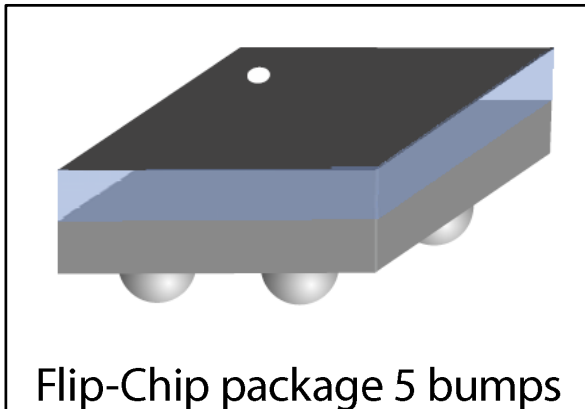


50 Ω nominal input / conjugate match balun CC2610, CC2620, CC2630, CC2640, CC2650 MHz, with integrated harmonic filter

Datasheet - production data



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.

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

Figure 1: Pin configuration

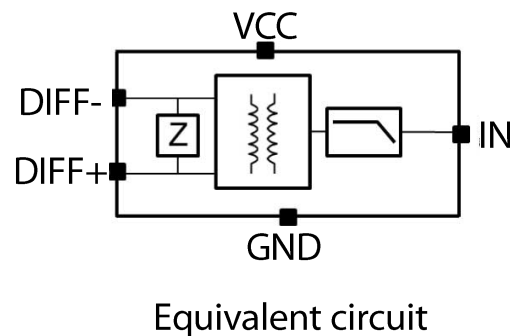
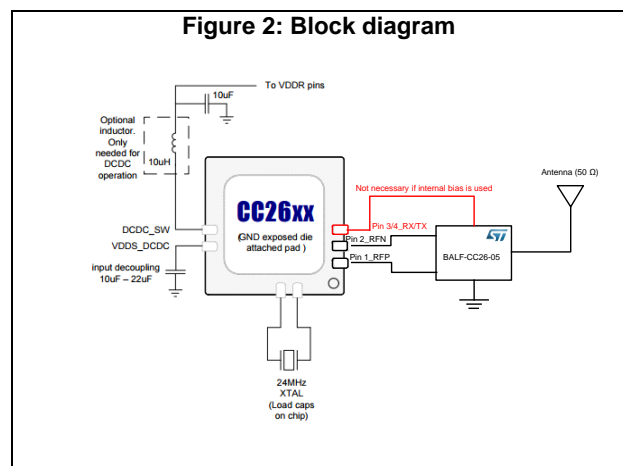


Figure 2: Block diagram



1 Characteristics

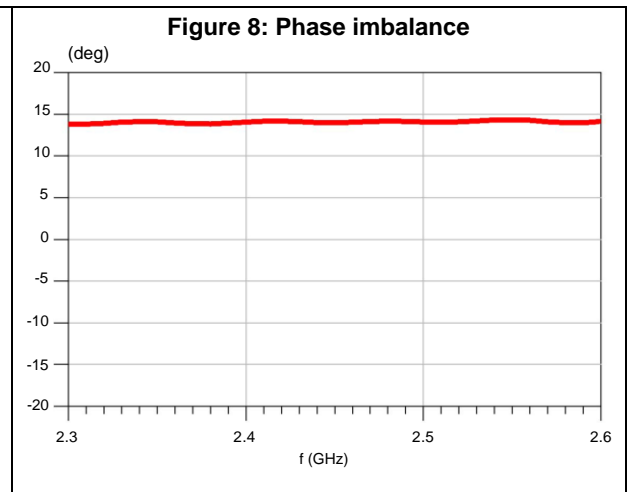
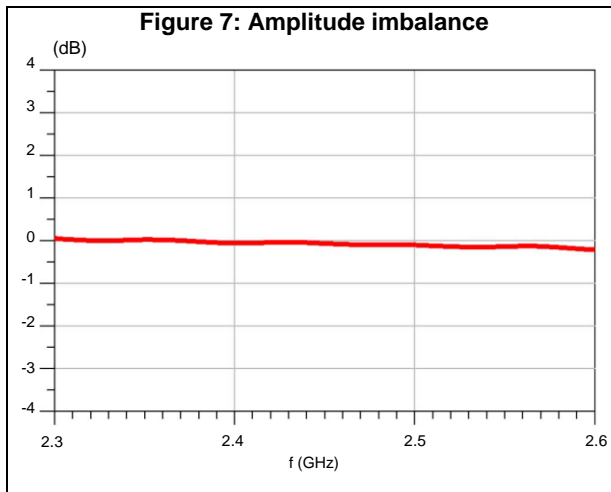
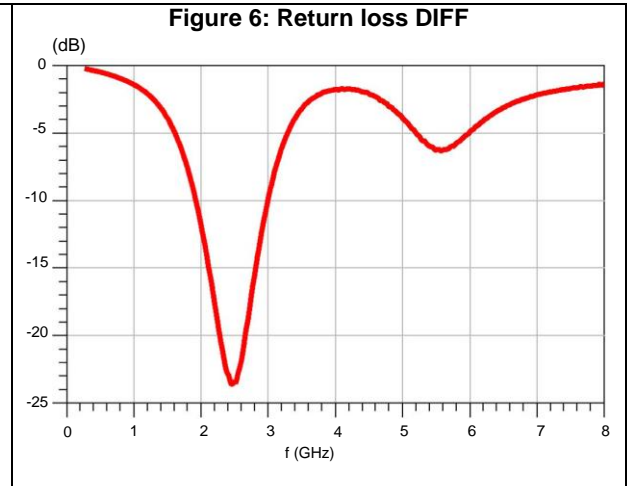
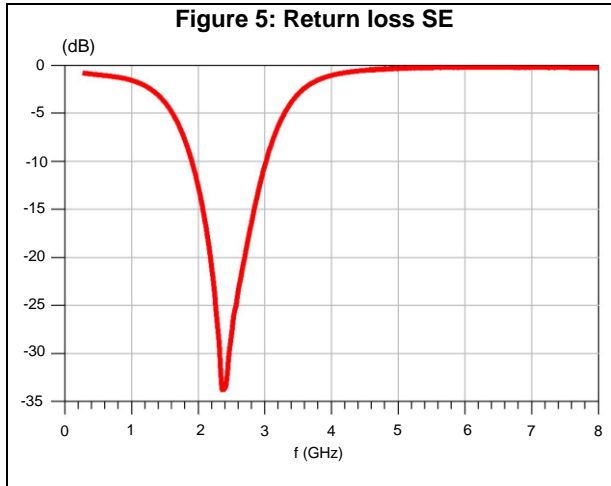
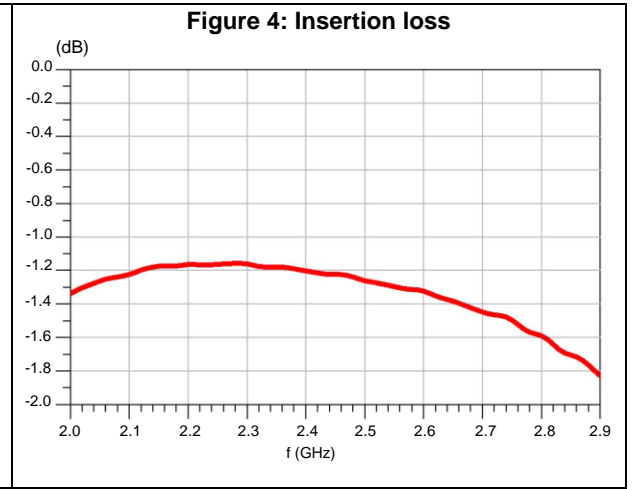
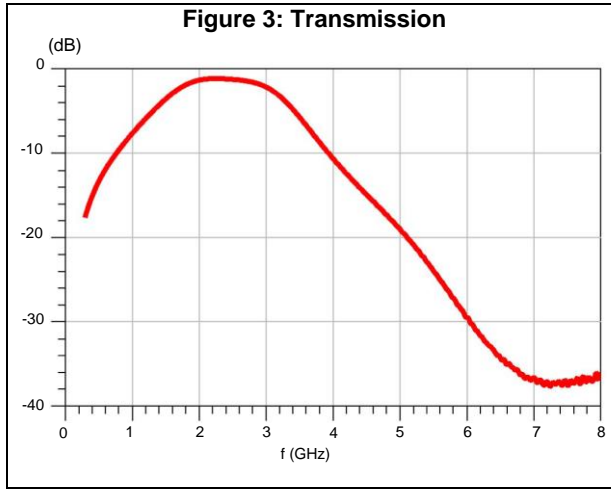
Table 1: Absolute maximum ratings (limiting values)

| 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 (T_{amb} = 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

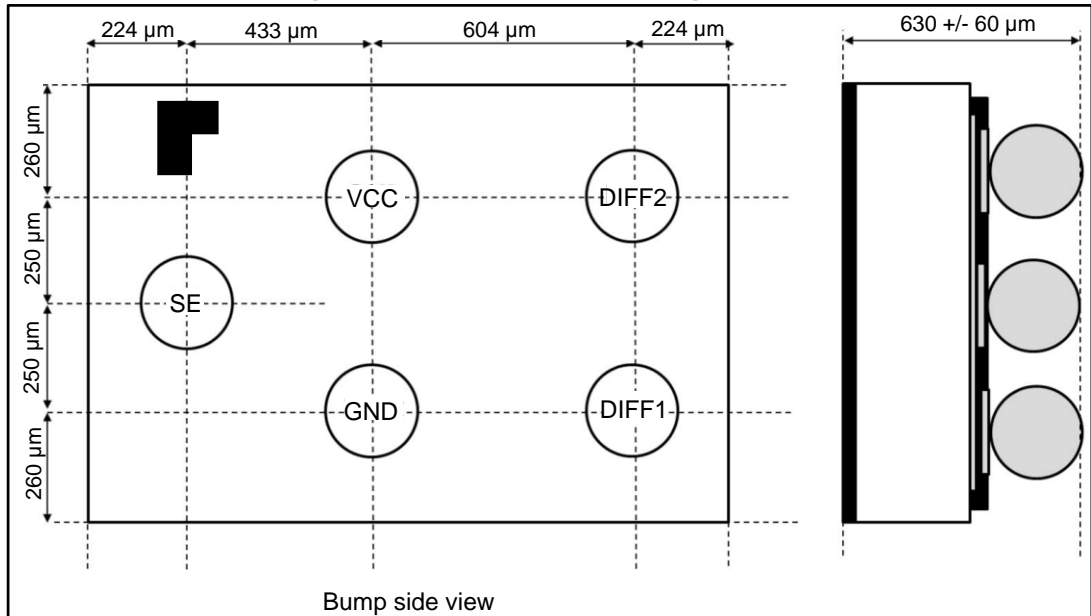


2 Package information

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.

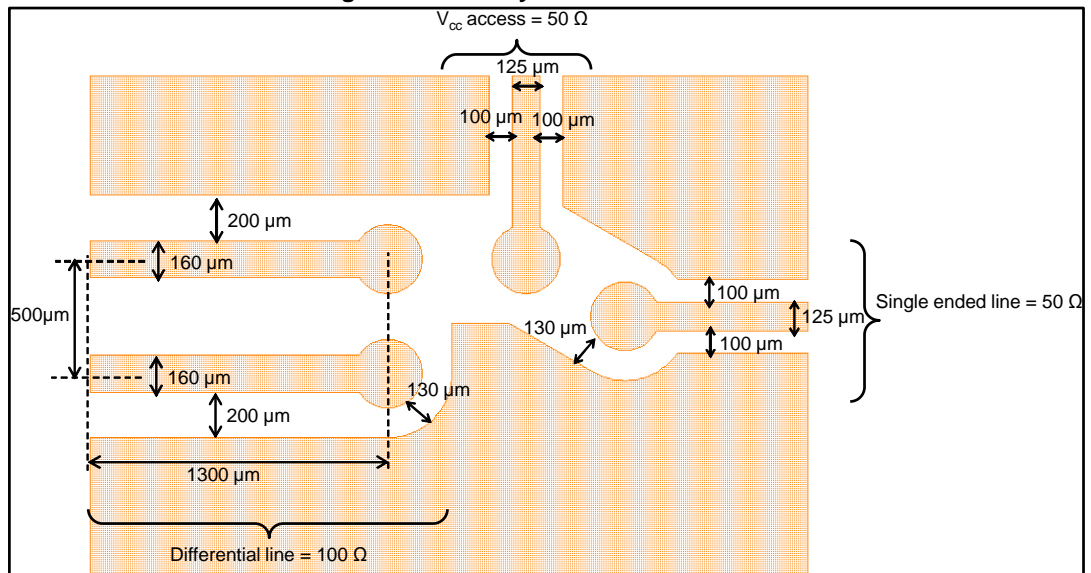
2.1 Flip-Chip CSPG 0.4 package information

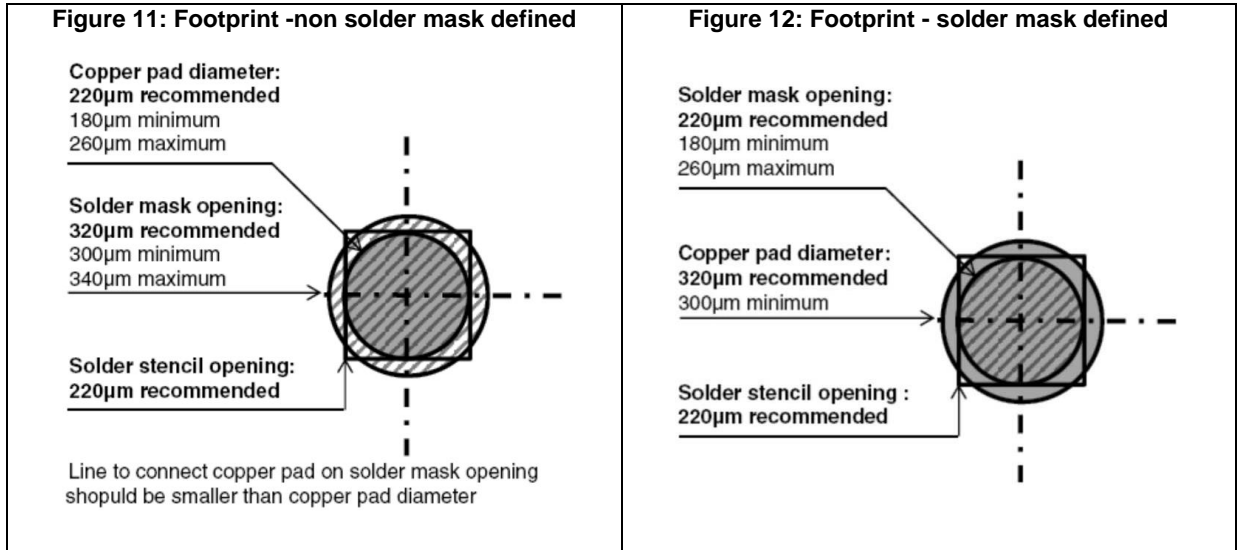
Figure 9: Flip-Chip CSPG 0.4 package outline



Bump side view

Figure 10: PCB layout recommendation





2.2 Flip-chip CSPG 0.4 packing information

Figure 13: Flip-chip CSPG 0.4 tape outline

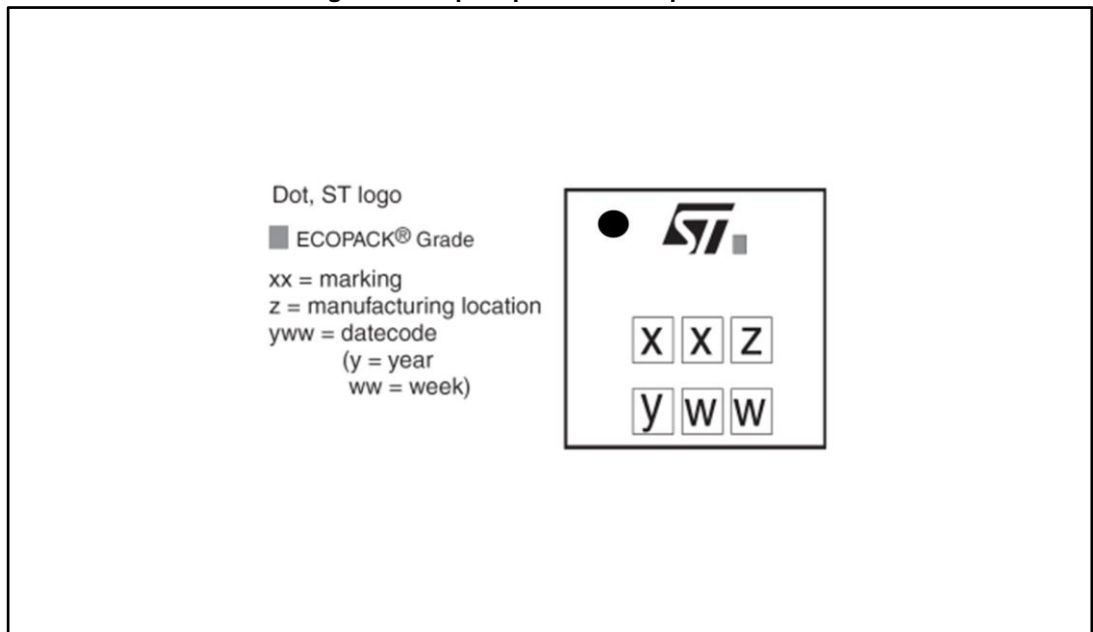
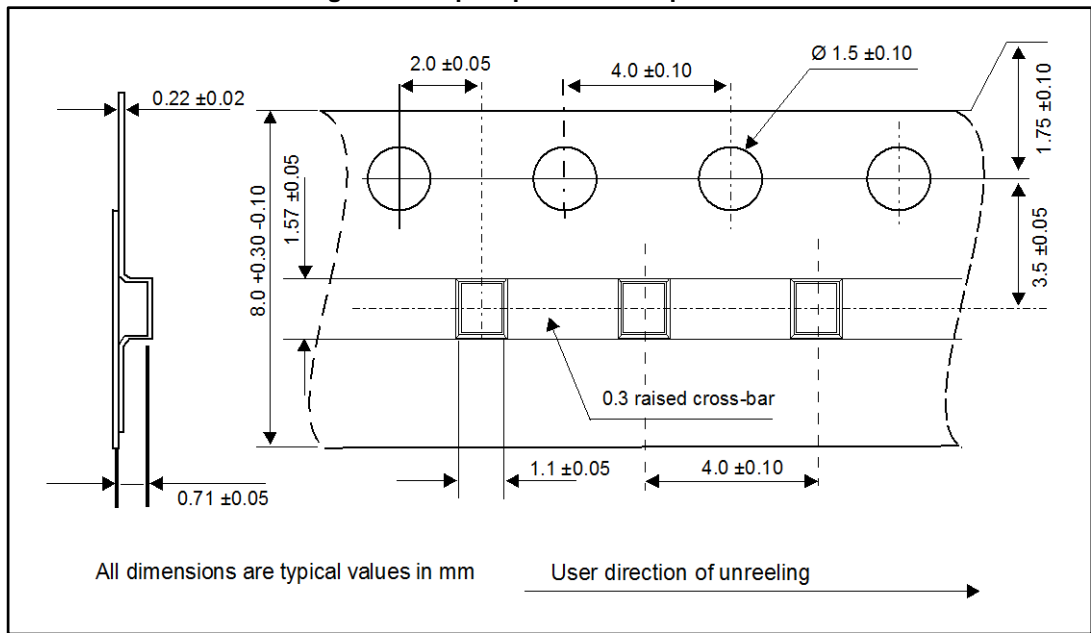


Figure 14: Flip-chip CSPG 0.4 tape outline



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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