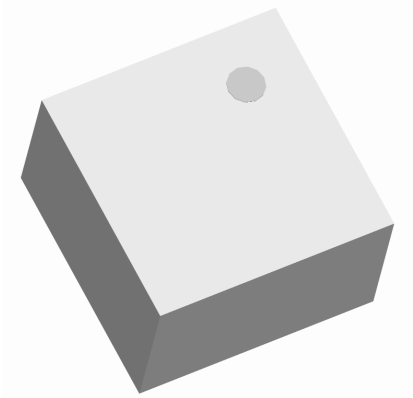
Ultra Low Profile 0404 Balun For nRF24L01 and nRF24L01+

(Anaren Application Note Ann-3001)



Description

The BD2425NnRF is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output, tuned to provide optimal performance in tandem with the Nordic Semiconductor nRF24L01 and nRF24L01+. The BD2425NnRF is ideal for high volume manufacturing and delivers higher performance than a discrete implementation. The BD2425NnRF has an unbalanced port impedance of 50Ω and matched balanced port impedance when used in the specified matching network, which is the conjugate match of the nRF24L01 and nRF24L01+ devices. This transformation enables single ended signals to be applied to differential ports on the nRF24L01 and nRF24L01+. The BD2425NnRF is available on tape and reel for pick and place high volume manufacturing.

Detailed Electrical Specifications:

Specifications subject to change without notice.

Features:

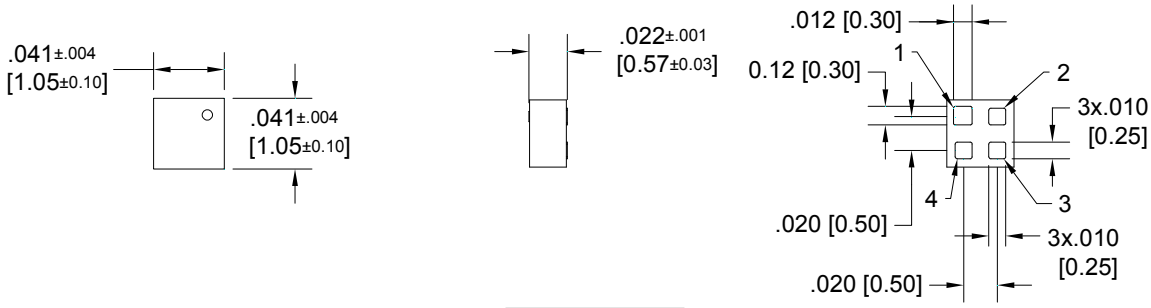
- **2400 – 2525 MHz**
- **0.57 mm Height Profile**
- **Matched to Nordic Semiconductor nRF24L01 and nRF24L01+**
- **Low Insertion Loss**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	2400		2525	MHz
Unbalanced Port Impedance**		50		Ω
Balanced Port Impedance**		Matched		Ω
Return Loss**		10.2		dB
Insertion Loss* **		1.25		dB
Power Handling			1	Watts
Operating Temperature	-55		+85	ºC

* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)
** Stated performance assumes proper matching network found in application note: Ann-3001

Outline Drawing

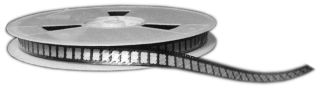
Top View (Near-side) | Side View | Bottom View (Far-side)



Pin	Designation
1	GND / DC Feed + RF GND
2	Unbalanced Port
3	Balanced Port
4	Balanced Port

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative



Available on Tape and Reel for Pick and Place Manufacturing.

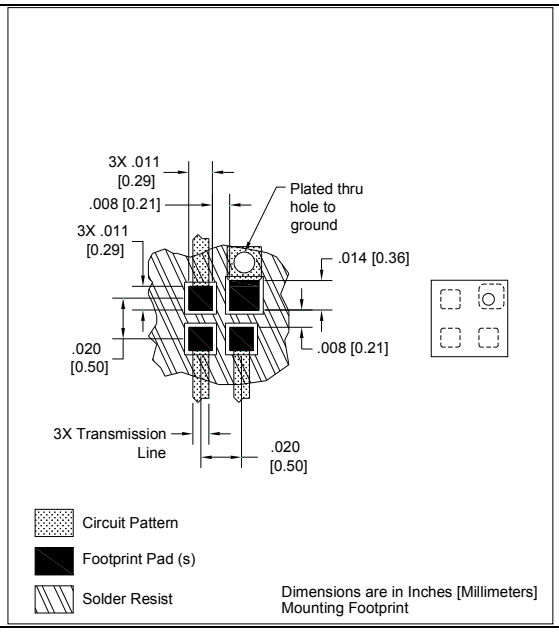
USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

Mounting Configuration:

In order for Xinger surface mount components to work optimally, the proper impedance transmission lines must be used to connect to the RF ports. If this condition is not satisfied, insertion loss, Isolation and VSWR may not meet published specifications.

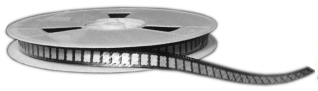
All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C.

An example of the PCB footprint used in the testing of these parts is shown below. An example of a DC-biased footprint is also shown below. In specific designs, the transmission line widths need to be adjusted to the unique dielectric coefficients and thicknesses as well as varying pick and place equipment tolerances



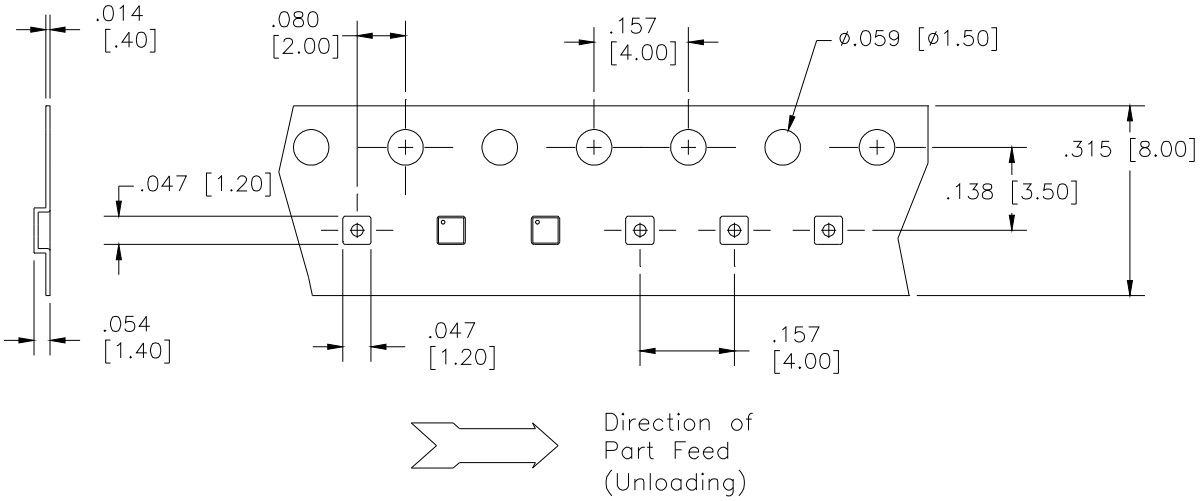
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Available on Tape and Reel for Pick and Place Manufacturing.



Packaging and Ordering Information

Parts are available in reel and are packaged per EIA 481-2. Parts are oriented in tape and reel as shown below. Minimum order quantities are 4000 per reel. See Model Numbers below for further ordering information.



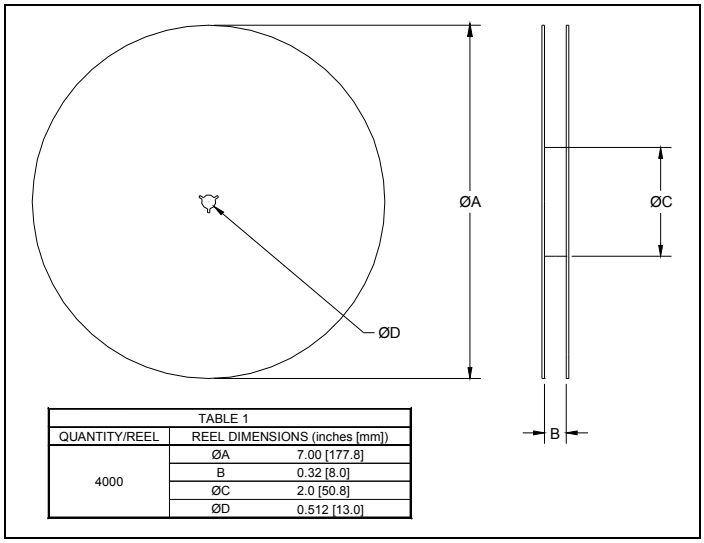
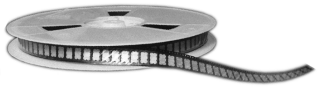


TABLE 1		
QUANTITY/REEL	REEL DIMENSIONS (inches [mm])	
4000	ØA	7.00 [177.8]
	B	0.32 [8.0]
	ØC	2.0 [50.8]
	ØD	0.512 [13.0]



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