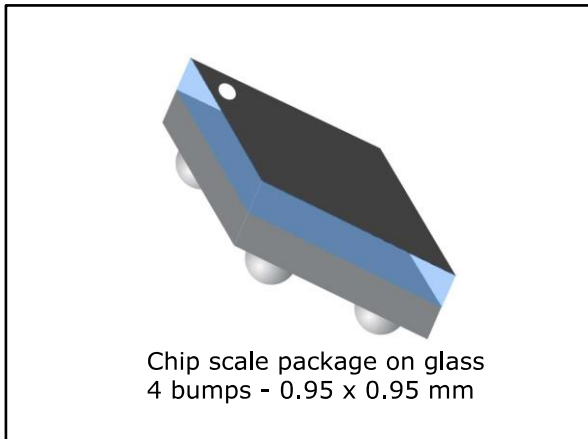


50 Ω / conjugate match to WILC1000 transformer balun

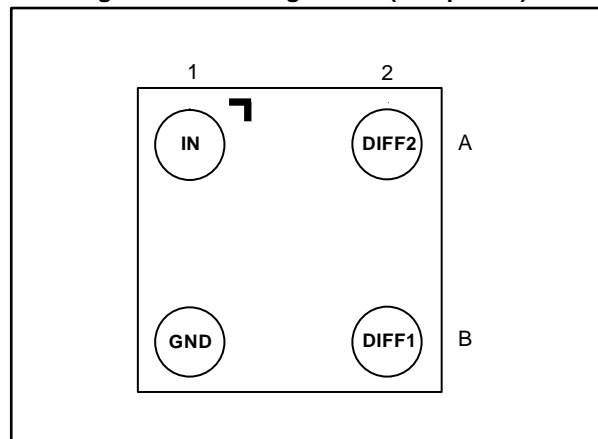
Datasheet - production data



Description

This device is an ultra-miniature matched balun. Matching impedance has been optimized for the ATMEL 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)



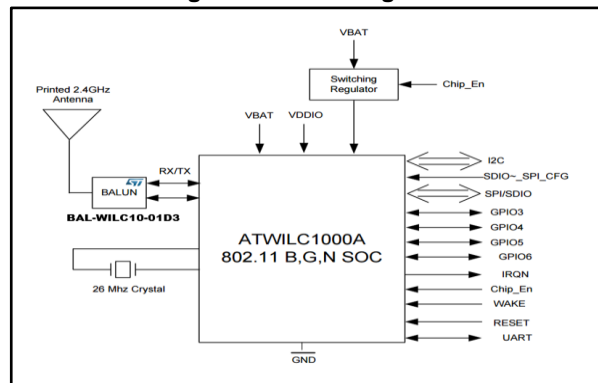
Features

- 2.45 GHz Balun with integrated matching network
- Matching optimized for ATMEL 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

Figure 2: Block diagram



1 Characteristics

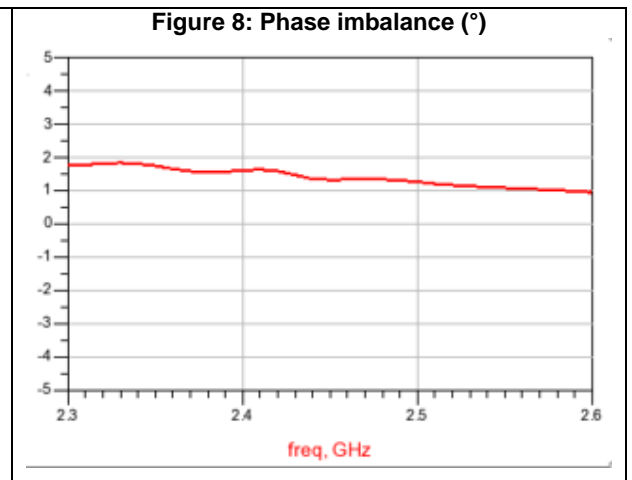
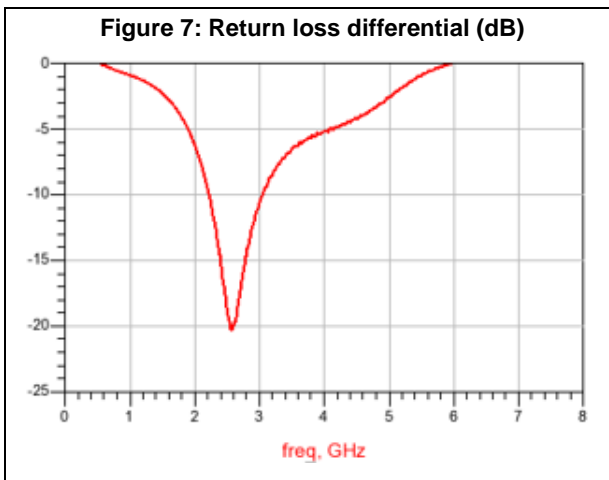
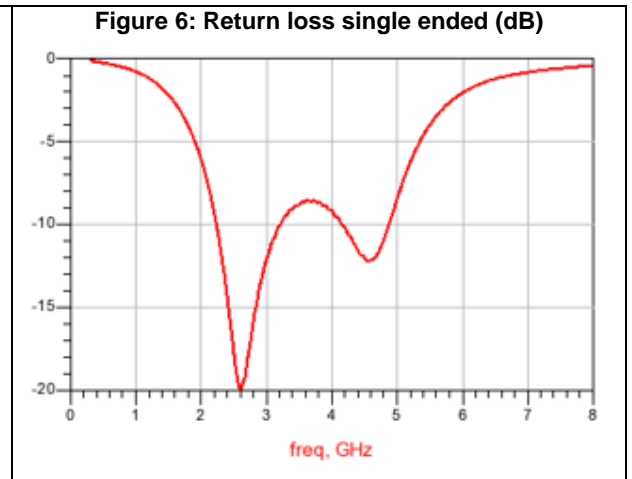
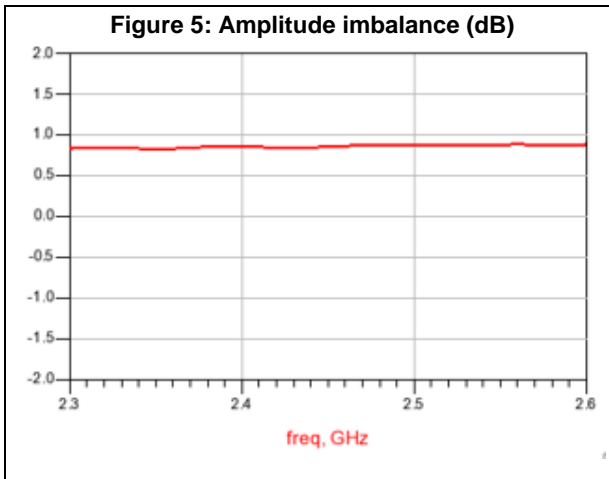
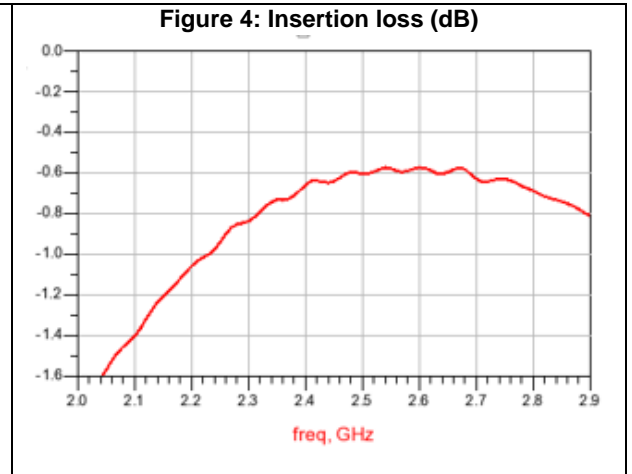
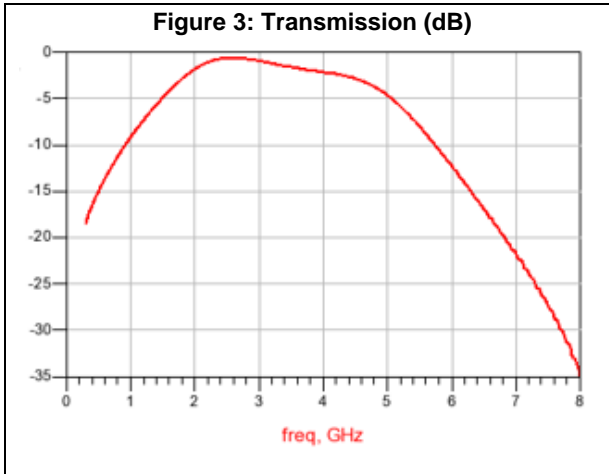
Table 1: Absolute maximum ratings (limiting values)

Symbol	Parameter	Value	Unit
P _{IN}	Input power R _{FIN}	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

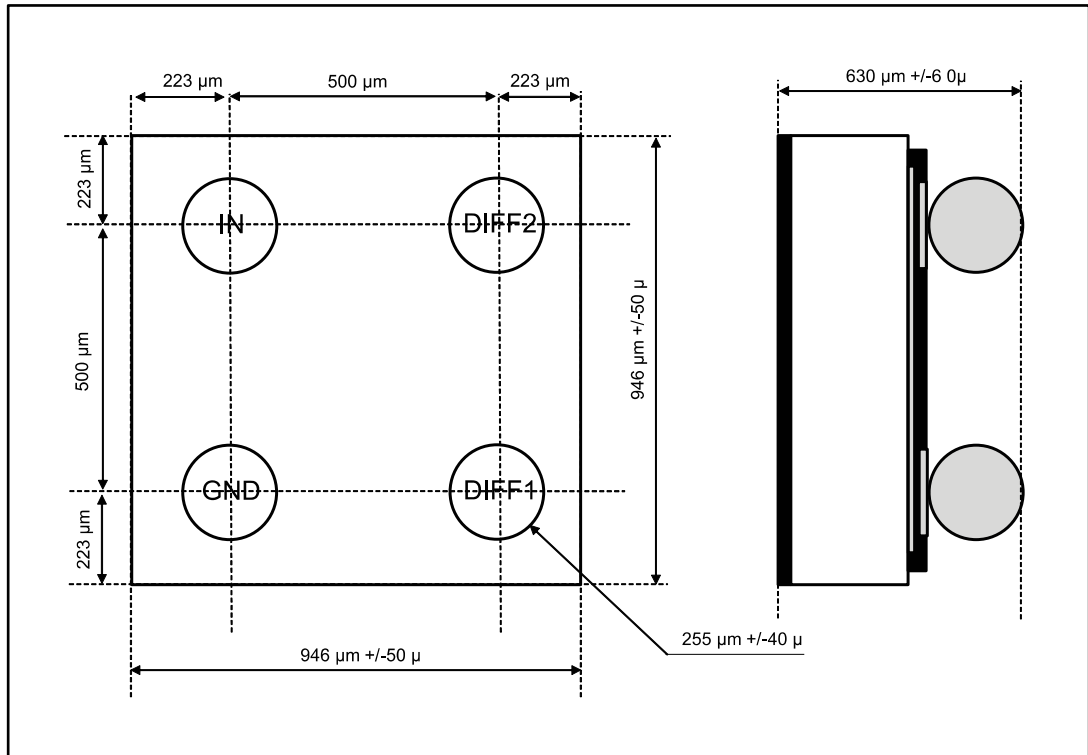
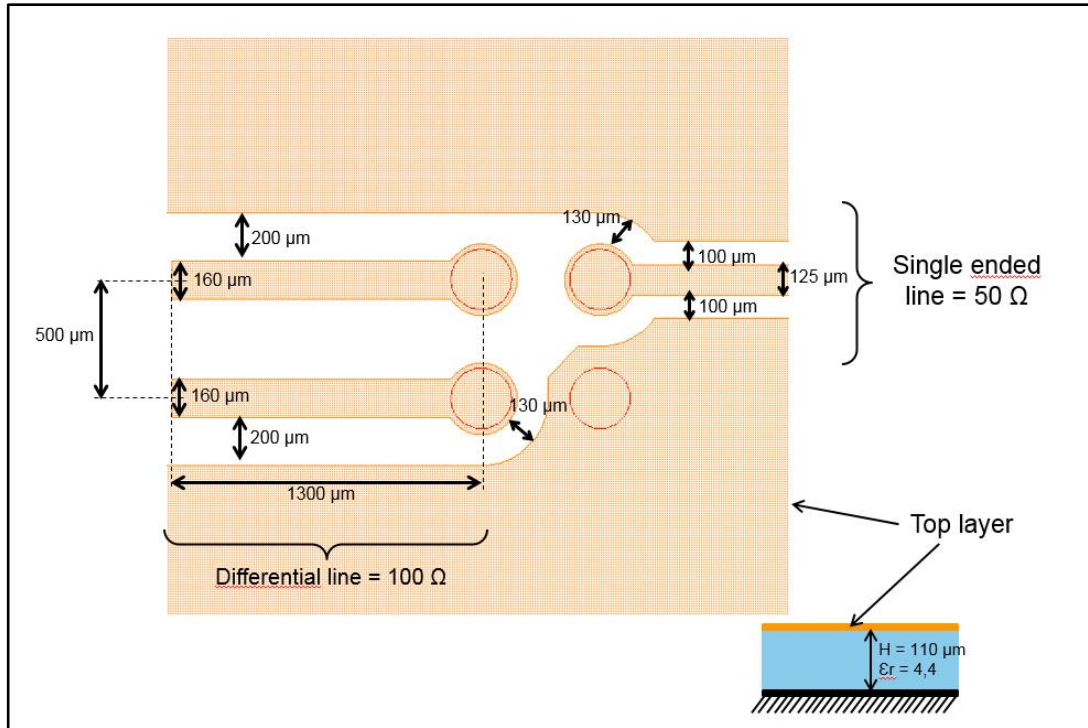
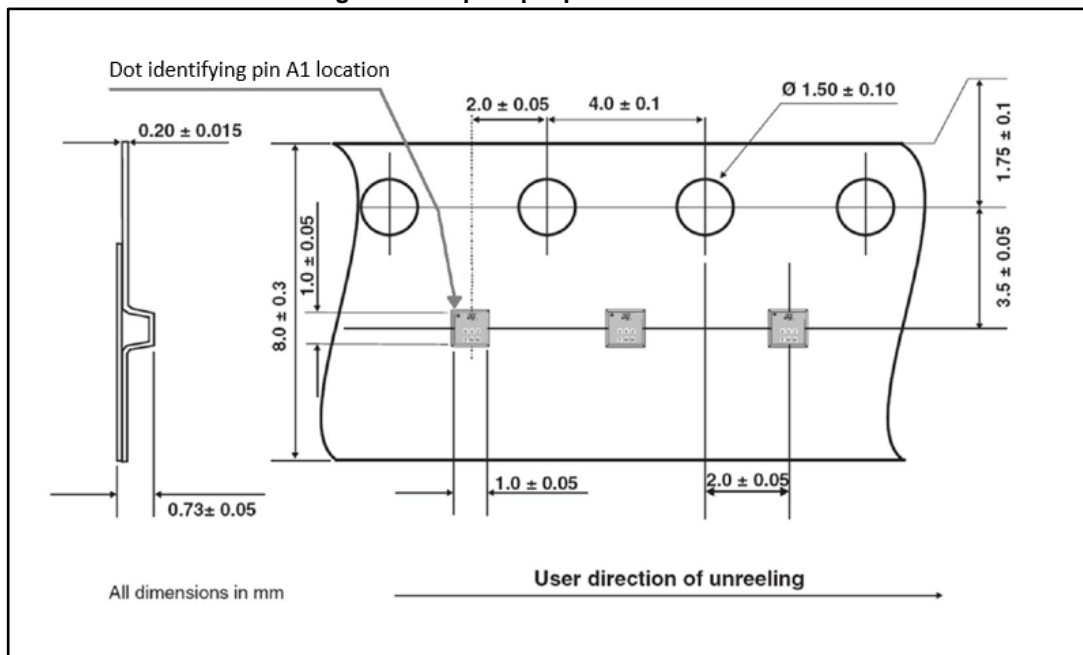


Figure 10: PCB layout recommendation



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

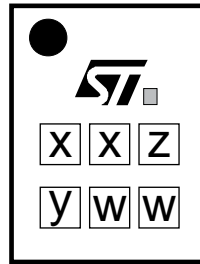


Figure 13: Footprint - non solder mask defined

Copper pad diameter:
 220µm recommended
 180µm minimum
 260µm maximum

Solder mask opening:
 320µm recommended
 300µm minimum
 340µm maximum

Solder stencil opening:
 220µm recommended

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

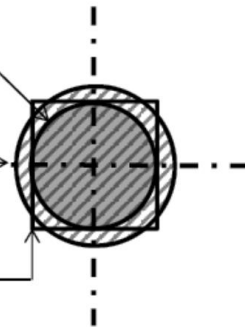
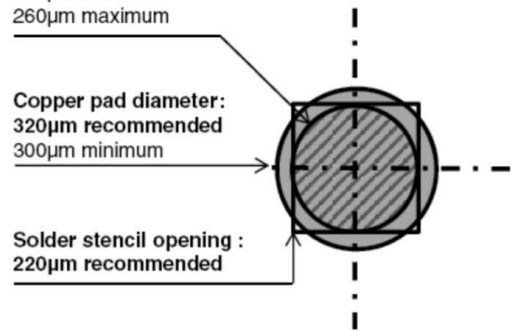


Figure 14: Footprint - solder mask defined

Solder mask opening:
 220µm recommended
 180µm minimum
 260µm maximum

Copper pad diameter:
 320µm recommended
 300µm minimum

Solder stencil opening :
 220µm 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

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9