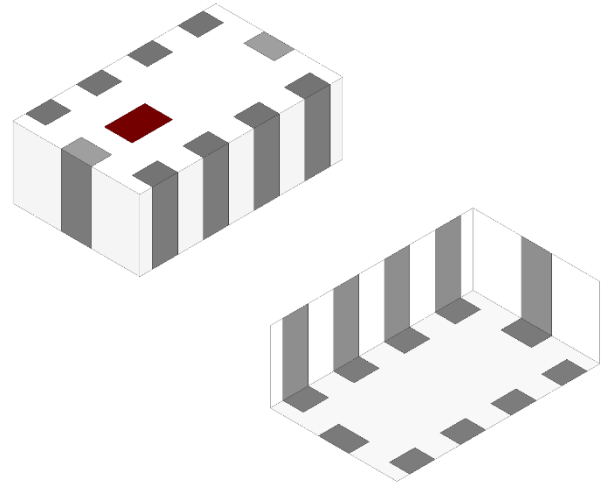


Impedance-matched Integrated Passive Device (IPD) Balun + Filter for Semtech LR11xx (LR1110, LR1120, LR1121)

- Designed for the Semtech LoRa Connect™ and LoRa Edge™ series chipsets
- Integrates WiFi and GPS/GNSS/BeiDou bands complete front-end
- Provides necessary attenuation for FCC and ETSI requirements
- Replaces complex RF front end with single integrated passive device (IPD)
- SMD, EIA 0805



General Specifications¹

GPS/GNSS/BeiDou Rx Frequency	GPS/GNSS/BeiDou
Balanced Impedance, transceiver side(Ω)	Impedance-matched to Semtech chipsets LR1110, LR1120, LR1121
Unbalanced Impedance, antenna side (Ω)	50
Insertion Loss (dB)	1.4 Typ (2.0 Max.)
Return Loss (dB)	10 Min.
Phase Difference (degree)	180 \pm 15
Amplitude Difference (dB)	2.0 Max.
WiFi Passband Frequency (MHz)	2400 - 2500
Balanced Impedance, transceiver side (Ω)	Impedance-matched to Semtech chipsets LR1110, LR1120, LR1121
Unbalanced Impedance, antenna side(Ω)	50
Insertion Loss (dB)	0.8 Typ. (1.2 Max.)
Return Loss (dB)	10 Min.
Attenuation	
Frequency Range (MHz)	4800 - 5000
Attenuation (dB)	40 Min.
Frequency Range (MHz)	7200 - 7500
Attenuation (dB)	40 Min.

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

General Specifications (continued)

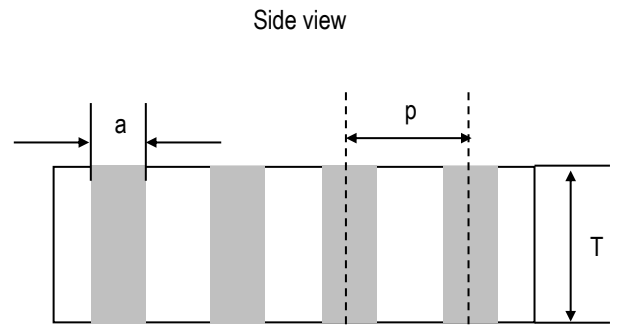
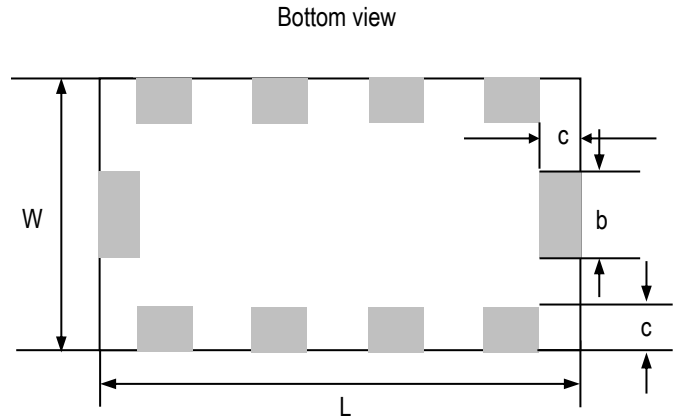
Frequency Range (MHz) Attenuation (dB)	9600 - 10000 30 Min.
Frequency Range (MHz) Attenuation (dB)	12000 - 12500 30 Min.
Frequency Range (MHz) Attenuation (dB)	14400 - 15000 20 Min.
Frequency Range (MHz) Attenuation (dB)	16800 - 17500 5 Min.
Frequency Range (MHz) Attenuation (dB)	19200 - 20000 9 Min.
Frequency Range (MHz) Attenuation (dB)	21600 - 22500 15 Min.
Frequency Range (MHz) Attenuation (dB)	24000 - 25000 4 Min.

Maximum Ratings

Power Capacity (W)	2 (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% - 60% RH +5 to +35°C 18 Months Max.

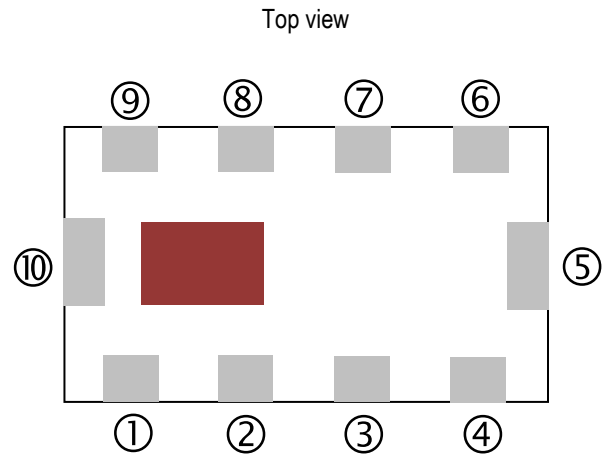
Mechanical Dimensions

	Inches			Millimeters		
L	0.079	±	0.008	2.00	±	0.20
W	0.049	±	0.008	1.25	±	0.20
T	0.028	±	0.004	0.70	±	0.10
a	0.010	±	0.004	0.25	±	0.10
b	0.012	±	0.006	0.30	±	0.15
c	0.008	+0.004/-	0.002	0.20	+0.1/-	0.05
p	0.020	±	0.004	0.50	±	0.10



Terminal Configuration²

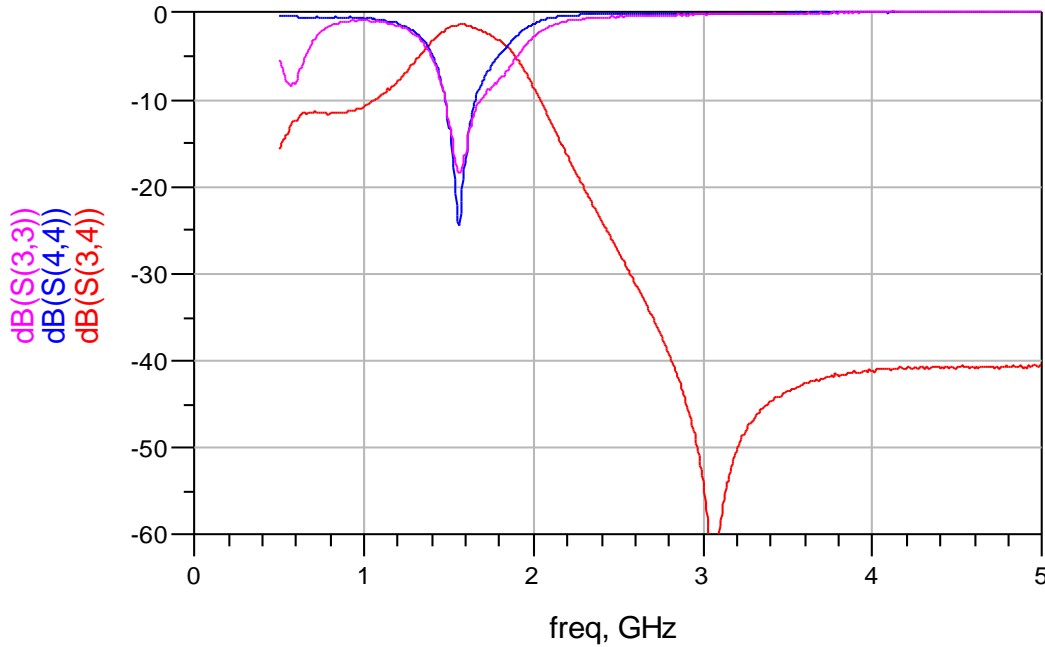
Pin Number	Function
1	RFI_P_LF1
2	RFI_N_LF1
3	GND
4	RFIO_HF
5	GND
6	GND
7	WIFI
8	GPS
9	GND
10	GND



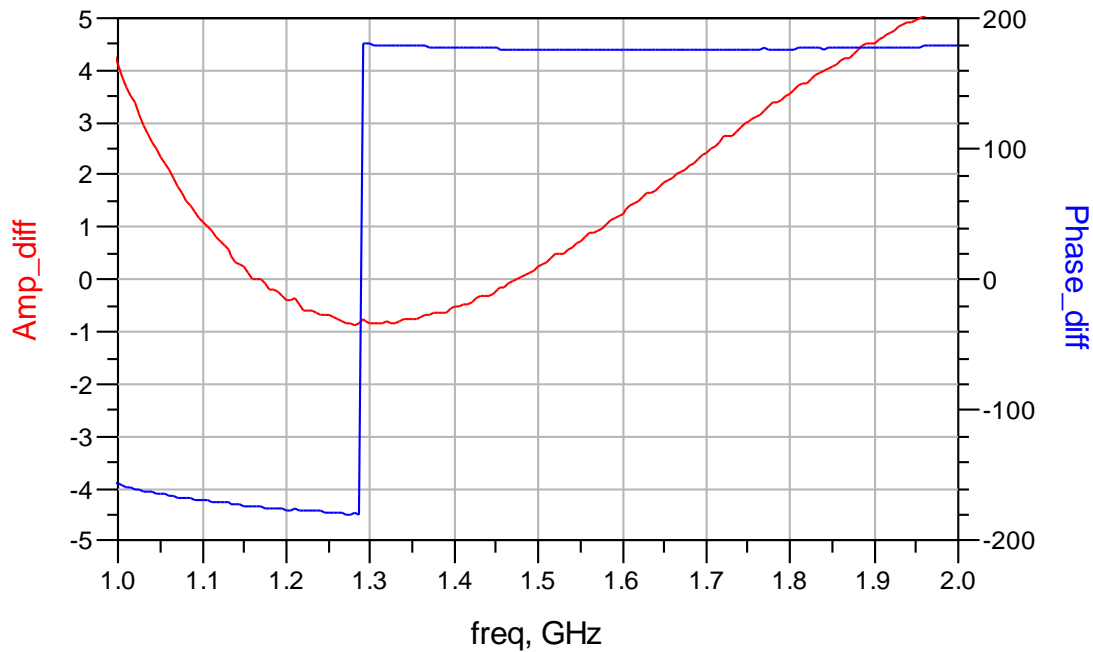
² The termination type is Nickel Tin. Go to: <https://www.johansontechnology.com/ipcsoldering-profile> for Typical Soldering Profile.

RF Measurement
GPS/GNSS/Beidou

Insertion and Return Loss

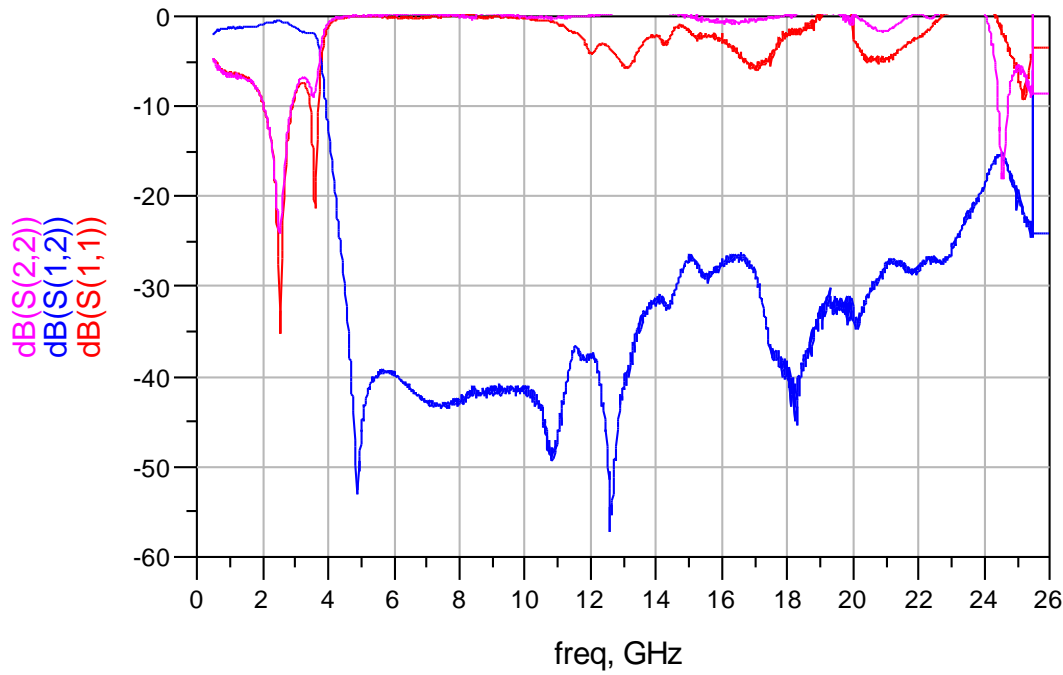


Amplitude and Phase



WiFi

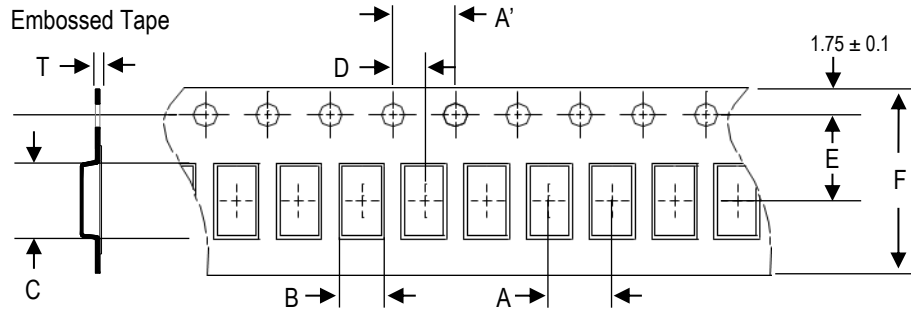
Insertion and Return Loss



S-parameters and layouts file available upon request. Please contact <https://www.johansontechnology.com/ask-a-question>

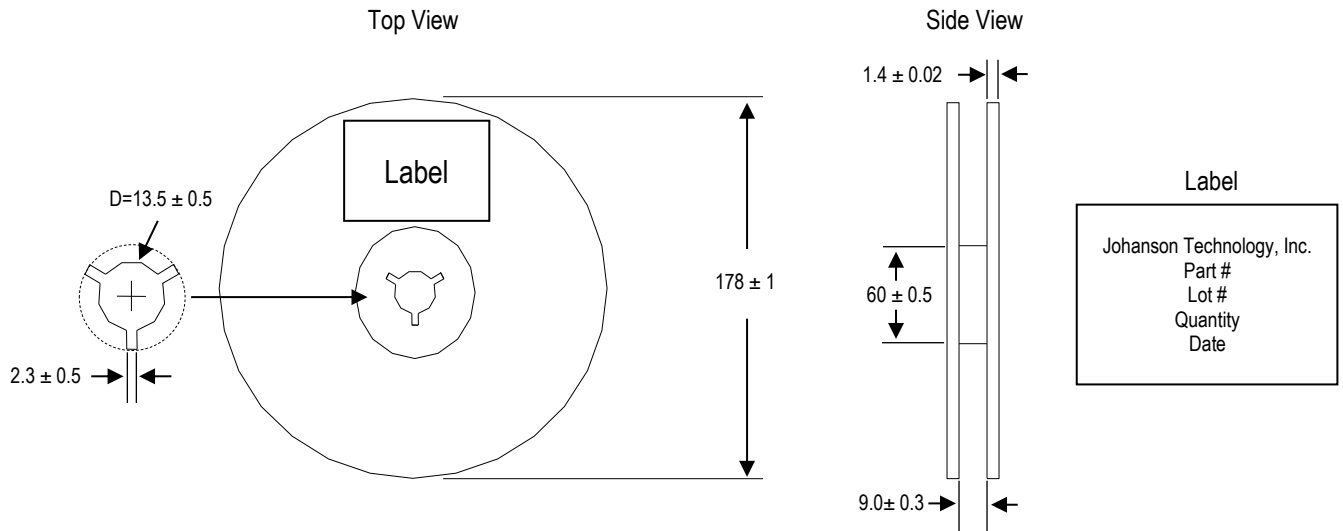
Tape and Reel Specification (Units in mm)

Tape Dimensions

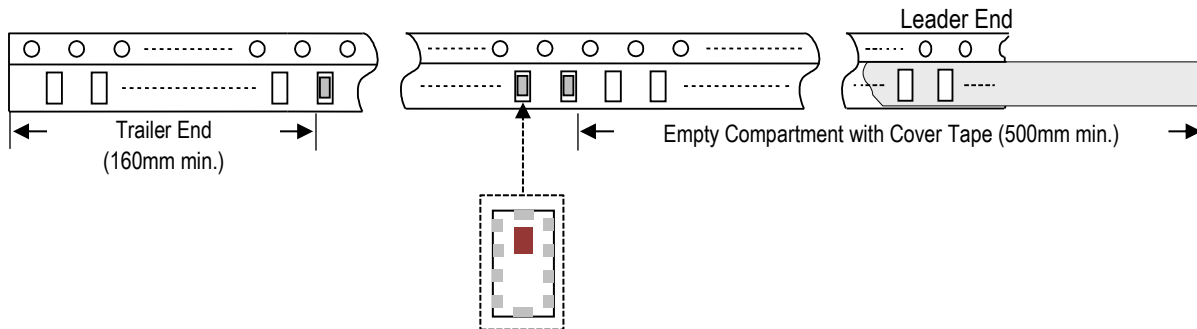


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0±0.1	4.0±0.1	1.35±0.05	2.15±0.05	2.0±0.05	3.5±0.1	8.0±0.1	1.00±0.05	4,000pcs	Plastic (Embossed)

Reel Dimensions



Leader and Trailer Dimensions



Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	2000PC15C0040001B	Nickel Tin
T & R (7" Reel Embossed Tape)	2000PC15C0040001E (Qty: 4,000 pcs./reel)	

Important Links

[2000PC15C0040001E Product Page](#)

[More Balun Filter Combos](#)

[RF Chip Antennas](#)

[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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