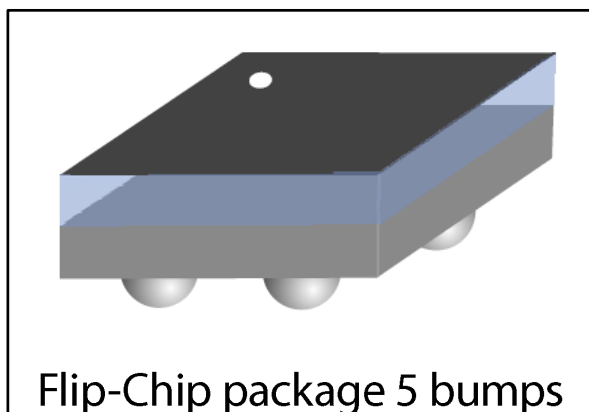


50 Ω nominal input / conjugate match balun CC2610, CC2620, CC2630, CC2640, CC2650 MHz, with integrated harmonic filter

Datasheet - production data



Features

- 2.45 GHz balun with integrated matching network
- Matching optimized for CC26 series 5x5 external differential
- Low insertion loss
- Low amplitude imbalance
- Low phase imbalance
- Coated Flip-Chip on glass
- Small footprint < 1.5 mm²

Benefits

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

Description

STMicroelectronics' BALF-CC26-05D3 is an ultra-miniature balun, integrating both matching network and harmonics filter.

Matching impedance has been customized for the TI CC26xx series 5x5 SimpleLink™ multistandard wireless MCU.

The device uses STMicroelectronics' IPD technology on a non-conductive glass substrate, which optimizes RF performance.

Figure 1: Pin configuration

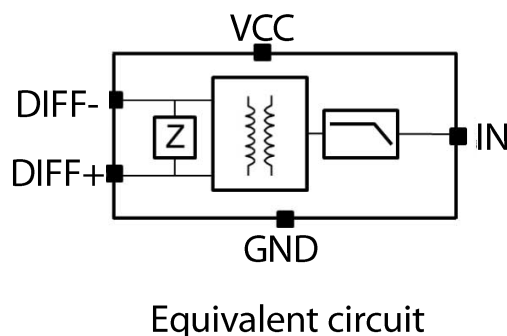
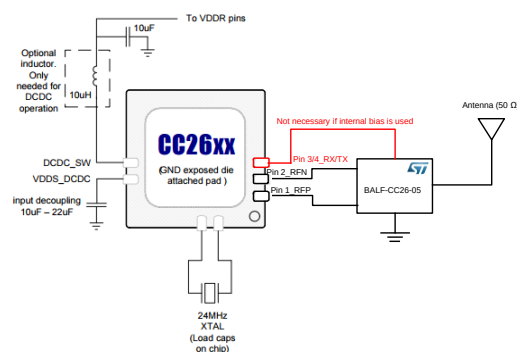


Figure 2: Block diagram



1 Characteristics

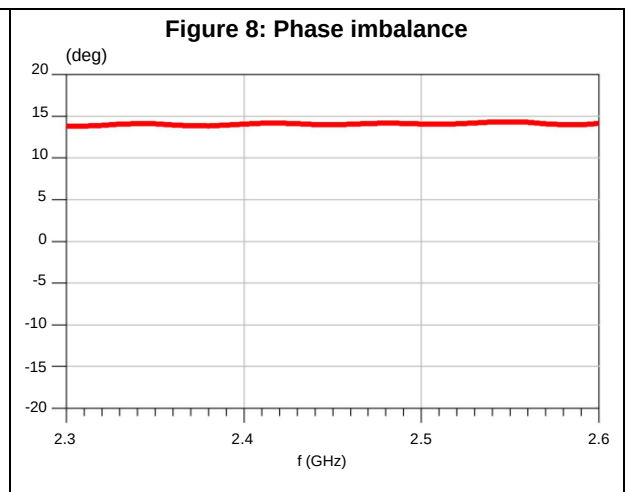
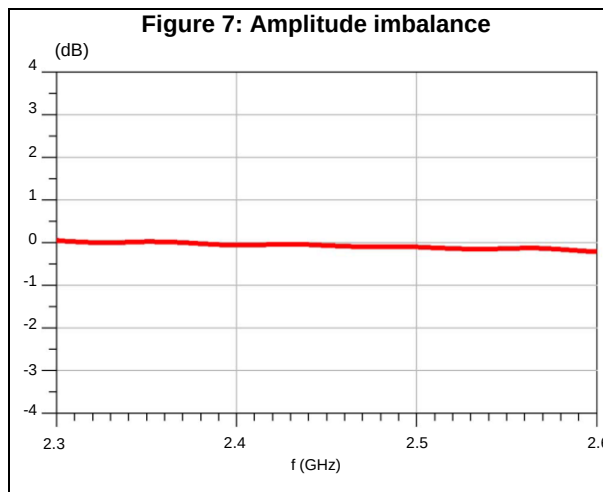
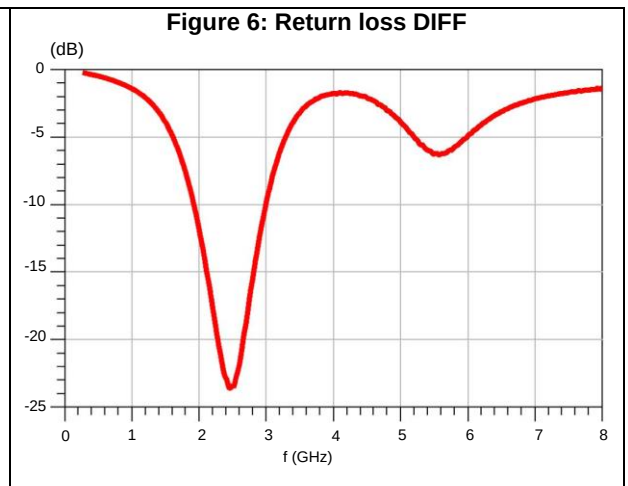
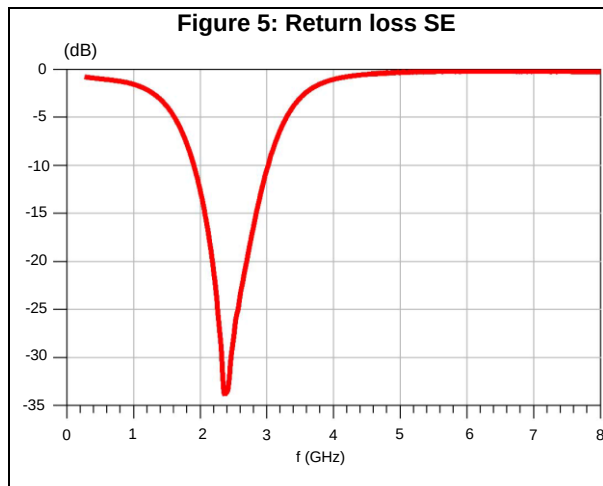
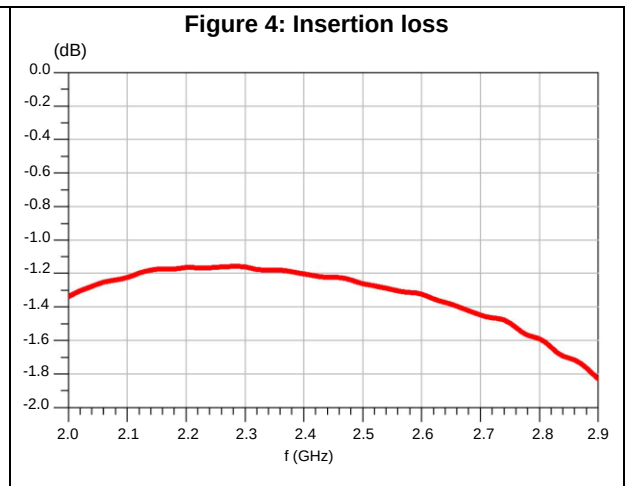
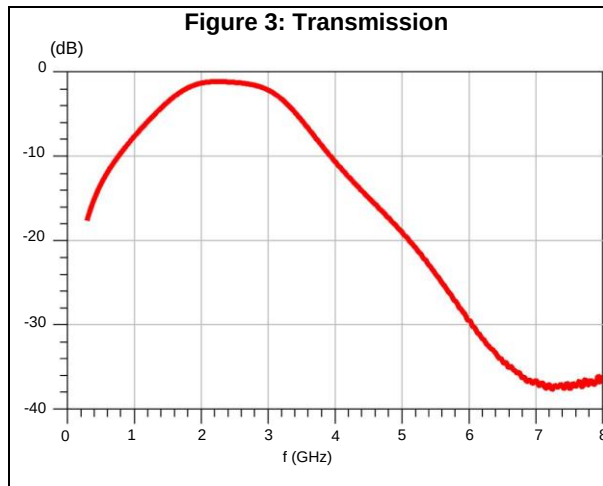
Table 1: Absolute maximum ratings (limiting values)

Symbol	Parameter	Value	Unit
P _{IN}	Input power RFIN	20	dBm
V _{ESD}	ESD ratings MIL STD883C (HBM: C = 100 pF, R = 1.5 Ω, air discharge)	900	V
	ESD ratings machine model (MM: C = 200 pF, R = 25 W, L = 500 nH)	100	
T _{OP}	Operating temperature	-40 to +105	°C

Table 2: Electrical characteristics (Tamb = 25 °C)

Symbol	Parameter	Value			Unit
		Min.	Typ.	Max.	
Z _{OUT}	Nominal differential output impedance	Match to 5x5 CC26xx series			Ω
Z _{IN}	Nominal input impedance		50		Ω
f	Frequency range (bandwidth)	2400		2500	MHz
IL	Insertion loss in bandwidth		1.2	1.5	dB
RL SE	Single Ended Return loss in bandwidth		-27	-18	dB
RL DIFF	Differential Return loss in bandwidth		-23	-20	dB
Phase_imbal	Phase imbalance	-16		16	°
Ampl_imbal	Amplitude imbalance	-0.3		0.3	dB
H2	Second harmonic rejection		-18	-17	
H3	Third harmonic rejection		-37	-35	

1.2 RF measurement

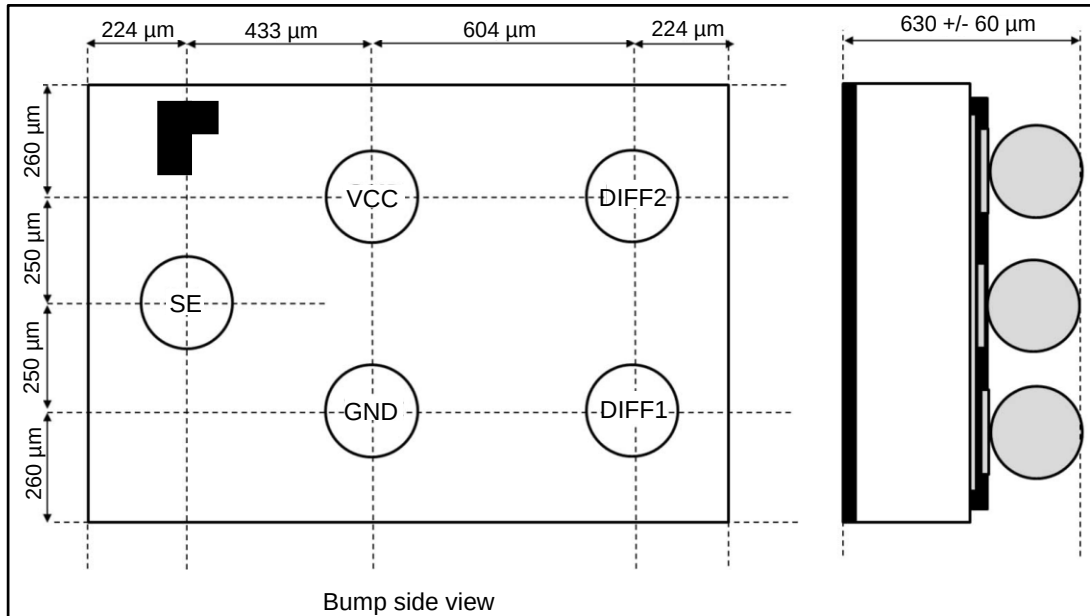


2 Package information

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 CSPG 0.4 package information

Figure 9: Flip-Chip CSPG 0.4 package outline



Bump side view

Figure 10: PCB layout recommendation

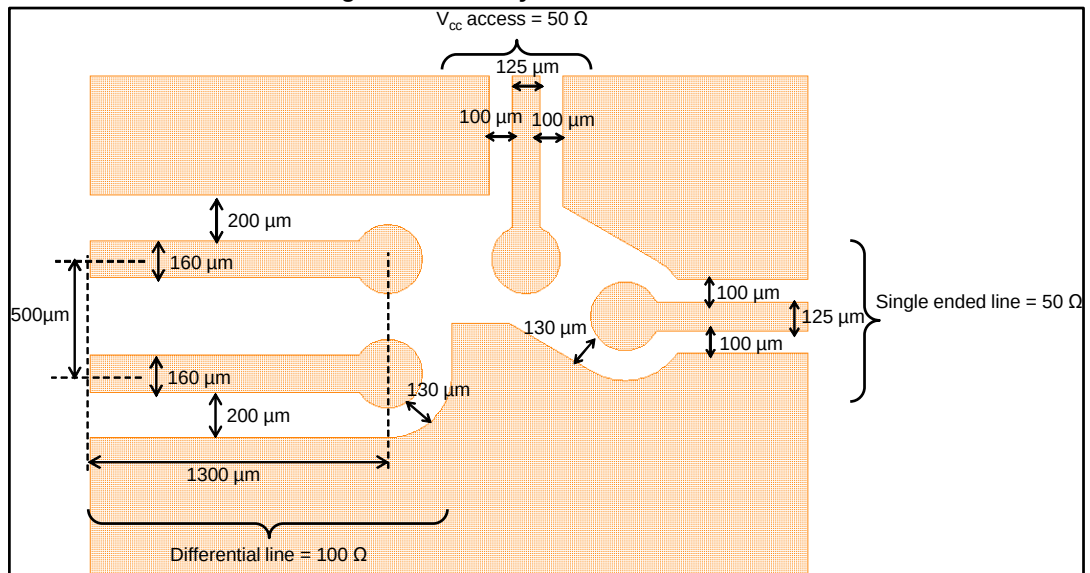


Figure 11: Footprint - non solder mask defined

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

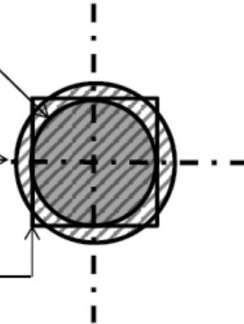
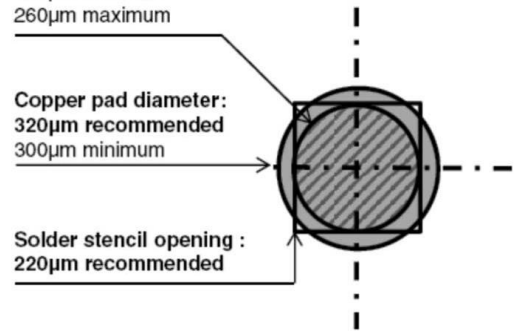


Figure 12: Footprint - solder mask defined

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

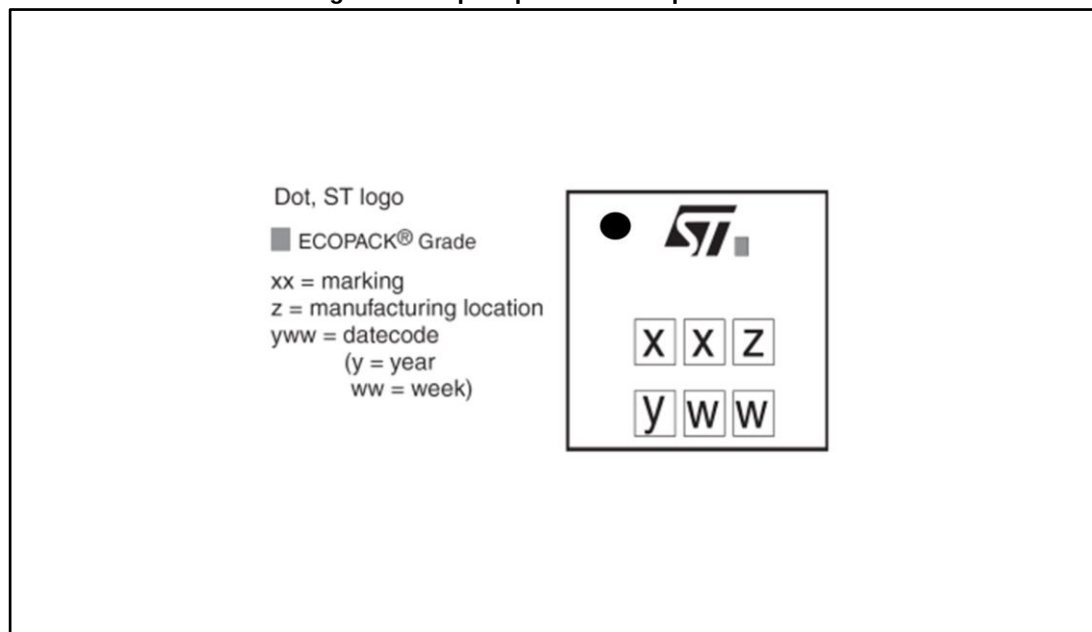
Copper pad diameter:
320µm recommended
300µm minimum

Solder stencil opening :
220µm recommended



2.2 Flip-chip CSPG 0.4 packing information

Figure 13: Flip-chip CSPG 0.4 tape outline



Technical drawing of a 4-hole reel. The drawing shows a side view of the reel with four circular holes and three rectangular cross-bars. Dimensions are given in mm with tolerances.

Dimensions:

- Overall width: 0.22 ± 0.02
- Overall height: $8.0 \pm 0.30 - 0.10$
- Distance from top edge to center of first hole: 1.57 ± 0.05
- Distance between centers of adjacent holes: 2.0 ± 0.05
- Distance from center of first hole to center of second hole: 4.0 ± 0.10
- Hole diameter: $\varnothing 1.5 \pm 0.10$
- Distance from bottom edge to center of first hole: 1.75 ± 0.10
- Distance from center of first hole to center of second hole: 3.5 ± 0.05
- Distance from center of first hole to center of second hole: 1.1 ± 0.05
- Distance between centers of adjacent cross-bars: 4.0 ± 0.10
- Cross-bar height: 0.3 raised cross-bar
- Distance from left edge to center of first cross-bar: 0.71 ± 0.05

All dimensions are typical values in mm

User direction of unreeling

3 Ordering information

Table 3: Ordering information

Order code	Marking	Package	Weight	Base qty.	Delivery mode
BALF-CC26-05D3	TH	Flip-Chip CSPG 0.4	1.724 mg	5000	Tape and reel (7")

4 Revision history

Table 4: Document revision history

Date	Revision	Changes
27-Jul-2016	1	First issue.

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