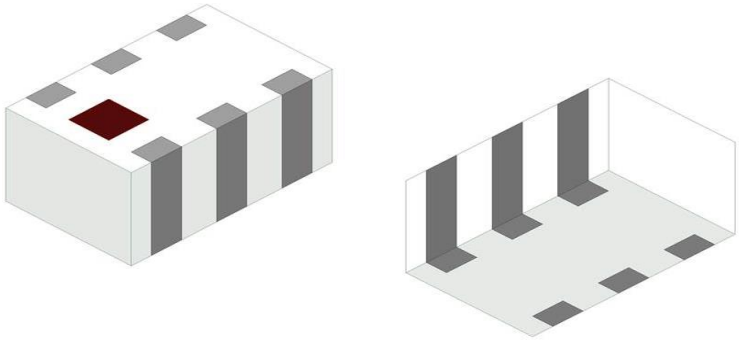
6.75 GHz RF Balun

- 5.0 – 8.5 GHz pass band
- 1:2 Impedance
- SMD, EIA 0603
- RoHS compliant
- For wireless communication applications



General Specifications[1] [2]

Passband Frequency (MHz)	5000 – 8500	5500 – 7200
Unbalanced Impedance (Ω)	50	50
Balanced Impedance (Ω)	100	100
Insertion Loss (dB)	0.7 Typ. (1.5 Max.)	0.64 Typ. (1.5 Max.)
Return Loss (dB)	11.7 Typ. (9.5 Min.)	12.6 Typ. (9.5 Min.)
Phase Difference (degree)	180 ± 13	180 ± 13
Amplitude Difference (dB)	± 1.25 Max.	± 1.25 Max.
CMRR (dB)	17.5 Min.	17.5 Min.

Maximum Ratings

Power Capacity (W)	3 Max. (CW)
DC Feed Current Rating (A)	1 Max.
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.

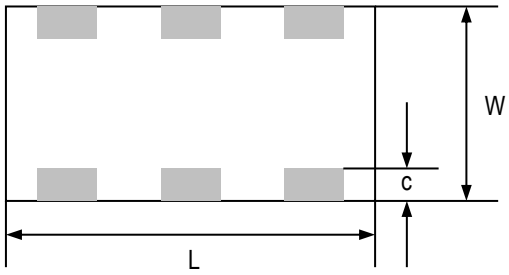
[1] Typical value represents average measurement at 25°C. Min./Max. values represent measurements over specified operating temperature.
[2] General specifications measured on Johanson's evaluation board P/N 6750BL14A0100001CE1.

johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166

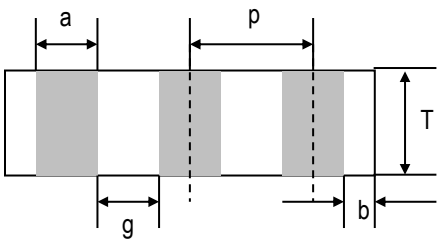
Mechanical Dimensions

	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	±	0.006	0.20	±	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



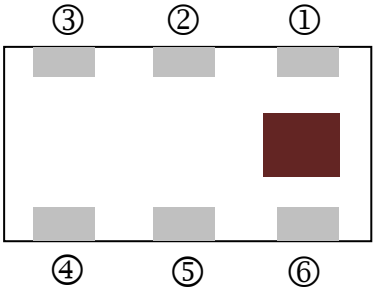
Side view



Terminal Configuration[3]

Pin Number	Function
1	Unbalanced Port
2	GND or DC Feed + RF GND
3	Balanced Port
4	Balanced Port
5	GND
6	NC

Top view



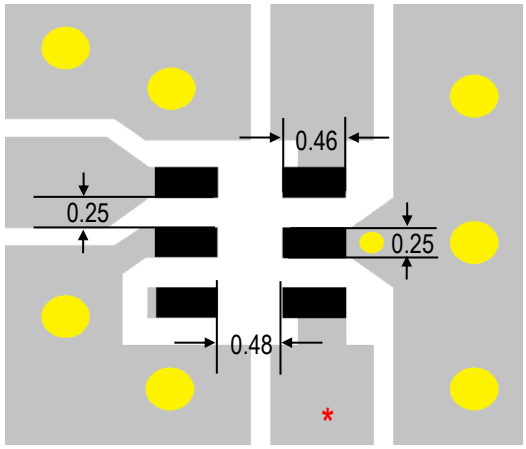
[3] The termination type is Nickel Tin. Go to: https://www.johansontechnology.com/tech-notes/typical-soldering-profile-ipc/ for Typical Soldering Profile.

johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166

Recommended PCB Layout

Note: Mount device with colored mark facing up.

Without DC feed



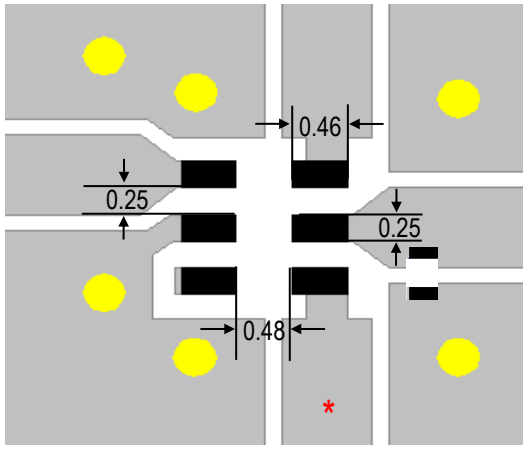
Units: mm

Solder Resist

Land

Through-hole (Φ 0.35 / 0.18)

With DC feed**



Solder Resist

Land

Through-hole (Φ 0.35)

Bypass 0201 capacitor (1.0 pF)

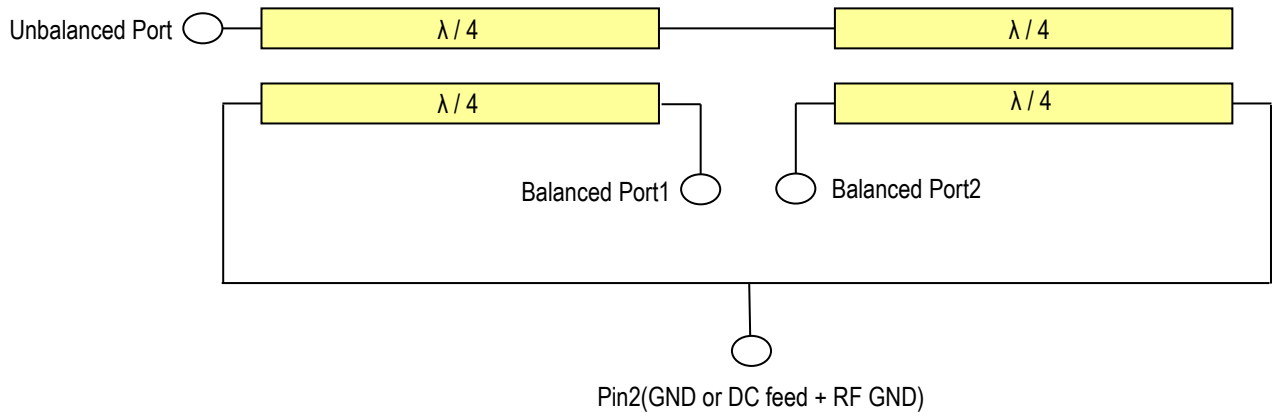
* Transmission line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

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

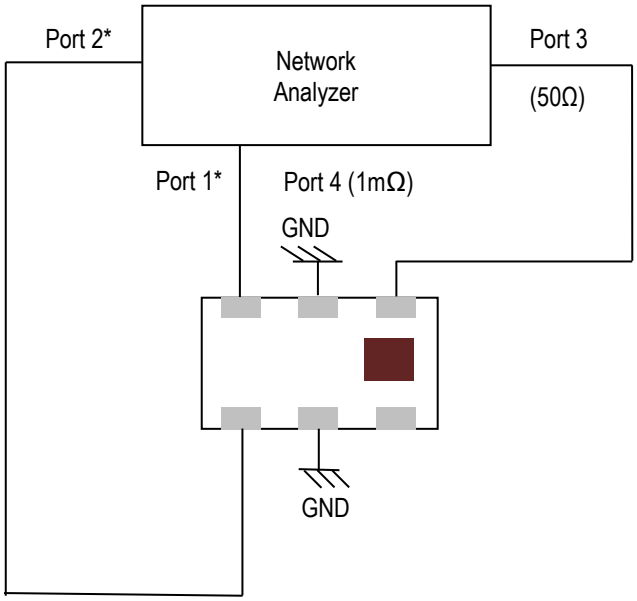
If you would like the full reference design package or have any questions,
contact our application engineers at https://www.johansontechnology.com/ask-a-question

johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166

Internal Equivalent Circuit



Measuring Diagram



Ports 1 and 2: Balanced

Port 3: Unbalanced

Ports 4: GND or DC feed + RF GND

Insertion Loss = S_{DS21}

Return Loss = S_{SS11}

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

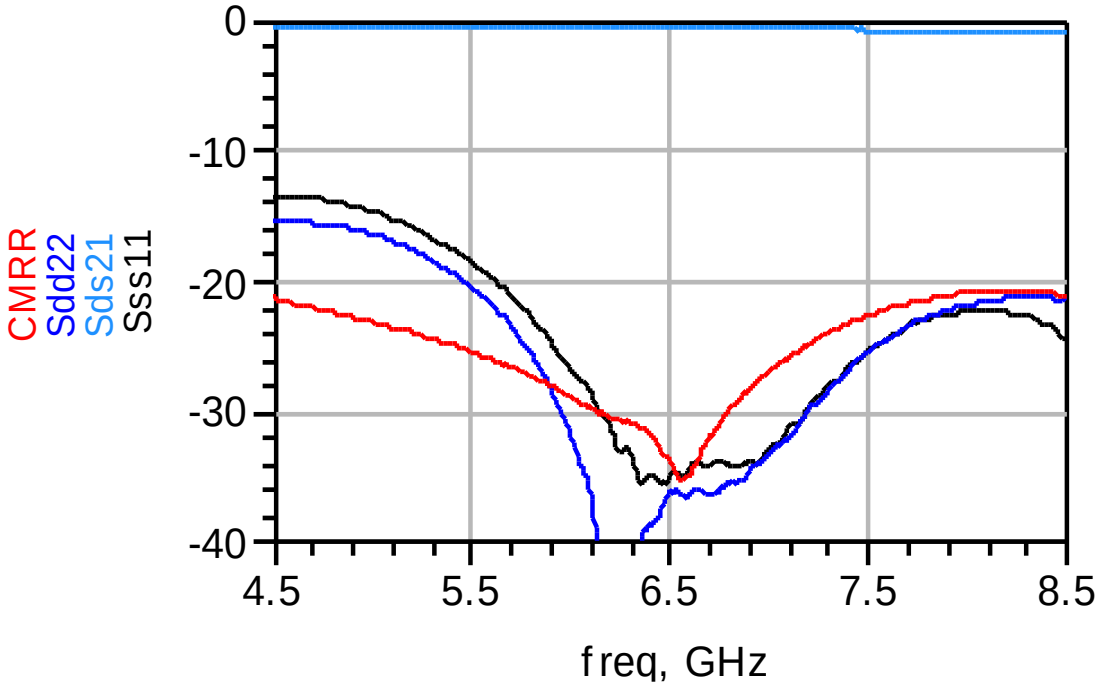
Phase balance = Phase(S(1,3)/S(2,3))

*Impedance for ports 1 and 2 = Balanced Impedance/2

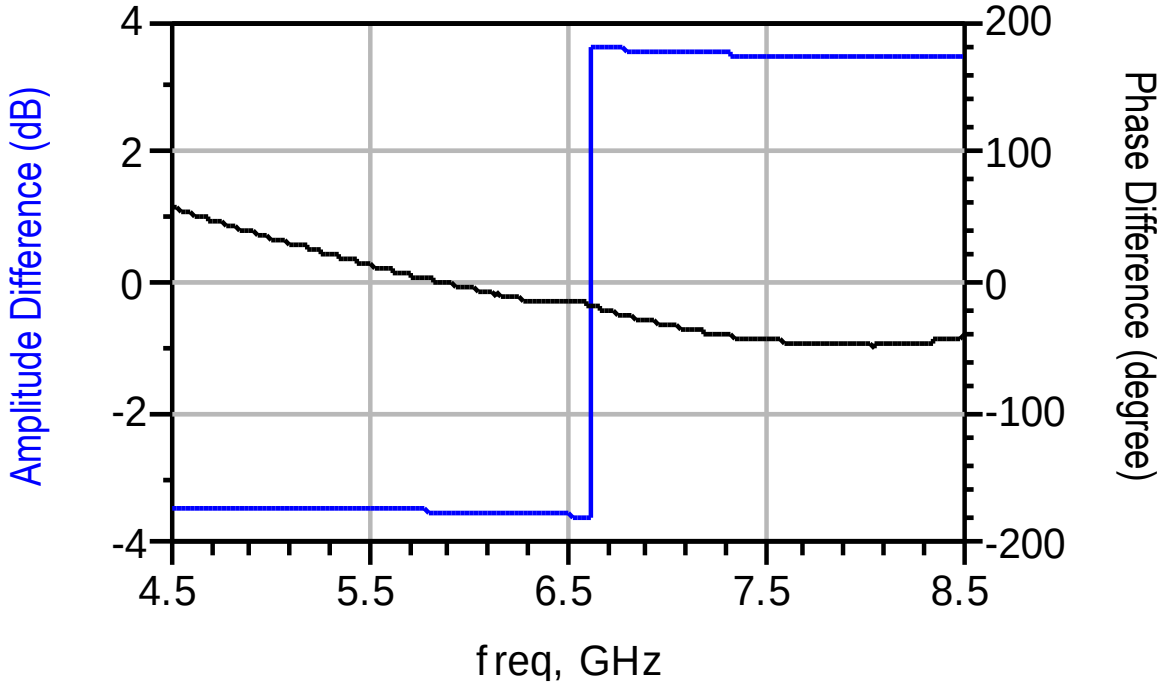
johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166

RF Measurement (T=25°C)

Insertion Loss, Return Loss and CMRR



Phase Difference and Amplitude Difference

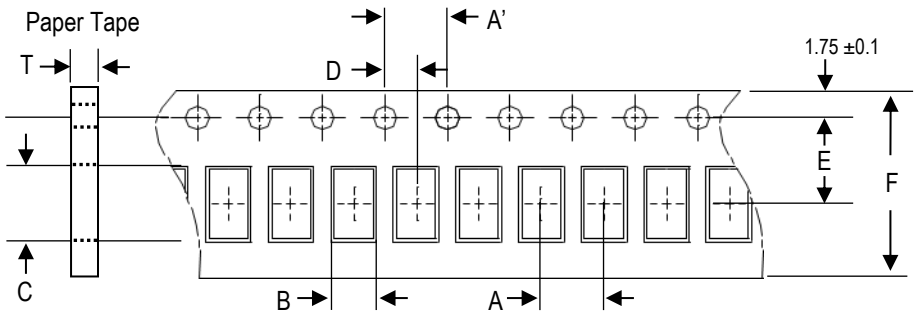


S-parameter and layout files available upon request. Please contact us at https://www.johansontechnology.com/ask-a-question

johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166

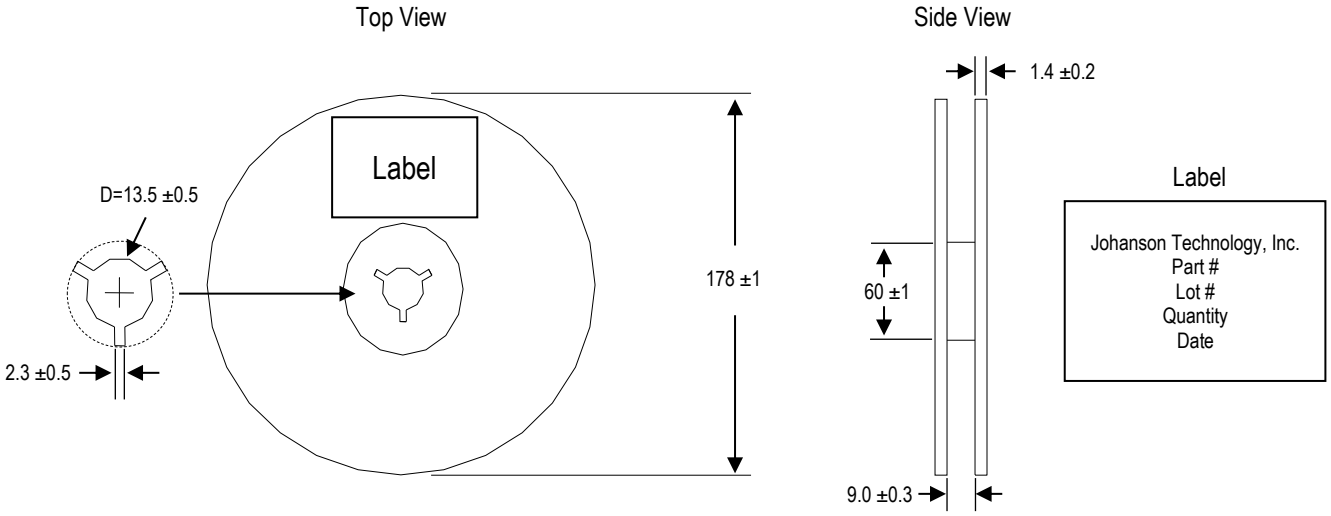
Tape and Reel Specification (Units in mm)

Tape Dimensions

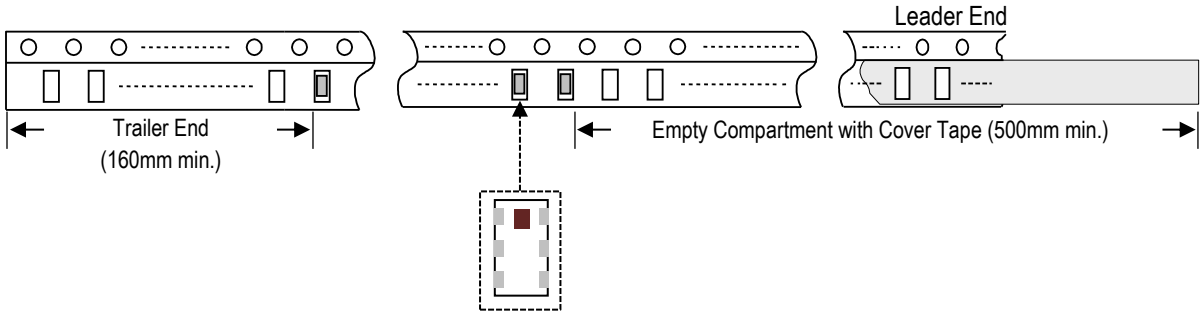


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0 ±0.1	4.0 ±0.1	1.1 ±0.1	1.92 ±0.1	2.0 ±0.1	3.5 ±0.1	8.0 ±0.1	0.75 ±0.05	4,000pcs.	Paper

Reel Dimensions



Leader and Trailer Dimensions



johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166

Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	6750BL14A0100001B	Nickel Tin
T & R (7" Reel Paper Tape)	6750BL14A0100001T (Qty: 4,000 pcs./reel)	
Evaluation Board with 3 SMA Connectors	6750BL14A0100001CE1 (Without DC feed)	

Important Links

6750BL14A0100001T 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

Contact our application engineers for a PCB layout review.

johansontechnology.com
4001 Calle Tecate • Camarillo, CA 93012, USA • +1 805-389-1166