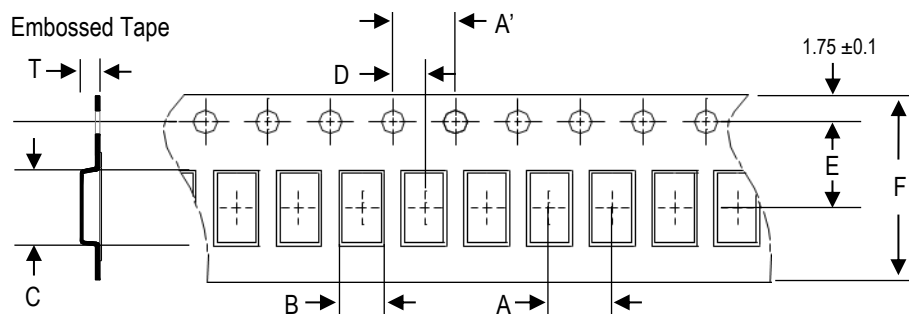
Phase Difference and Amplitude Difference



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

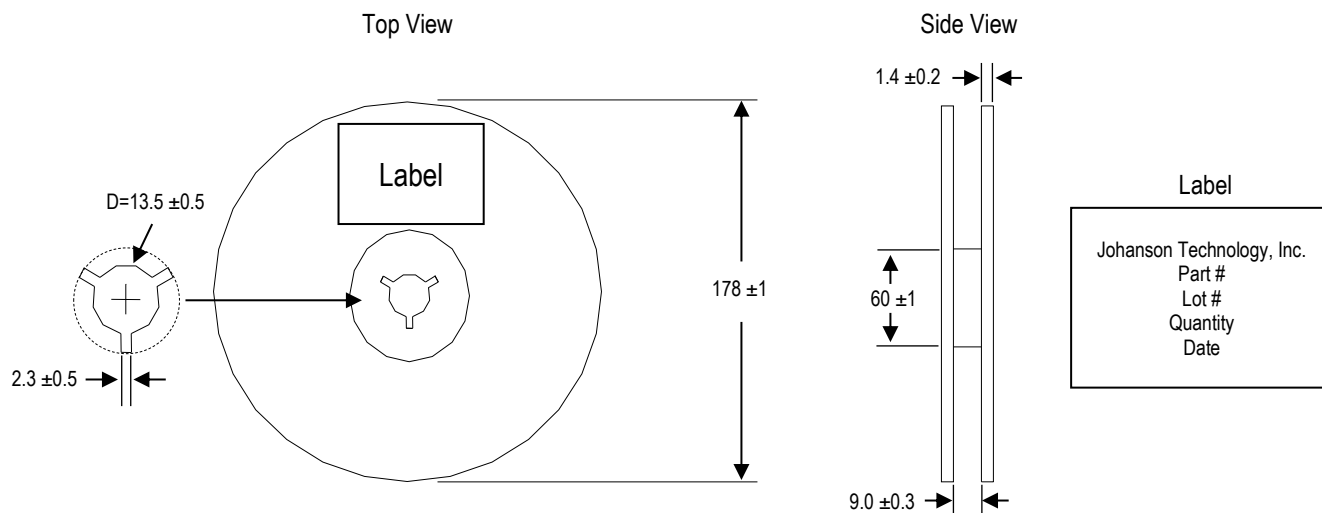
Tape and Reel Specifications (Units in mm)

Tape Dimensions

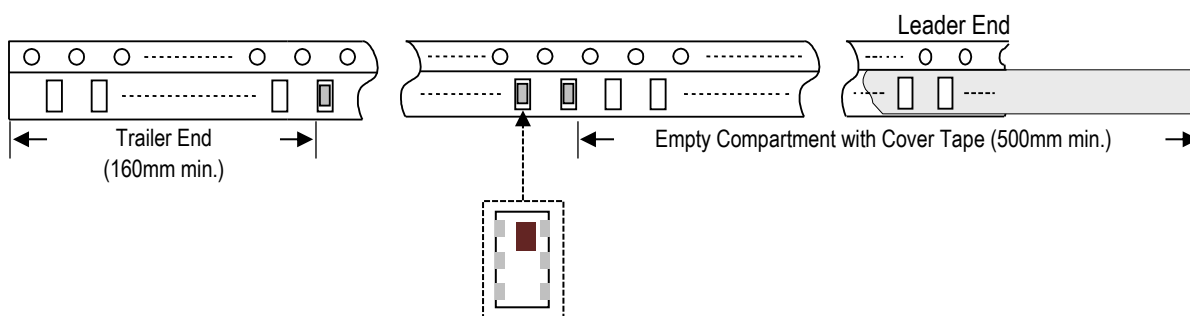


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ±0.1	4.0 ±0.1	1.85 ±0.1	3.5 ±0.1	2.0 ±0.1	3.5 ±0.1	8.0 ±0.1	1.27 ±0.05	3,000 pcs.	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Numbers

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	0900BL18B0100001B	Nickel Tin
T & R (7" Reel Embossed Tape)	0900BL18B0100001E (Qty: 3,000 pcs./reel)	
Evaluation Board with 3 SMA Connector	0900BL18B0100001CE1 (Without DC feed)	

Important Links

[0900BL18B0100001E 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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