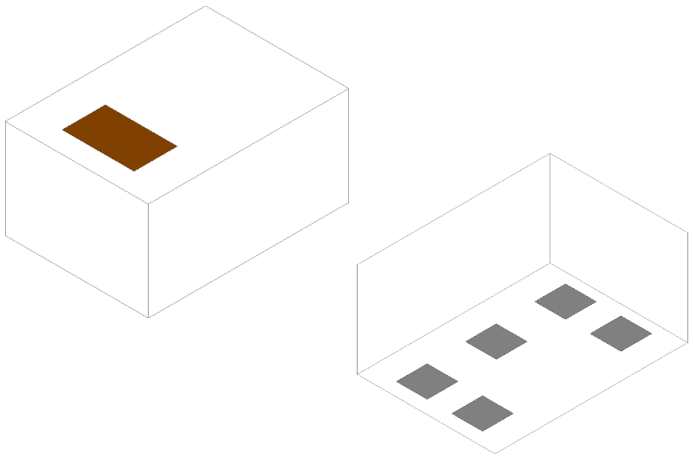
2.4 GHz Filter, Impedance-matched Balun and Filter for Nordic Semiconductor nRF51 Series CSP Chipsets

- 2400 - 2500 MHz passband
- Designed for Nordic Semiconductor chipsets:
  - nRF51822-CEAA
  - nRF51822-CDAB
  - nRF51822-CFAC
  - nRF51422-CEAA
  - nRF51422-CDAB
  - nRF51422-CFAC
- For 2.4GHz applications such as WiFi, Bluetooth, Zigbee, etc.
- Micro SMD (1.4mm x 1.0mm x 0.7mm)
- Operation up to 105°C (Non-automotive)



General Specifications[1]

Balanced Impedance, Transceiver Side (Ω)	2400 - 2500 MHz		Impedance match for: nRF51822-CEAA nRF51822-CDAB nRF51822-CFAC nRF51422-CEAA nRF51422-CDAB nRF51422-CFAC	
Unbalanced Impedance, Antenna Side (Ω)	2400 - 2500 MHz		50	
Insertion Loss (dB)	2400 - 2500 MHz	1.9 Typ.		3.6 Max. (105°C)
Return Loss (dB)	2400 - 2500 MHz	14 Typ.	9.5 Min.	
Phase Difference (Deg)	2400 - 2500 MHz		180 ± 10	
Amplitude Difference (dB)	2400 - 2500 MHz			2.0 Max.
Attenuation (dB)	800 - 928 MHz	24 Typ.	15 Min.	
	1000 - 1200 MHz	20 Typ.	10 Min.	
	4800 - 5000 MHz	36 Typ.	14 Min.	
	7200 - 7500 MHz	25 Typ.	15 Min.	

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

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Maximum Ratings

Power Capacity (W)	2 Max. (CW)
Operating Temperature (°C)	-40 to +105
Recommended Storage Conditions Post-installation (°C)	-40 to +85
Recommended Storage Conditions and Period for Unused T&R Product[2]	45% - 75% RH +5 to +35 °C 18 Months Max.

[2] 18 months max. in vacuum sealed bag and 1 week after opened. Please keep unused parts in vacuum sealed bags. For more info go to https://www.johansontechnology.com/silverleads-profile.

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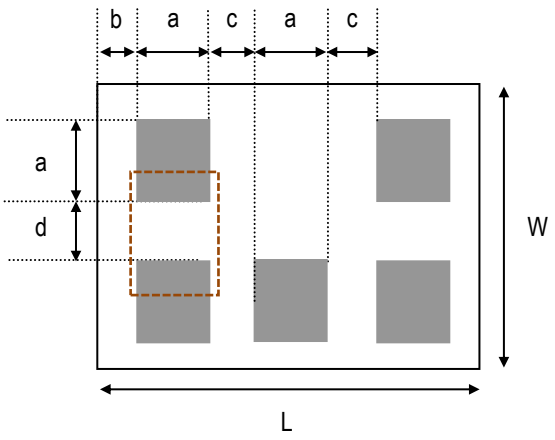
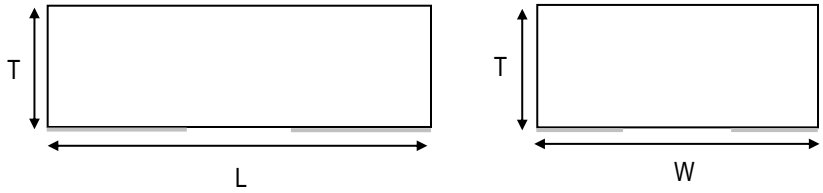
Mechanical Dimensions

	Inches			Millimeters		
L	0.055	±	0.006	1.4	±	0.15
W	0.039	±	0.006	1.0	±	0.15
T	0.027		Max.	0.69		Max.
a	0.009	±	0.002	0.22	±	0.05
b	0.004	±	0.002	0.0975	±	0.05
c	0.011	±	0.002	0.28	±	0.05
d	0.007	±	0.002	0.18	±	0.05

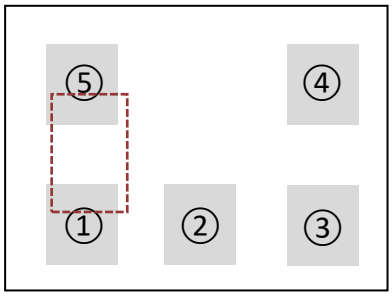
Bottom view



Side views



Bottom view



Terminal Configuration[3]

Pin Number	Function
1	Unbalanced Port
2	DC Feed
3	Balanced Port
4	Balanced Port
5	GND

[3] The termination type is Silver. Go to: https://www.johansontechnology.com/ipcsoldering-profile for Typical Soldering Profile.

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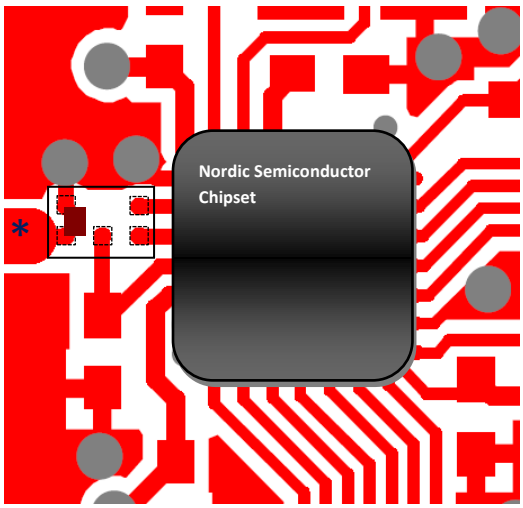
Recommended PCB Layout

Note: Mount device with colored mark facing up.



Units in mm

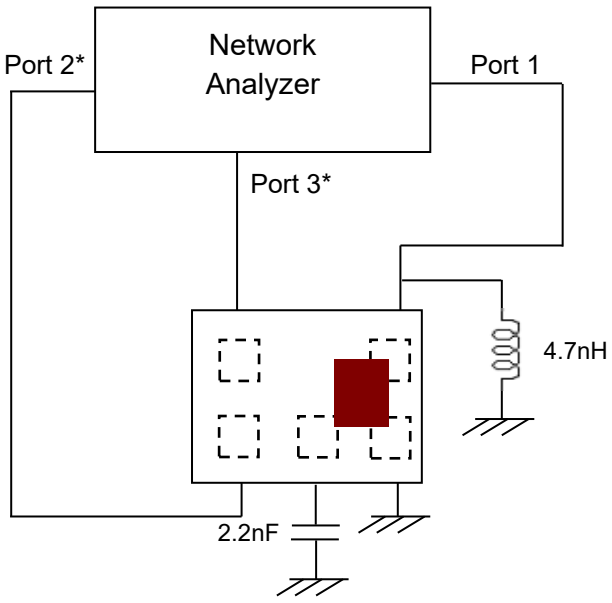
Land

Through-hole (ϕ 0.3)

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

If you'd like the CAD PCB layout or have any questions,
contact our application engineers at https://www.johansontechnology.com/ask-a-question

Measuring Diagram



Port 1: Unbalanced Port

Ports 2 and 3: Balanced Port

$IL=S_{ds21}$

$RL=S_{ss11}$

Amp_balance = dB(S(2,1)/S(3,1))

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

*Impedance for ports 2 and 3

= Conjugate to Balanced Impedance/2

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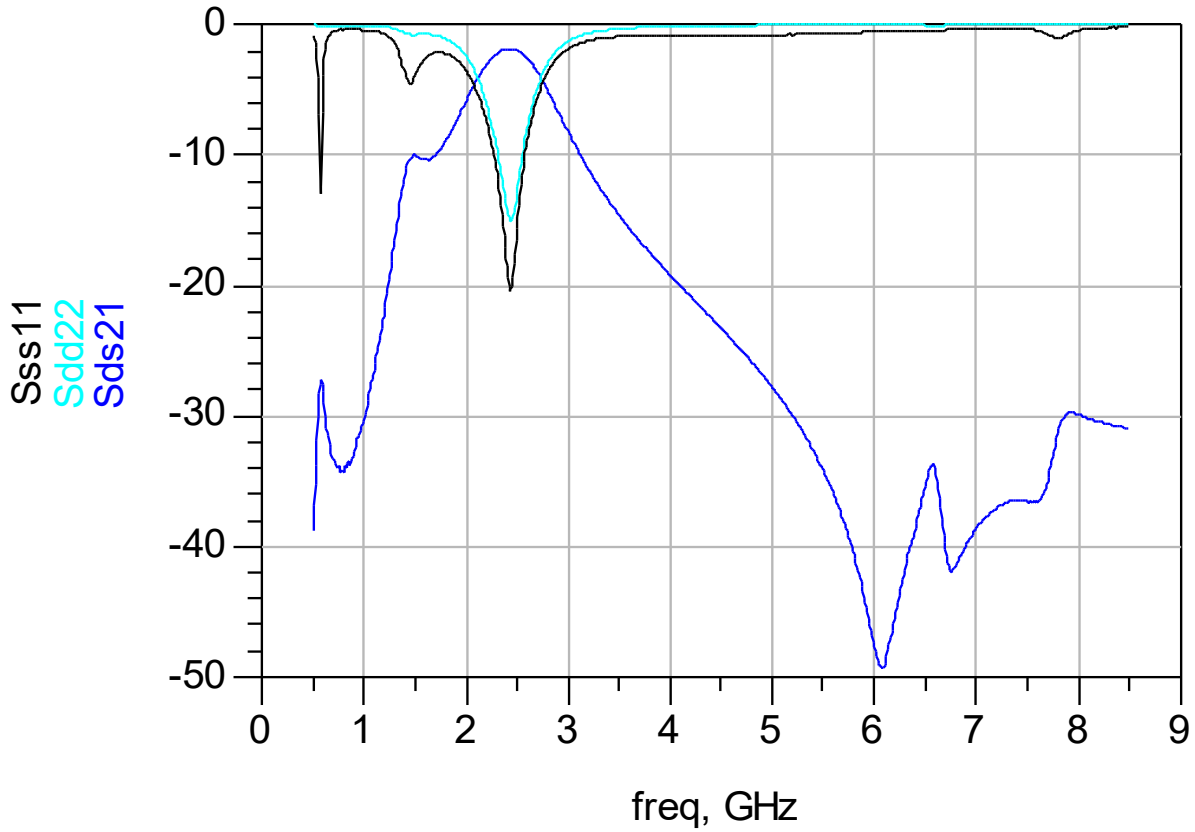
RF Measurement (T = 25°C)

Insertion Loss, Return Loss, Attenuation



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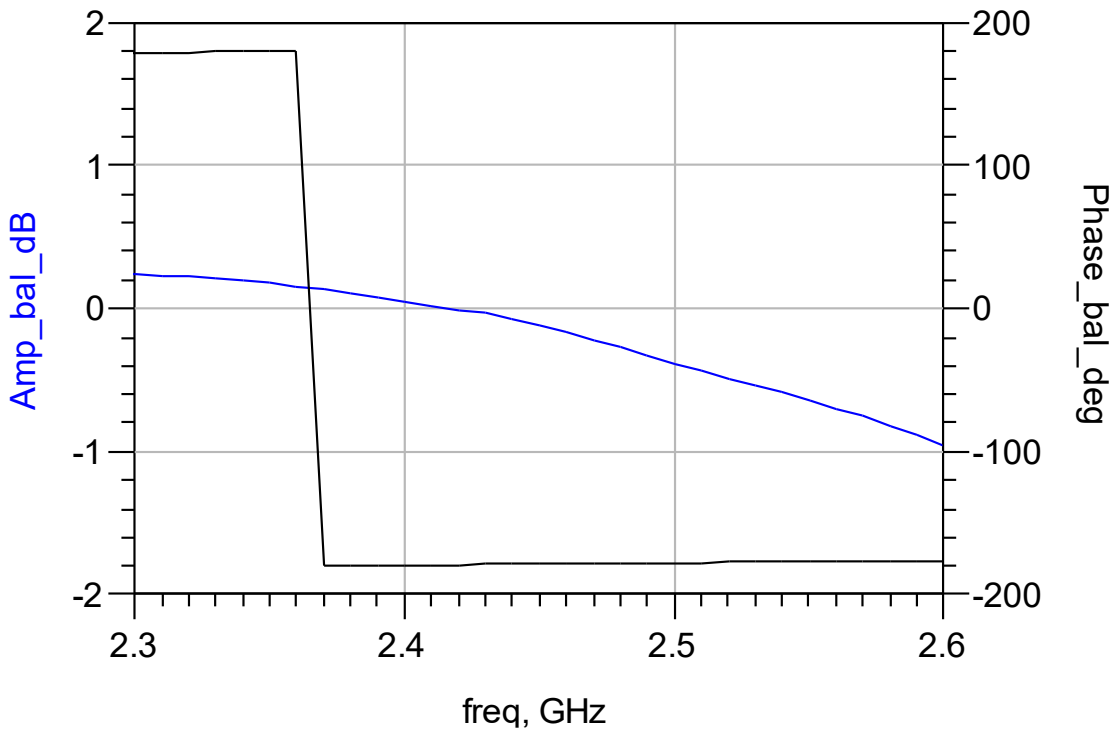
Amplitude and Phase Balance



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

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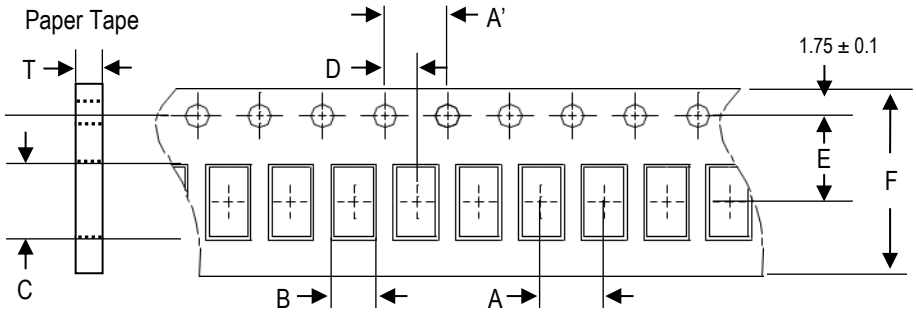
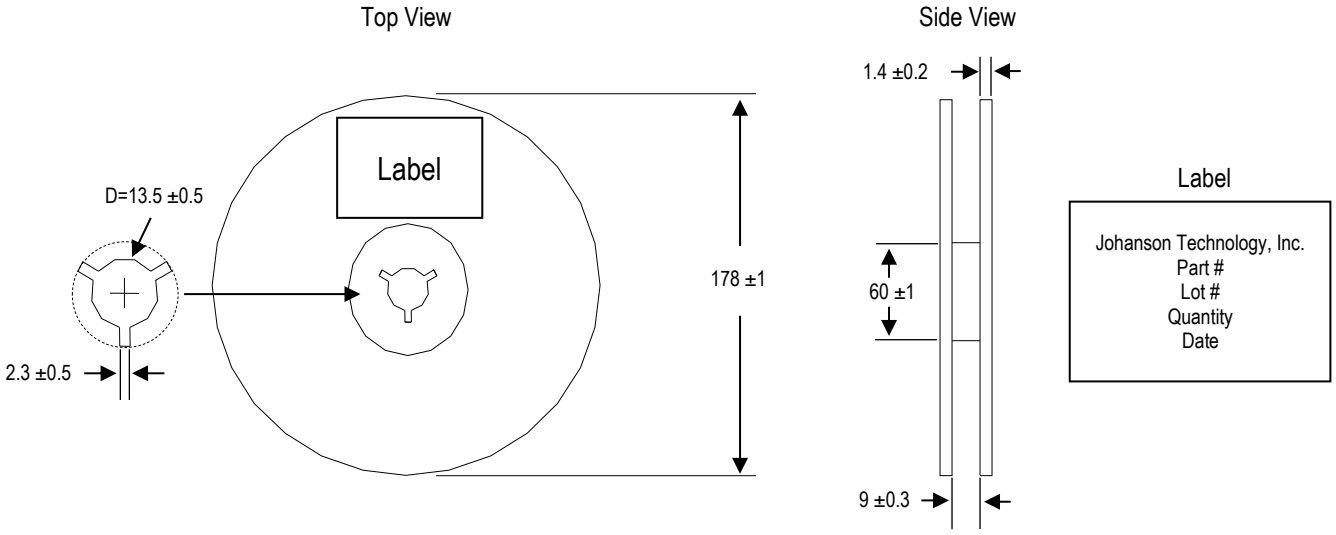
Tape and Reel Specification (Units in mm)

Tape Dimensions

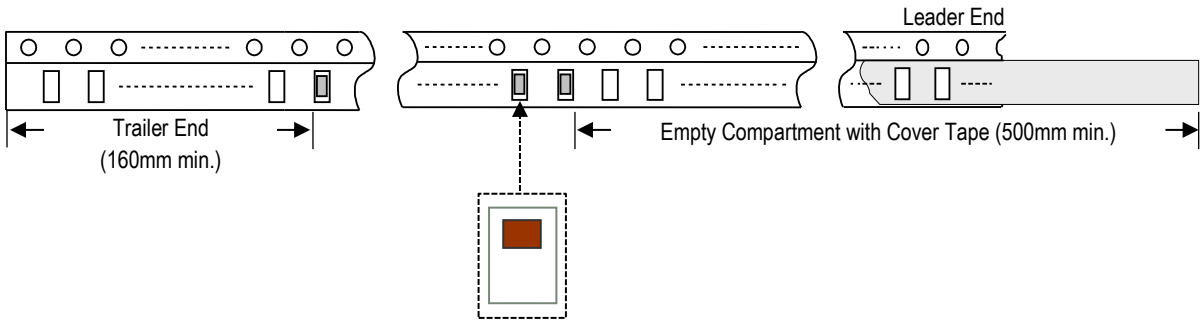


A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
4.0±0.1	4.0±0.1	1.36±0.05	1.65±0.05	2.0±0.05	3.5±0.05	8.0±0.1	0.75±0.05	4,000 pcs.	Paper

Reel Dimensions



Leader and Trailer Dimensions



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Orderable Part Number

Packaging Style	Part Number	Termination
Bulk (loose pcs.)	2450BM08B0003001B	Silver
T & R (7" Reel Paper Tape)	2450BM08B0003001T (Qty: 4,000 pcs/reel)	

Important Links

2450BM08B0003001T Product Page

More Nordic Semiconductor Reference Designs

2.4GHz Antennas

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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