

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 mm²

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		
	Falameter	Min.	Тур.	Max.	Unit
P _{PEAK}	Input power RF _{IN}		20		dBm
V _{ESD}	ESD ratings MIL STD883C (HBM: C = 100 pF, R = 1.5 Ω , air discharge)	2000			
	ESD ratings machine model (MM: C = 200 pF, R = 25 Ω , L = 500 nH)	500			V
	ESD ratings charged device model (CDM, JESD22-C101D)	500			
T _{OP}	Operating temperature	-40		+125	٥C

Table 1. Absolute maximum rating (limiting values)

Symbol	Parameter	Value			Unit	
Cymbol	i arameter	Min.	Тур.	Max.	onit	
Z _{OUT}	Nominal differential output impedance	Conjugate match to CC25xx, CC85xx		0		
Z _{IN}	Nominal input impedance			52		
F	Frequency range (bandwidth)	2379		2507		
١ _L	Insertion loss in bandwidth		0.66		dB	
R_{L_SE}	Single ended return loss in bandwidth		19		dB	
R_{L_DIFF}	Differential ended return loss in bandwidth		19		dB	
Φ_{imb}	Phase imbalance		14		o	
A _{imb}	Amplitude imbalance		0.3		dB	









Figure 5. Return loss (T_{amb} = 25 °C)





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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.



Figure 9. PCB layout recommendation









Figure 11. Marking







Figure 12. Flip Chip tape and reel specifications





3 Ordering information

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

Table 4. Document revision history	Table 4.	Document	revision	history
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Date	Revision	Changes
23-May-2013	1	Initial release
11-Jul-2013	2	Updated Figure 9.



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