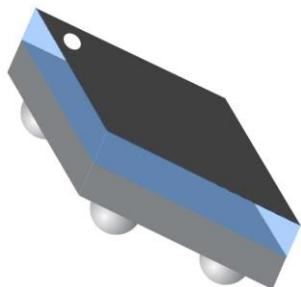


50 Ω / conjugate match to WILC1000 transformer balun

Datasheet - production data



Chip scale package on glass
4 bumps - 0.95 x 0.95 mm

Features

- 2.45 GHz Balun with integrated matching network
- Matching optimized for ATTEL WILC1000
- Low insertion loss
- Low amplitude imbalance
- Coated Flip-Chip on glass
- Small footprint < 0.90 mm²

Benefits

- Very low profile
- High RF performance
- PCB space saving versus discrete solution
- BOM count reduction
- Efficient manufacturability

Description

This device is an ultra-miniature matched balun. Matching impedance has been optimized for the ATTEL SmartConnect WILC1000 Wireless Link Controller. It is using STMicroelectronics IPD technology on non-conductive glass substrate which optimizes RF performance.

Figure 1: Pin configuration (bump view)

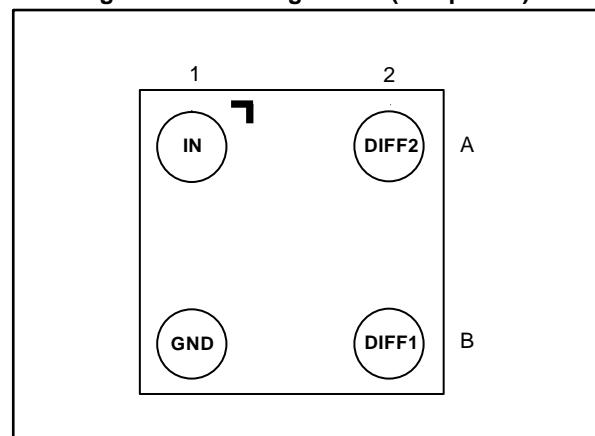
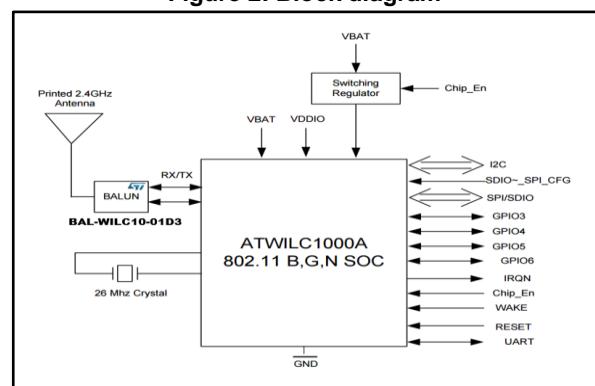


Figure 2: Block diagram



1 Characteristics

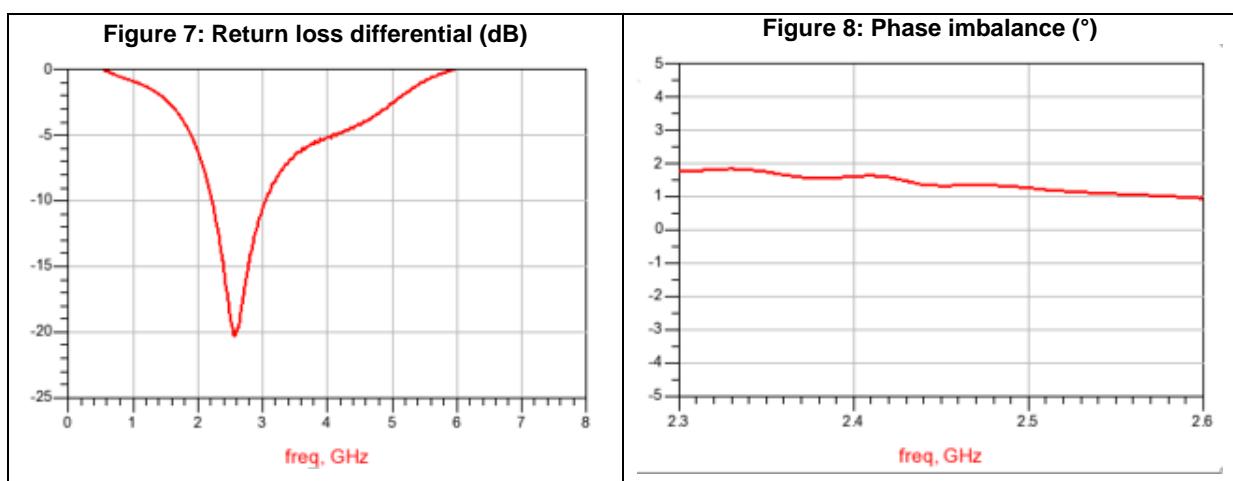
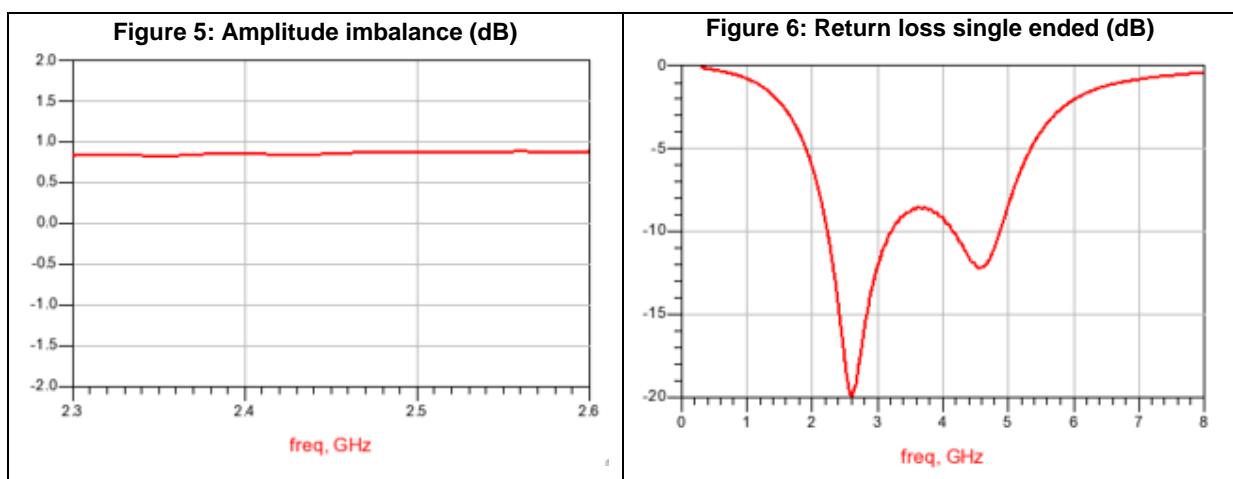
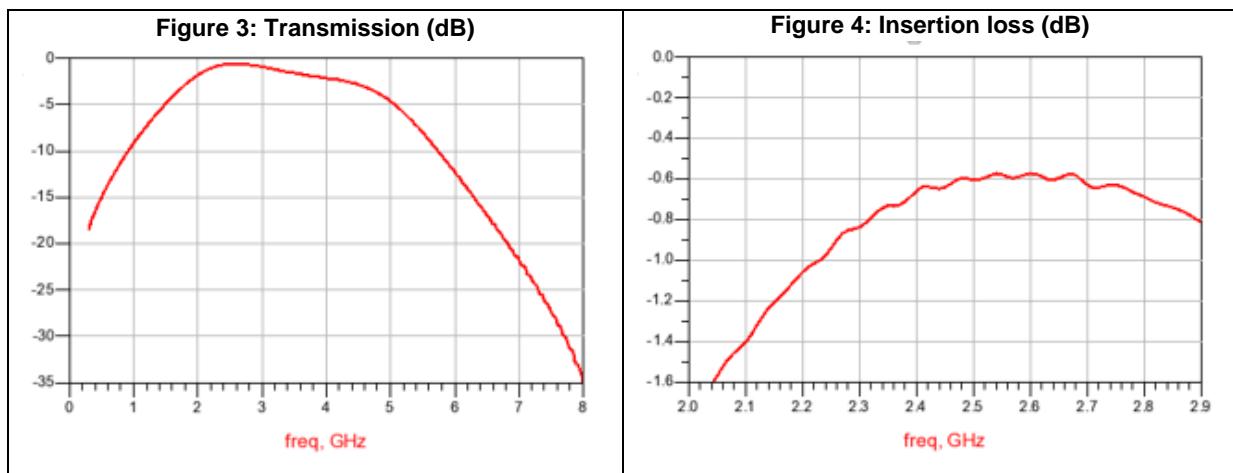
Table 1: Absolute maximum ratings (limiting values)

Symbol	Parameter	Value	Unit
P _{IN}	Input power RF _{IN}	20	dBm
V _{ESD}	ESD ratings MIL STD 883C (HBM: C = 100pF, R = 1.5kΩ, air discharge)	2000	V
	ESD ratings machine model (MM: C = 200pF, R = 25 Ω, L = 500 nH)	500	
	ESD ratings charged device model (CDM, JESD22-C101D)	500	
T _{OP}	Operating temperature	-40 to +105	°C

Table 2: Electrical characteristics (values, T_{amb} = 25 °C)

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
Z _{OUT}	Nominal differential output impedance	Conjugate match to WILC1000			Ω
Z _{IN}	Nominal input impedance	-	50	-	Ω
f	Frequency range (bandwidth)	2400		2500	MHz
I _L	Insertion loss in bandwidth		0.65	0.8	dB
R _{L_SE}	Single ended return loss in bandwidth		-16	-15	
R _{L_DIFF}	Differential return loss in bandwidth		-17	-15	
H ₂	Second harmonic rejection (differential mode)			-3.8	
H ₃	Third harmonic rejection (differential mode)			-23	
Φ _{imb}	Phase imbalance	-2	1.3	2	°
A _{imb}	Amplitude imbalance	-0.9	0.8	0.9	dB

1.1 RF measurements



2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: www.st.com.
ECOPACK® is an ST trademark.

2.1 Flip-Chip package information

Figure 9: Flip-Chip 4 bumps CSPG 0.4 package outline

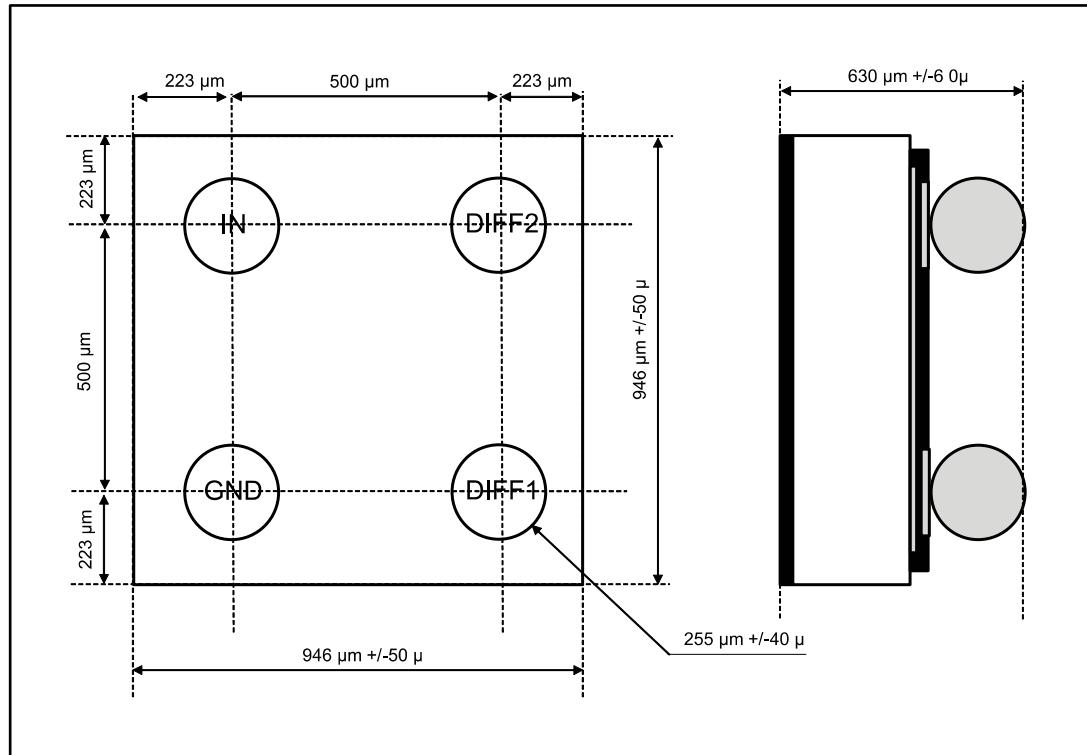
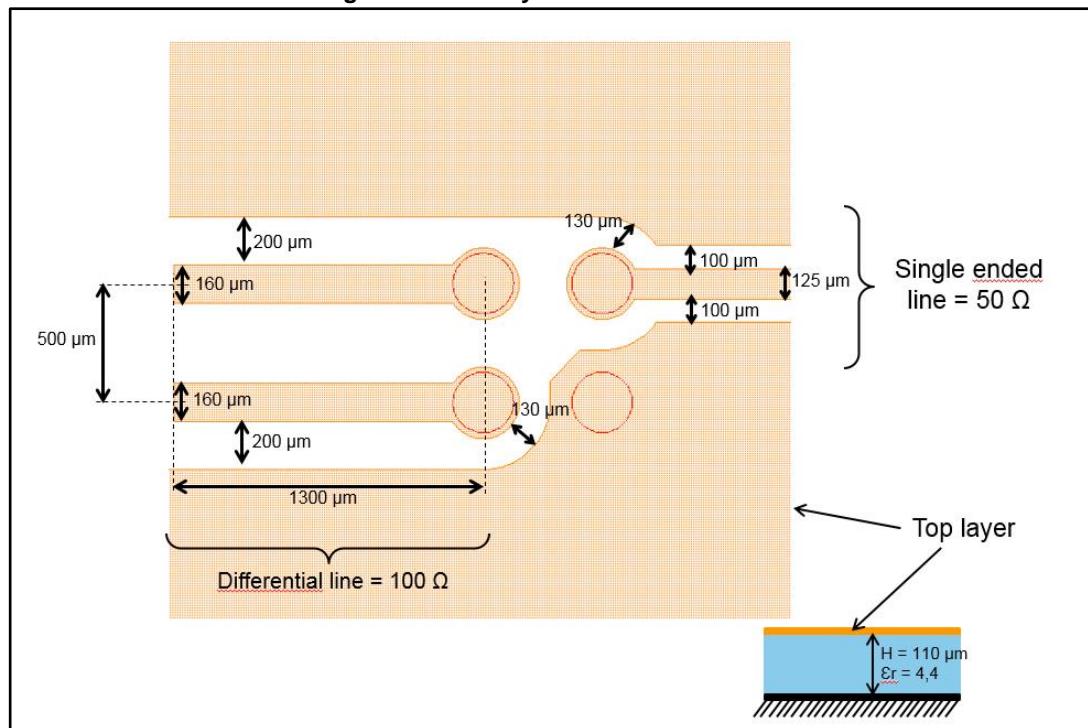
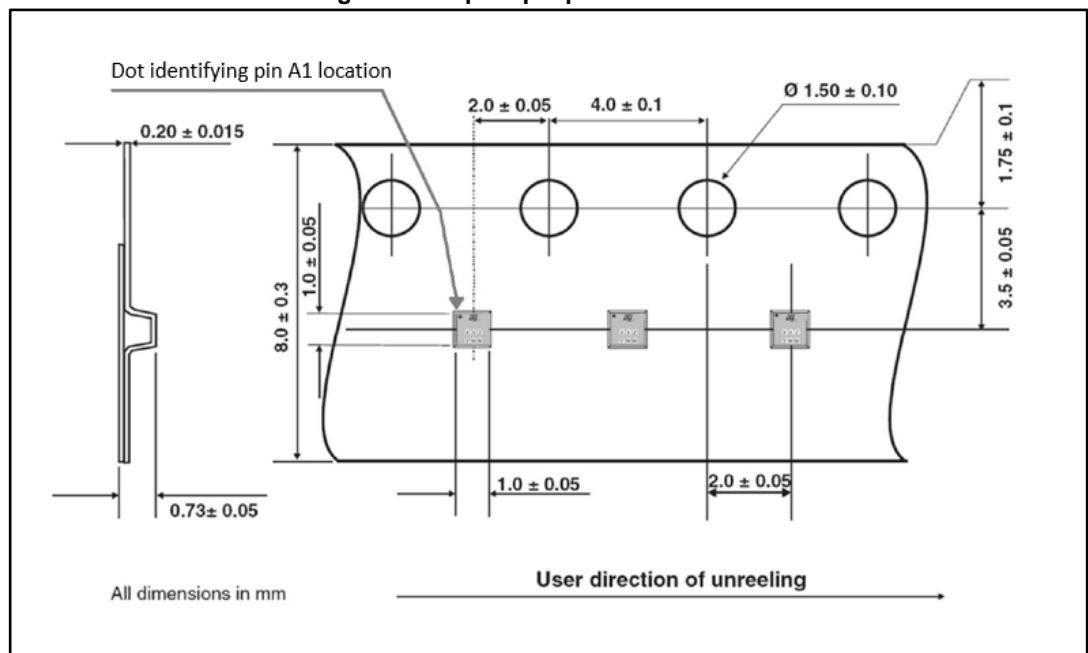


Figure 10: PCB layout recommendation



2.2 Flip-chip 4 bumps CSPG packing information

Figure 11: Flip-chip tape and reel outline



More information is available in the application note AN2348: "Flip Chip: Package description and recommendations for use"

Figure 12: Marking

Dot, ST logo
□ ECOPACK grade
xx = marking
z = manufacturing
location
yww = datecode

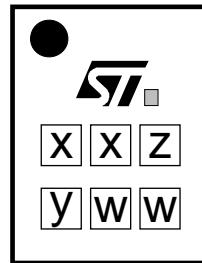


Figure 13: Footprint - non solder mask defined

Copper pad diameter:
220 μ m recommended
180 μ m minimum
260 μ m maximum

Solder mask opening:
320 μ m recommended
300 μ m minimum
340 μ m maximum

Solder stencil opening:
220 μ m recommended

Line to connect copper pad on solder mask opening
should be smaller than copper pad diameter

Figure 14: Footprint - solder mask defined

Solder mask opening:
220 μ m recommended
180 μ m minimum
260 μ m maximum

Copper pad diameter:
320 μ m recommended
300 μ m minimum

Solder stencil opening :
220 μ m recommended

3 Ordering information

Table 3: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
BAL-WILC10-01D3	L	WLCSP	1.084 mg	5000	Tape and reel (7")

4 Revision history

Table 4: Document revision history

Date	Revision	Changes
31-Mar-2017	1	Initial release.

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2017 STMicroelectronics – All rights reserved

ООО "ЛайфЭлектроникс"

"LifeElectronics" LLC

ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибуторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибуторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помочь разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)
Email: org@lifeelectronics.ru