

AN11459

Application with TDA8037 - Demonstration board description

Rev. 1.0 — 1 October 2014

Application note

Document information

Info	Content
Keywords	TDA8037, Cake8037, Smart Card Interface, Pay TV, STB, NDS
Abstract	The application note describes the Cake8037 demo boards for TDA8037T and TDA8037TT: schematics, layout and use of this board.



Revision history

Rev	Date	Description
1.0	20141001	First released version

Contact information

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1. Introduction

The TDA8037 is proposed in TSSOP16 and SO28 package.

In the document, the TDA8037T and TDA8037TT will be referred as TDA8037.

This application board is a single board embedding the TDA8037, its capacitors, some connectors for external signals and a smart card connector.

This demonstration board is planned to be used as daughter board, plugged on a mother board embedding the correct connectors.

The evaluation mother board Cake80xxMBA can be purchased from NXP for evaluation purpose.

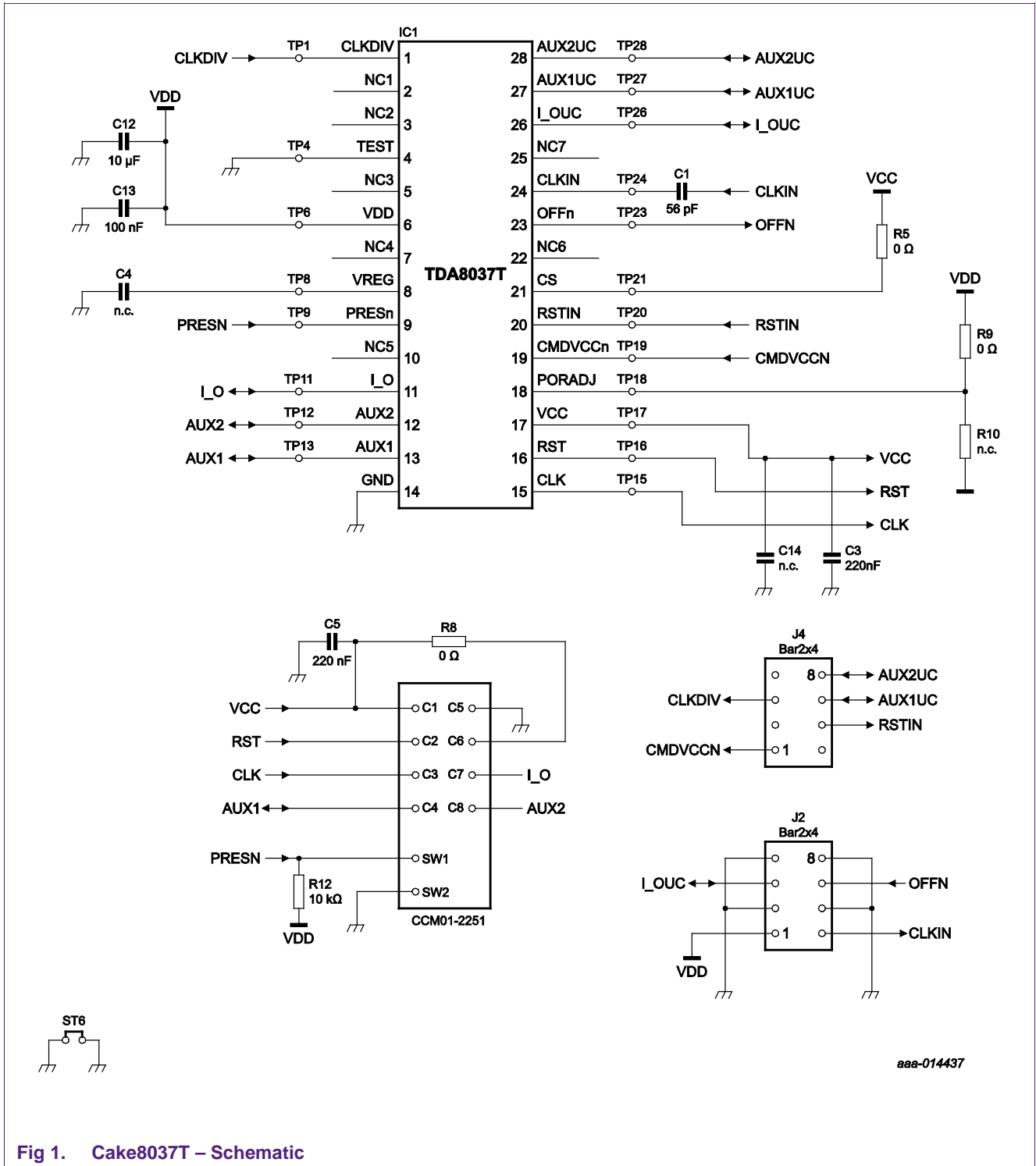
For a first evaluation, the board can also be connected to a microcontroller board with a few wires.

2. Hardware

The following pictures present the whole board:

- Electronic schematic
- Layout
- Components position

2.1 Cake8037T



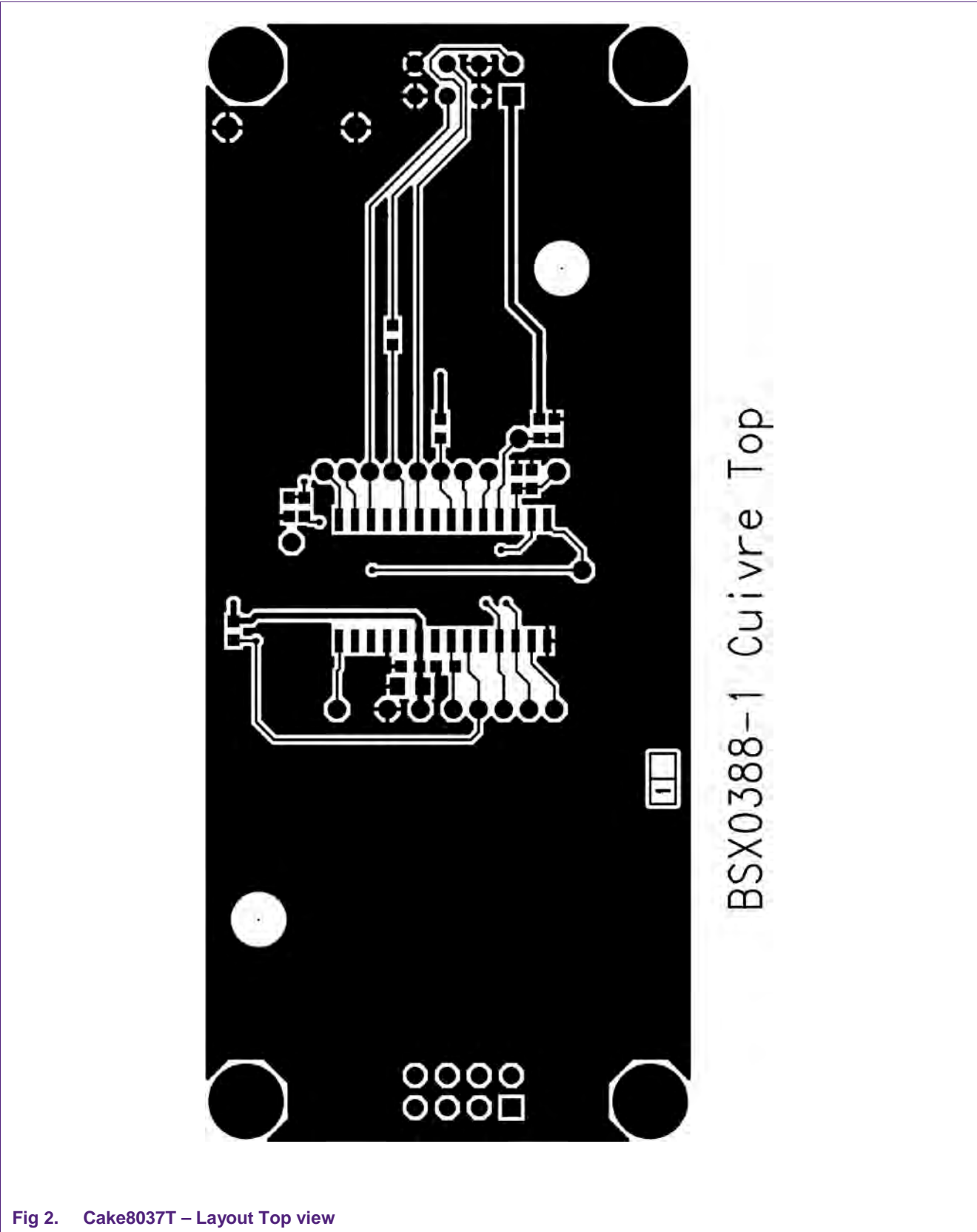
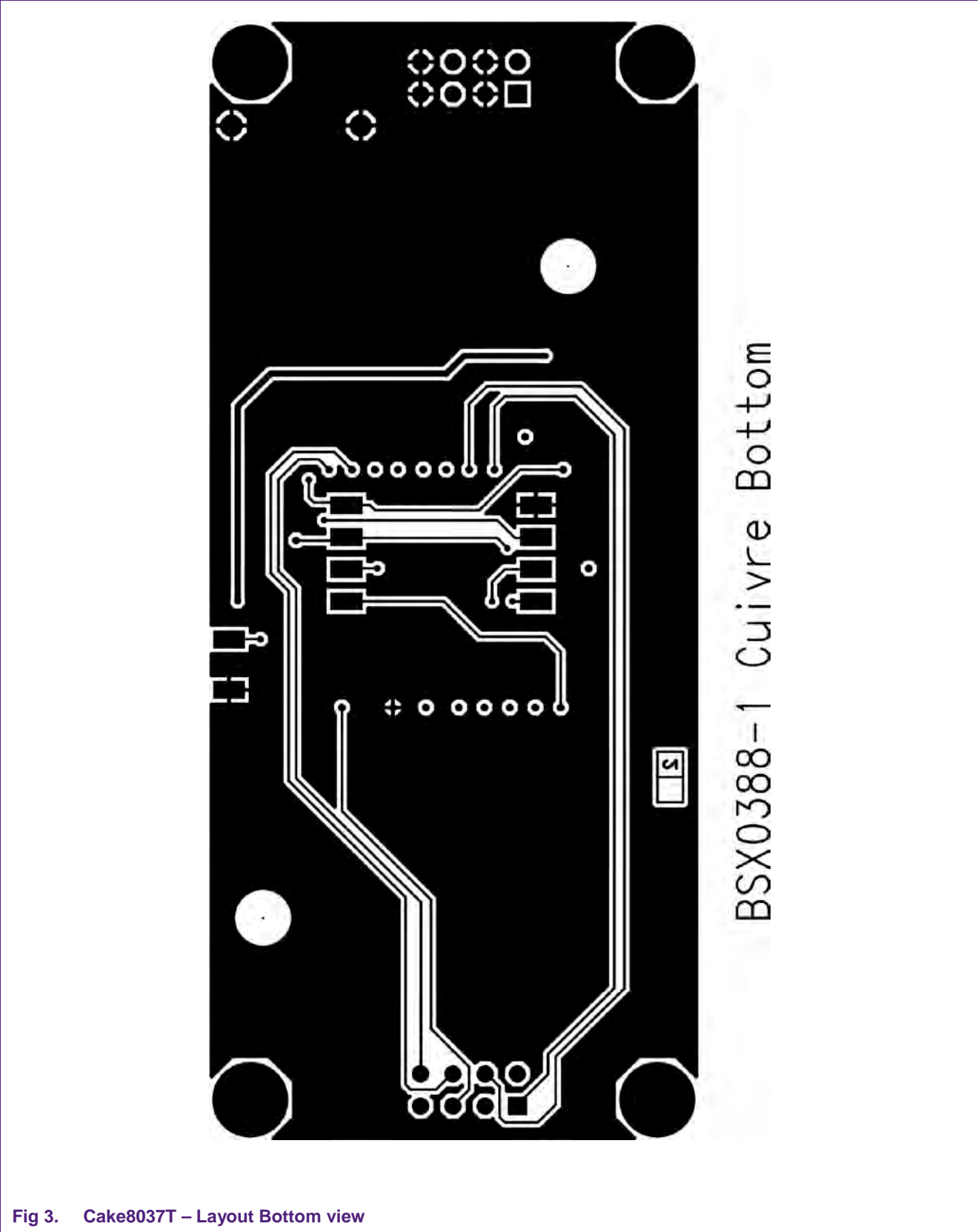


Fig 2. Cake8037T – Layout Top view



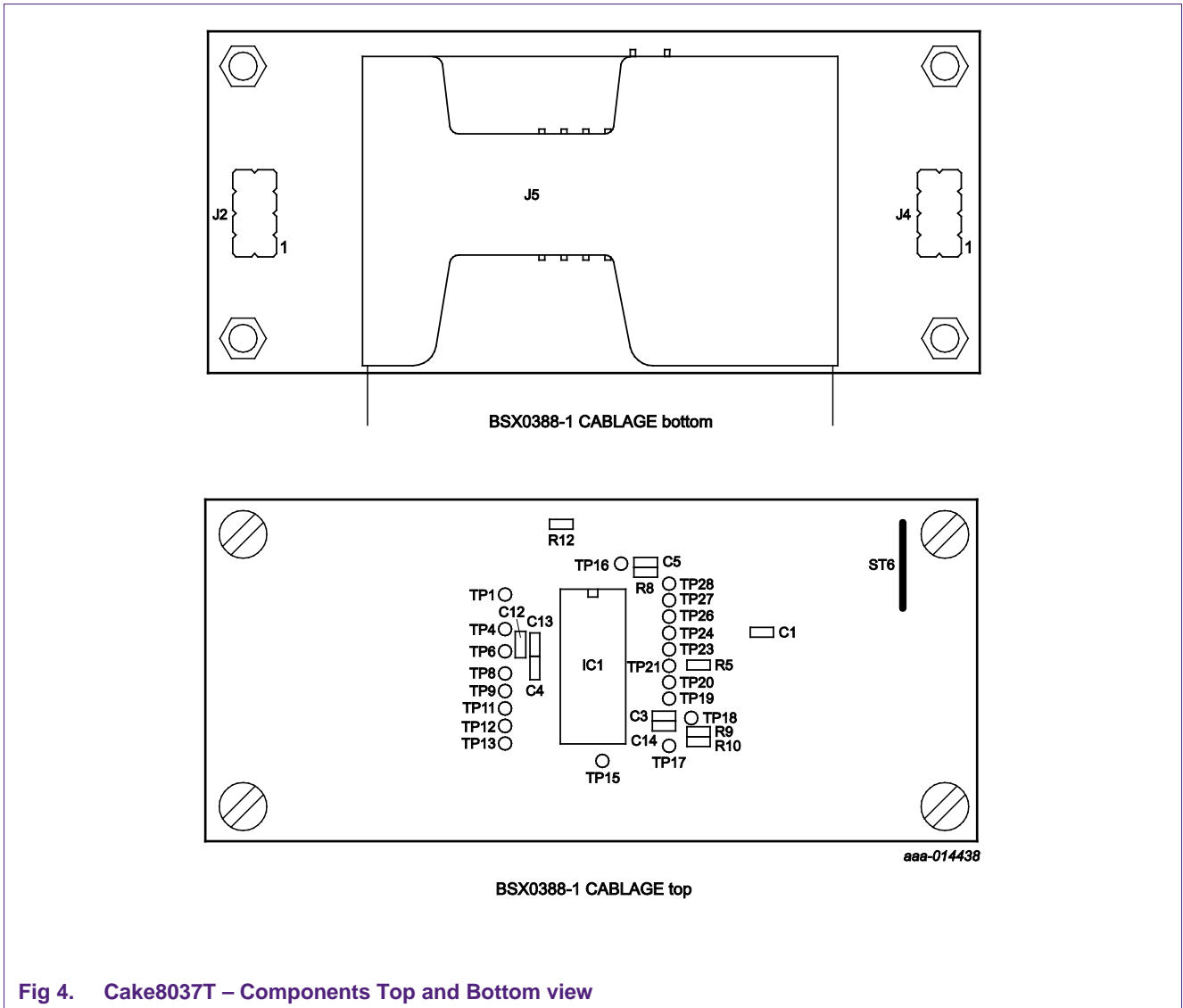


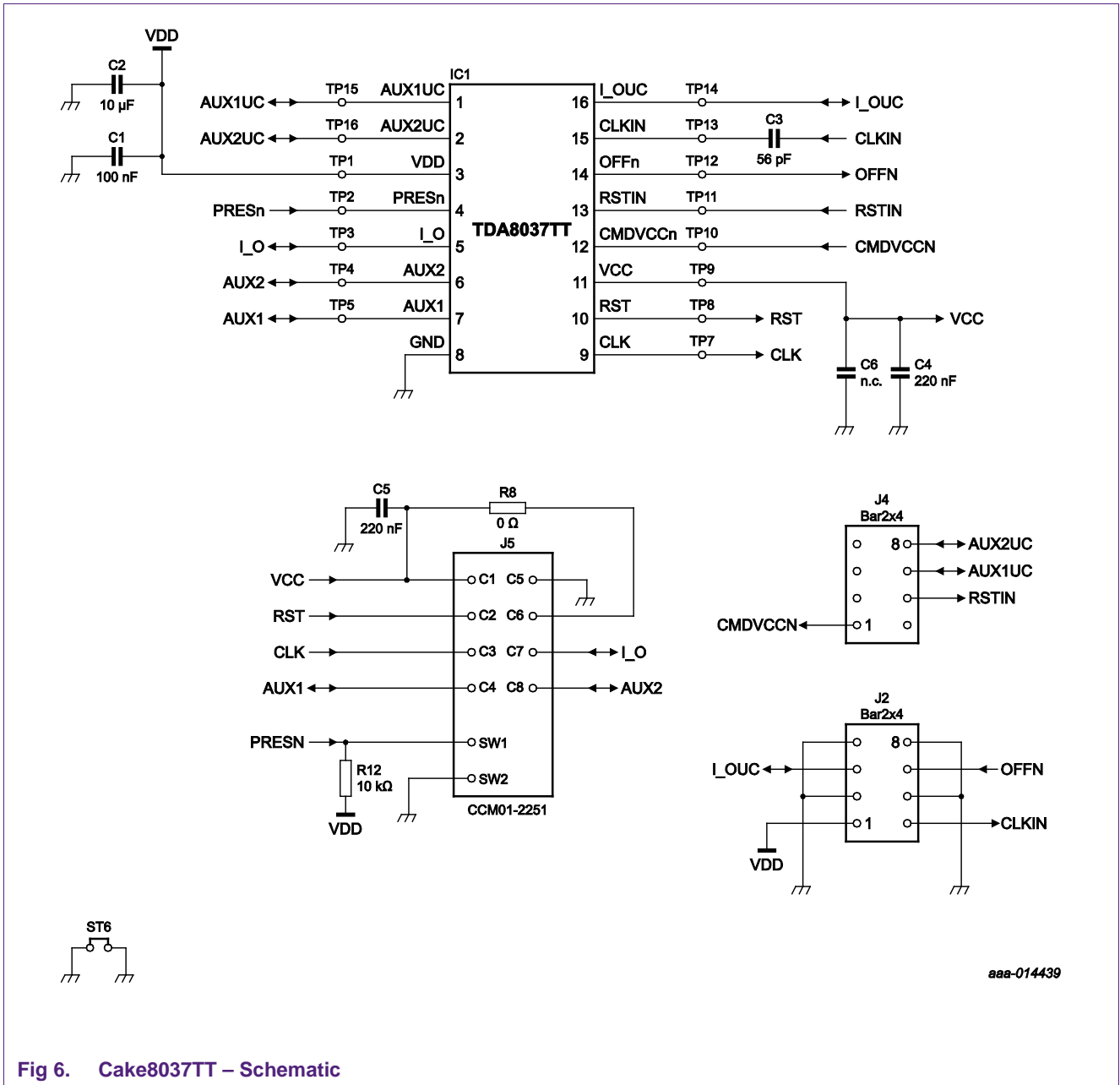
Fig 4. Cake8037T – Components Top and Bottom view

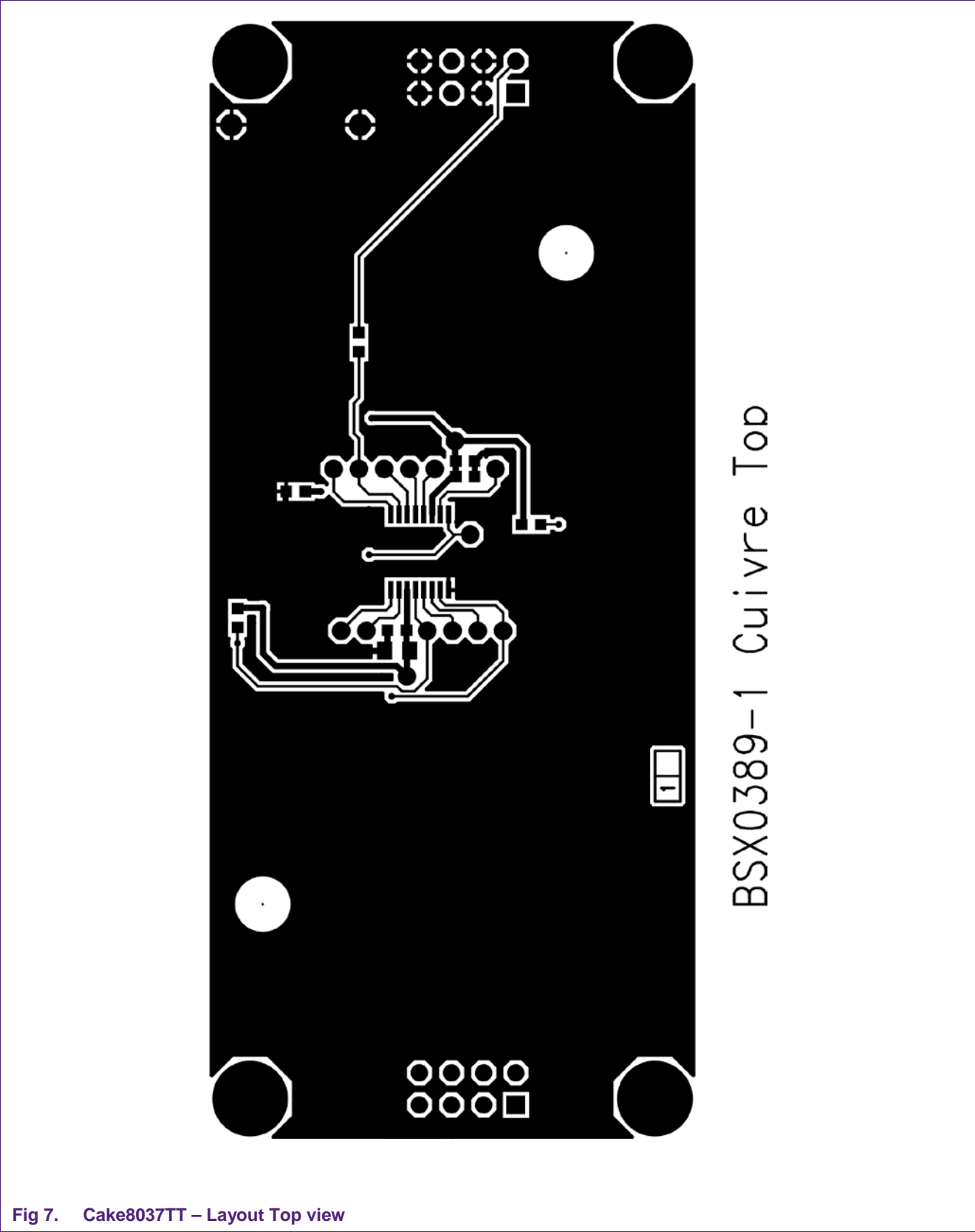
COMPANY PART NO.	COUNT	REFERENCE	GEOMETRY	DESCRIPTION
25ECNDA4GN106	1	C12	c0805	10uF, Capacite X5R 0805 16V - ex:KEMET: C0805C106K4PAC , 10%
25ECNDB3GQ224	2	C3 C5	c0603	220nF, Capacite X7R 0603 25V, 10%
25ECNDB3GS104	1	C13	c0603	100nF, Capacite X7R 0603 50V, 10%
25ECNDD3FS560	1	C1	c0603	56pF, Capacite COG 0603 50V, 5%
25ECNTA1K0017	2	J2 J4	con_bar_254_2x4_md	Bar2x4, Barrette male droite double rangee, 2x4 points, Pas:2.54mm, H=7mm
25ECNTZ700001IT	1	J5	con_itt_ccm01_2251	CCM01-2251, ITT_CANNON: CM01-2251LFT, Lecteur de carte 8 voies plus detection
25EICSKB00004NX	1	IC1	so28_sot136_1	TDA8037T, NXP: TDA8037T IC card interface package:so28
25EINTK000003KK	1	ST6	cav_1016	CAV_10.16, Cavalier dore 10.16mm KONTEK:3130676000500
25ERESA3D000B	3	R5 R8 R9	r0603	0, Resistance Package CMS 0603 1% 0.1W
25ERESA3D1002	1	R12	r0603	10k, Resistance Package CMS 0603 1% 0.1W
pnsx_c0603_nc	2	C4 C14	c0603	N.C., Capacite type 0603 ***NON CABLE***, -
pnsx_r0603_nc	1	R10	r0603	N.C., Resistance Package CMS 0603 1% 0.1W ***NON CABLE***
zbulle01	1			Circuit_imprime:BSX0388-1
zbulle02	4			BULLE02:Entretoise_Hexag_fem_M3x15_laiton-ETL305015
zbulle03	4			BULLE03:Vis_C_M3x6_Inox
zbulle04	4			BULLE04:INTER_INOX:A2M320_rondelle_eventaille_inox

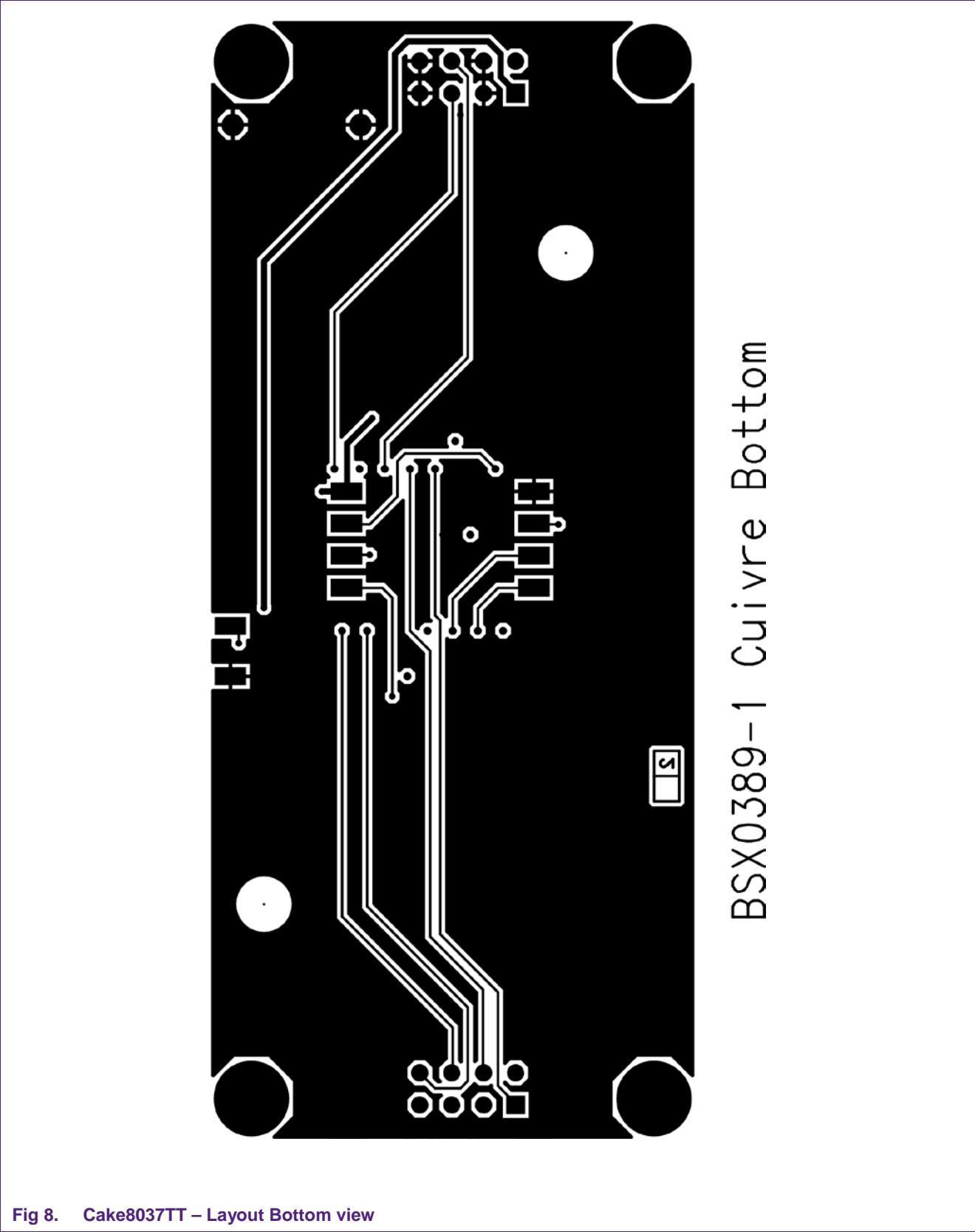
(1)

Fig 5. Cake8037T – Bill of material

2.2 Cake8037TT







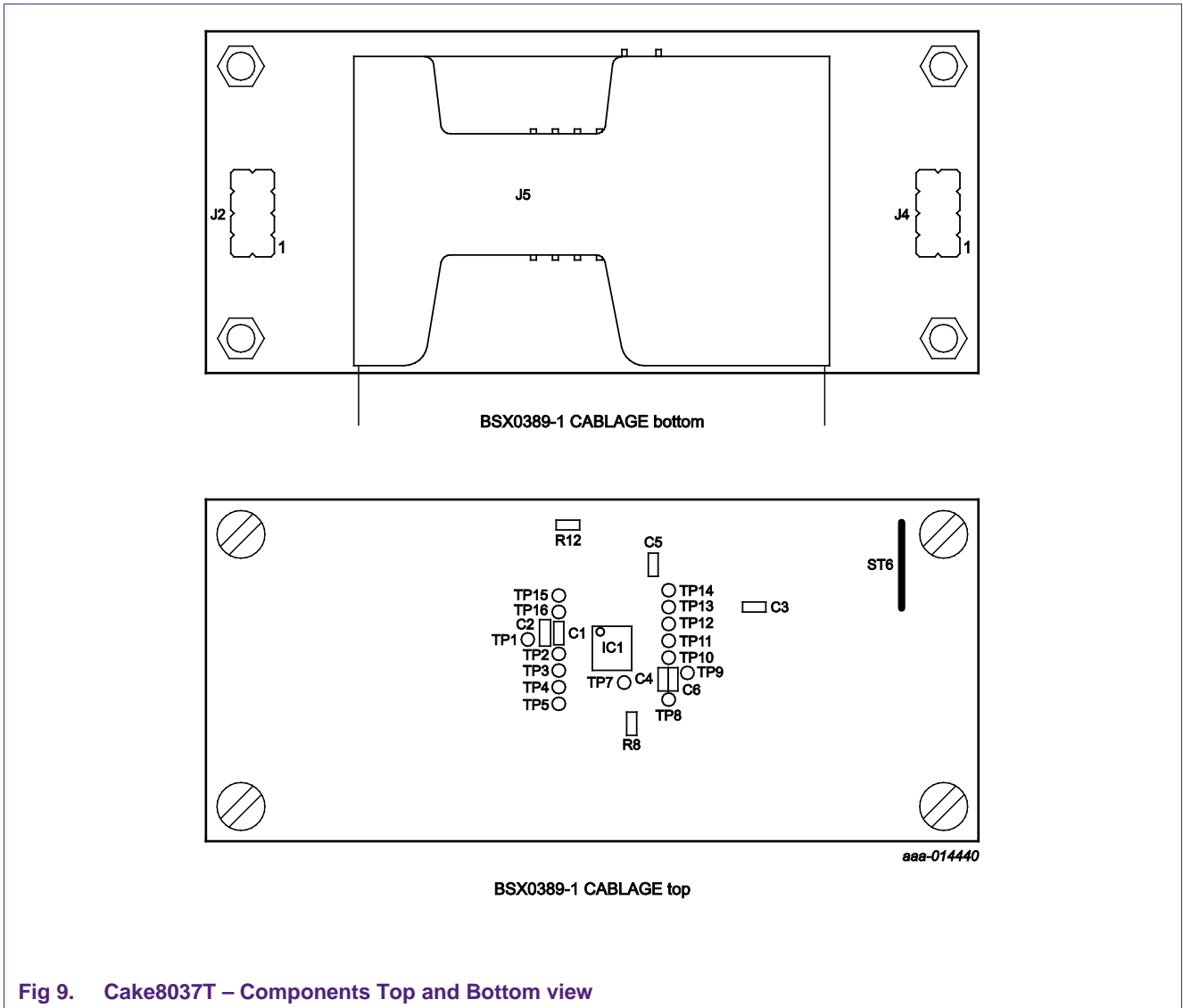


Fig 9. Cake8037T – Components Top and Bottom view

COMPANY PART NO.	COUNT	REFERENCE	GEOMETRY	DESCRIPTION
25ECNDA4GN106	1	C2	c0805	10uF, Capacite X5R 0805 16V - ex:KEMET: C0805C106K4PAC , 10%
25ECNDB3GQ224	2	C4 C5	c0603	220nF, Capacite X7R 0603 25V, 10%
25ECNDB3GS104	1	C1	c0603	100nF, Capacite X7R 0603 50V, 10%
25ECNDD3FS560	1	C3	c0603	56pF, Capacite COG 0603 50V, 5%
25ECNTA1K0017	2	J2 J4	con_bar_254_2x4_md	Bar2x4, Barrette male droite double rangee, 2x4 points, Pas:2.54mm, H=7mm
25ECNTZ700001IT	1	J5	con_itt_ccm01_2251	CCM01-2251, ITT_CANNON: CM01-2251LFT, Lecteur de carte 8 voies plus detection
25EICSKD00009NX	1	IC1	tssop16_sot403_1	TDA8037TT, NXP: TDA8037TT IC card interface package:tssop16
25EINTK000003KK	1	ST6	cav_1016	CAV_10.16, Cavalier dore 10.16mm KONTEK:3130676000500
25ERESA3D000B	1	R8	r0603	0, Resistance Package CMS 0603 1% 0.1W
25ERESA3D1002	1	R12	r0603	10k, Resistance Package CMS 0603 1% 0.1W
pnsx_c0603_nc	1	C6	c0603	N.C., Capacite type 0603 ***NON CABLE***, -
zbulle01	1			Circuit_imprime:BSX0389-1
zbulle02	4			BULLE02:Entretoise_Hexag_fem_M3x15_laiton-ETL305015
zbulle03	4			BULLE03:Vis_C_M3x6_Inox
zbulle04	4			BULLE04:INTER_INOX:A2M320_rondelle_eventaille_inox

Fig 10. Cake8037TT – Bill of material

3. Daughter board

3.1 Connections

The Cake8037 can be plugged on a mother board to be tested in a prototype.

The contact between the mother and the daughter board is made by the connectors named J2 and J4. The connectors used are a male straight HE10 2x4 pins for J2 and 2x5 pins for J4. The pitch is 2.54 mm.

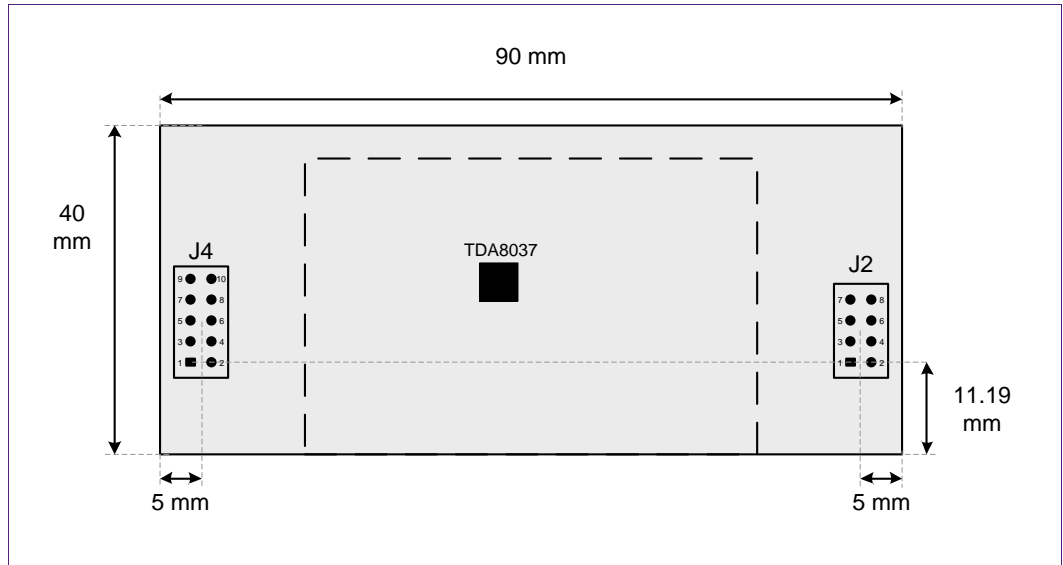


Fig 11. TDA8037 daughter board: size and position of the connectors

All the contact interfaces needed to drive the TDA8035 are available on the J2 and J4 connectors. These signals are defined below.

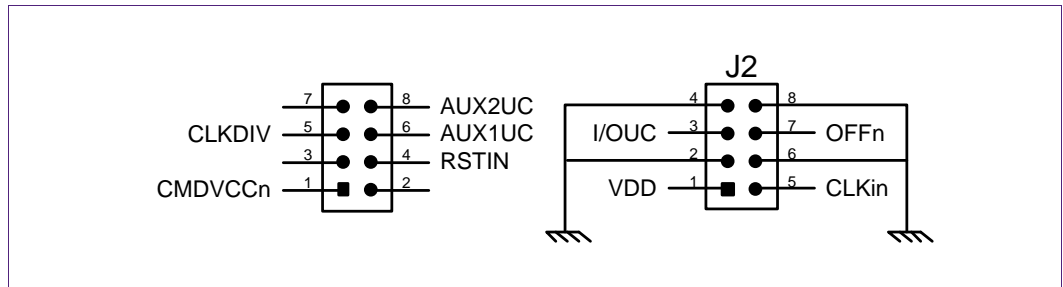


Fig 12. J2 and J4 contacts for TDA8037 – Cake8037

3.2 Clock

With the TDA8037 demo board, the default use is with the clock supplied by the mother board through the XTAL1 pin of J2 (pin 2).

Important notice:

You need to change the crystal if the motherboard is not marked as CAKE80xx_MBA_01_v2. Then, replace the crystal Y1 by a crystal between 4 and 5MHz.

3.3 Application

To develop an application with these boards, refer to the TDA8037 Application note AN11458.

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