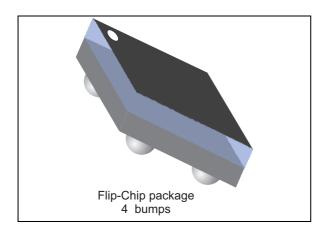


# BAL-CC25-01D3

Datasheet – production data

# 50 ohm, conjugate match to CC253x, CC254x, CC257x, CC852x, CC853x, transformer balun



### Features

- 2.45 GHz balun with integrated matching network
- Matching optimized for following chip-sets:
  - CC2530, CC2531, CC2533
  - CC2540, CC2541, CC2541S
  - CC2543, CC2544, CC2545
  - CC2570, CC2571
  - CC8520, CC8521
  - CC8530, CC82531
- Low insertion loss
- Low amplitude imbalance
- Low phase imbalance
- Coated Flip-Chip on glass
- Small footprint: < 0.88 mm<sup>2</sup>

#### Benefits

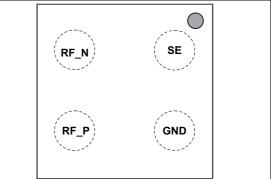
- Very low profile
- High RF performance
- PCB space saving versus discrete solution
- BOM count reduction
- Efficient manufacturability

### Description

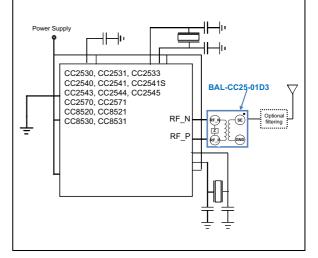
STMicroelectronics BAL-CC25-01D3 is an ultra miniature balun which integrates a matching network in a monolithic glass substrate. This has been customized for the CC25xx and CC85xx RF transceivers.

It's a design using STMicroelectronics IPD (integrated passive device) technology on nonconductive glass substrate to optimize RF performance.

#### Figure 1. Pin configuration (top view)



### Figure 2. Application schematic (top view)



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This is information on a product in full production.

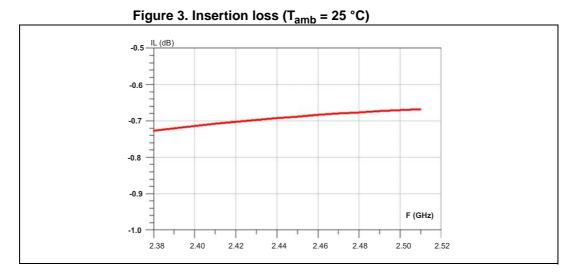
# 1 Characteristics

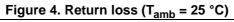
Symbol	Parameter	Value			Unit
	Falameter	Min.	Тур.	Max.	Onit
P <sub>PEAK</sub>	Input power RF <sub>IN</sub>		20		dBm
V <sub>ESD</sub>	ESD ratings MIL STD883C (HBM: C = 100 pF, R = 1.5 $\Omega$ , air discharge)	2000			
	ESD ratings machine model (MM: C = 200 pF, R = 25 $\Omega$ , L = 500 nH)	500			V
	ESD ratings charged device model (CDM, JESD22-C101D)	500			
Т <sub>ОР</sub>	Operating temperature	-40		+125	°C

### Table 1. Absolute maximum rating (limiting values)

Symbol	Parameter		Unit			
Cymbol	i urumotor	Min.	Тур.	Max.	onit	
Z <sub>OUT</sub>	Nominal differential output impedance	Conjugate match to CC25xx,		Ω		
Z <sub>IN</sub>	Nominal input impedance	CC85xx			52	
F	Frequency range (bandwidth)	2379		2507		
۱ <sub>L</sub>	Insertion loss in bandwidth		0.66		dB	
R <sub>L_SE</sub>	Single ended return loss in bandwidth		19		dB	
R <sub>L_DIFF</sub>	Differential ended return loss in bandwidth		19		dB	
$\Phi_{imb}$	Phase imbalance		14		o	
A <sub>imb</sub>	Amplitude imbalance		0.3		dB	







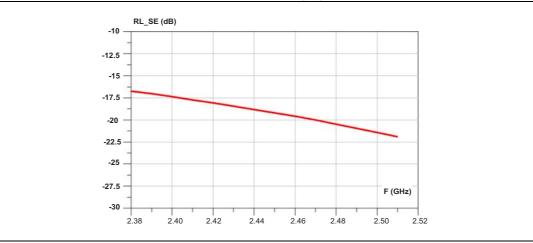
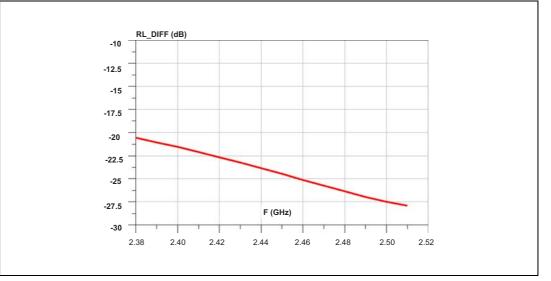
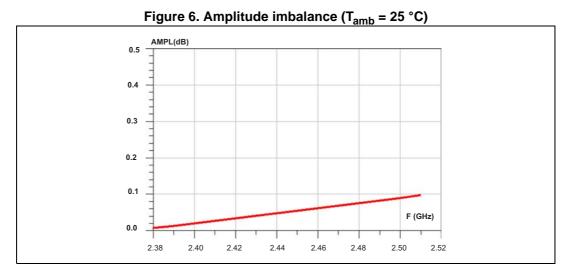


Figure 5. Return loss (T<sub>amb</sub> = 25 °C)

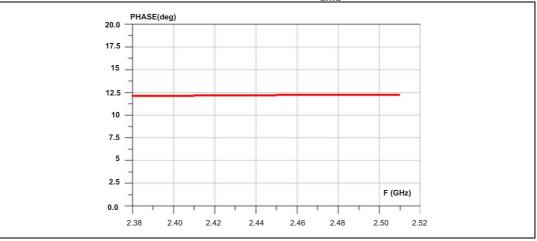




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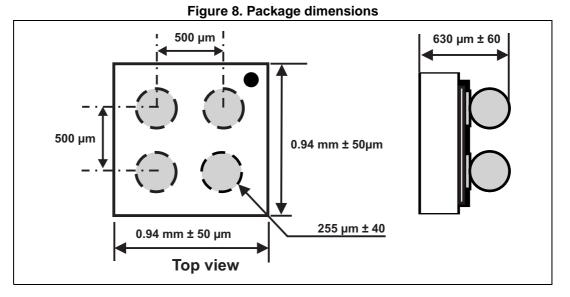




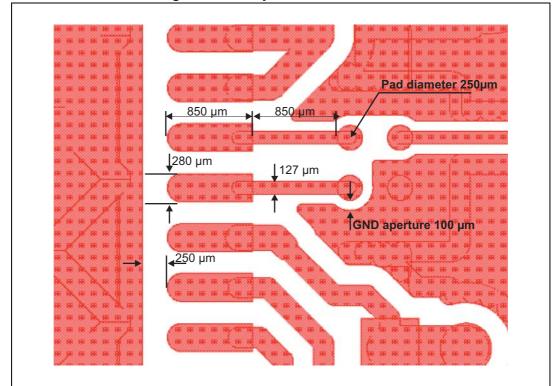


### 2 Package information

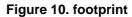
In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: *www.st.com.* ECOPACK<sup>®</sup>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



#### Figure 9. PCB layout recommendation







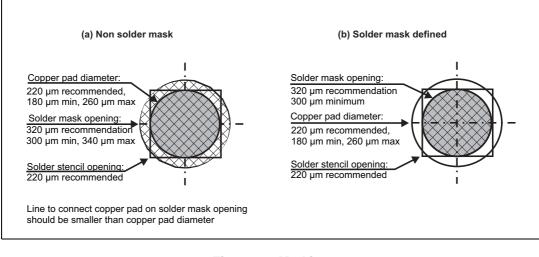
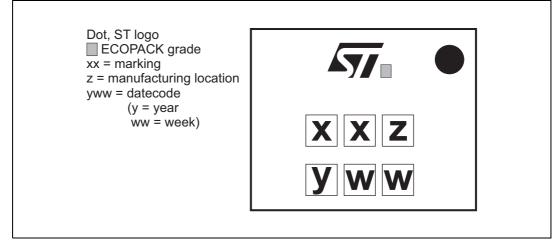


Figure 11. Marking





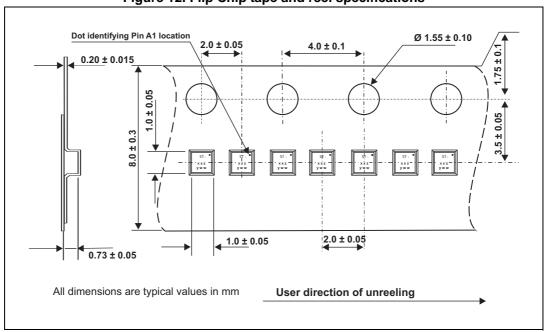
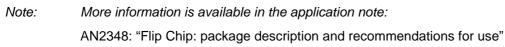


Figure 12. Flip Chip tape and reel specifications





# **3** Ordering information

Table	3.	Ordering	information
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Order code	Marking	Package	Weight	Base qty	Delivery mode
BAL-CC25-01D3	SL	Flip Chip	1.07 mg	5000	Tape and reel (7")

### 4 Revision history

Date	Revision	Changes
23-May-2013	1	Initial release
11-Jul-2013	2	Updated Figure 9.



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