

AN10794

Application with TDA8034 - Demonstration boards description

Rev. 1.0 — 6 December 2012

Application note

Document information

Info	Content
Keywords	TDA8034, Cake8034, Smart Card Interface, Pay TV, STB, ISO 7816-3, NDS
Abstract	The application note describes the Cake8034_01_D Cake8034_02_D demo boards for TDA8034: schematics, layout and use of this board.



Revision history

Rev	Date	Description
1.0	20121206	First official release

Contact information

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1. Introduction

The TDA8034 is proposed in two packages: HVQFN24 for the TDA8034HN, and SO16 for the TDA8034T version.

In the document, the two versions will be referred as TDA8034 when the described feature is common. If a description is specific to a version, it will be

These application boards are single boards embedding the TDA8034, its capacitors, some connectors for external signals and a smart card connector.

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

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 boards:

- Electronic schematic
- Layout
- Components position

2.1 TDA8034T - SO16 package – Cake8034_01_D

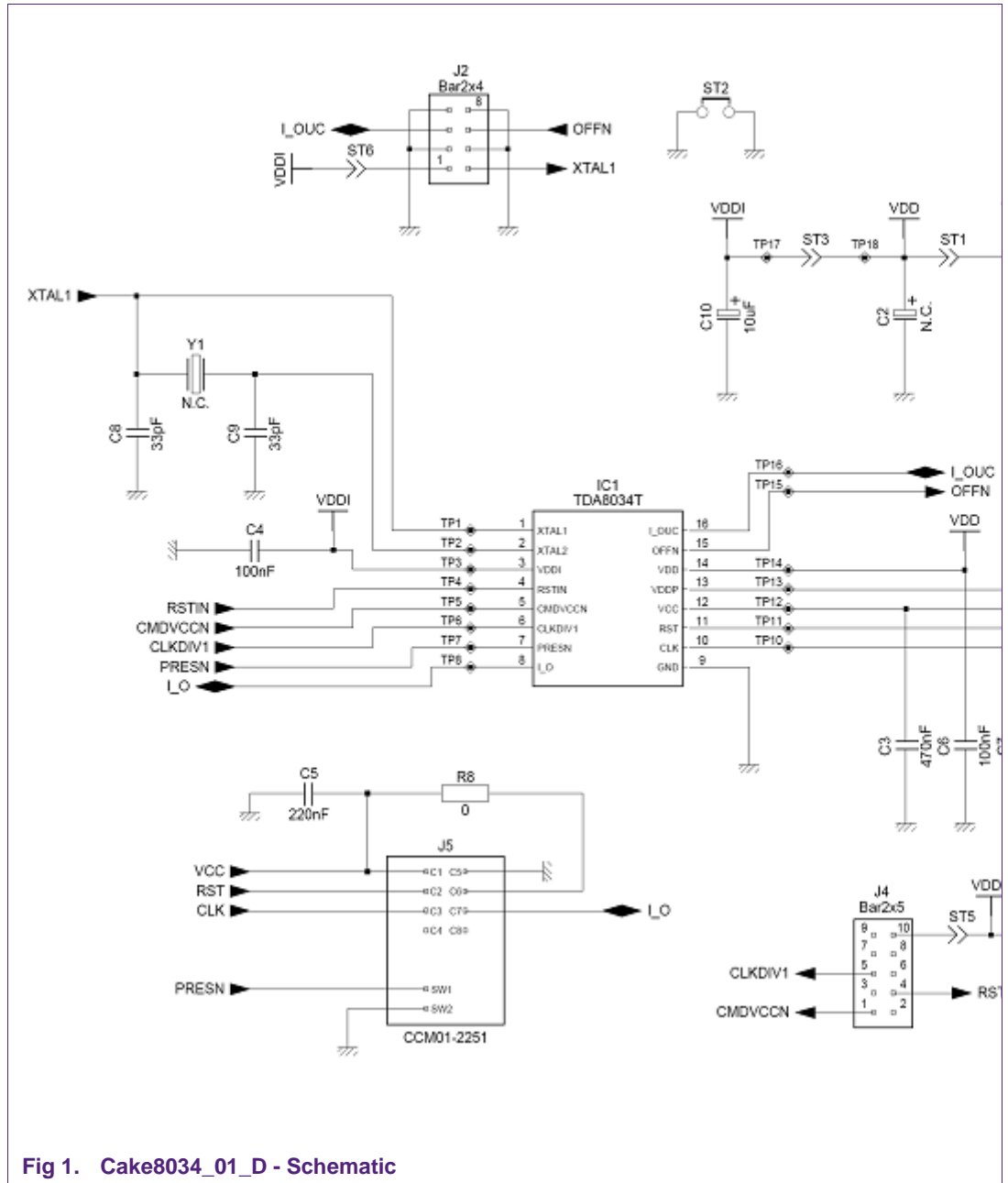
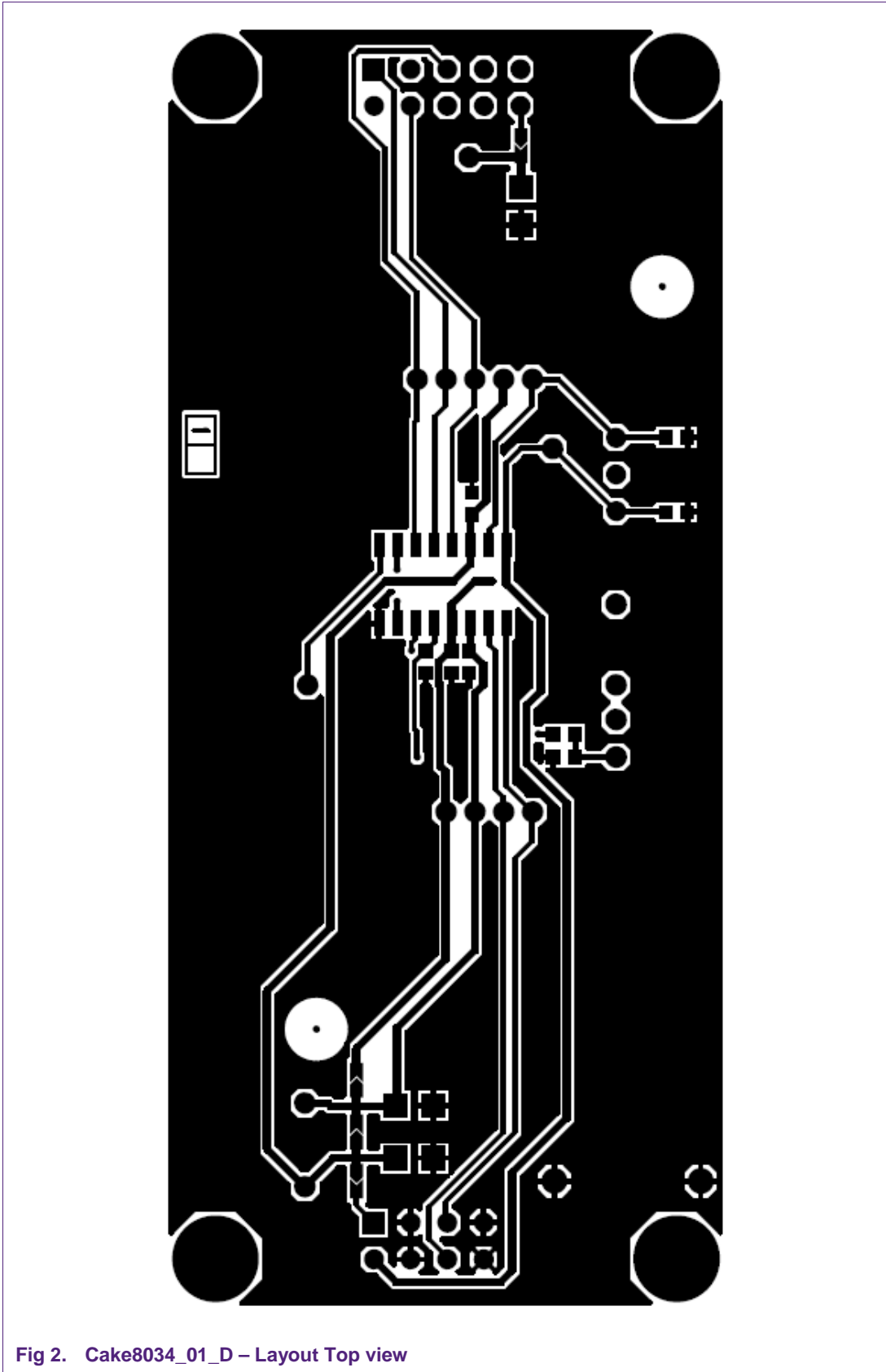
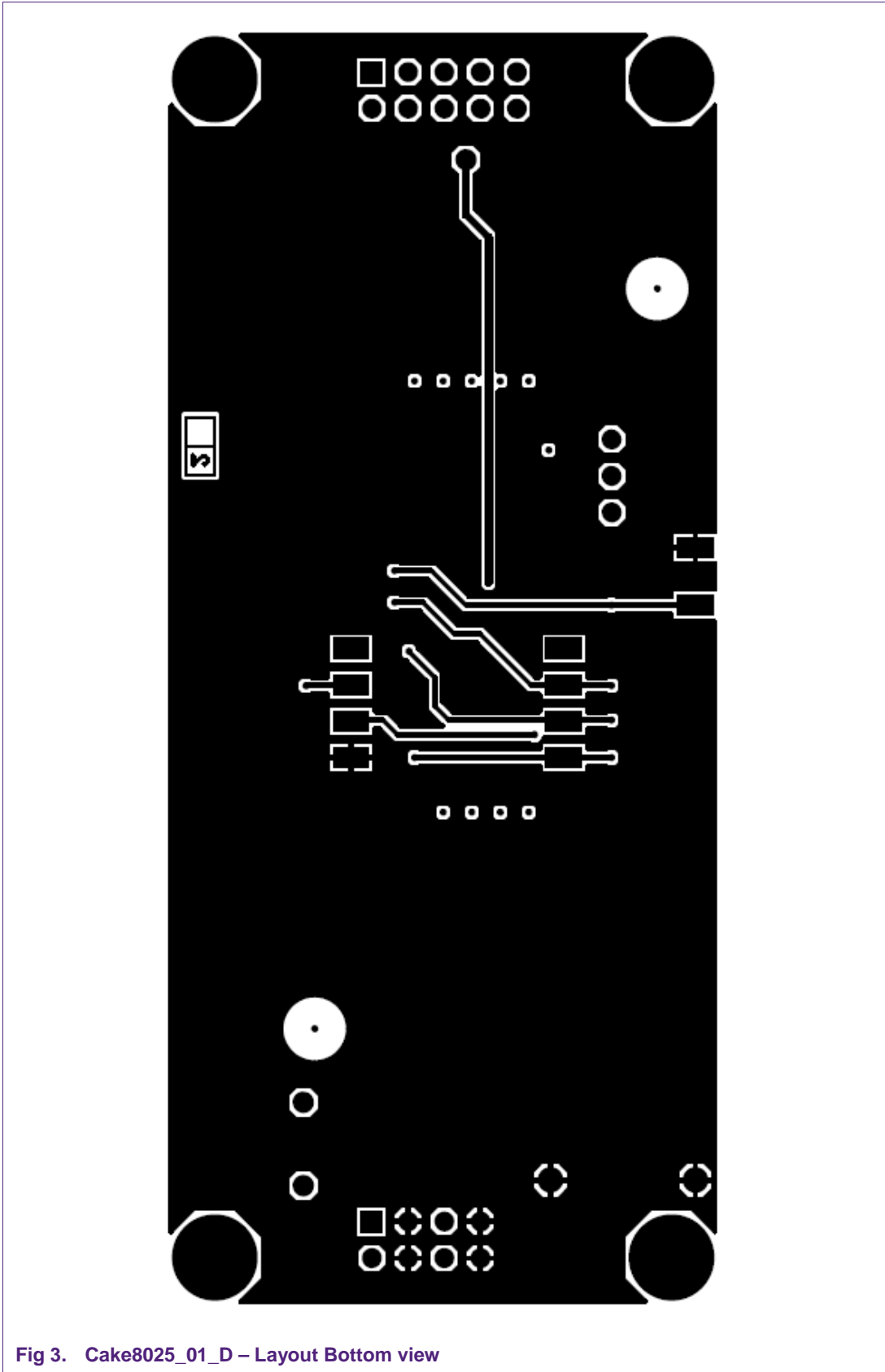


Fig 1. Cake8034_01_D - Schematic





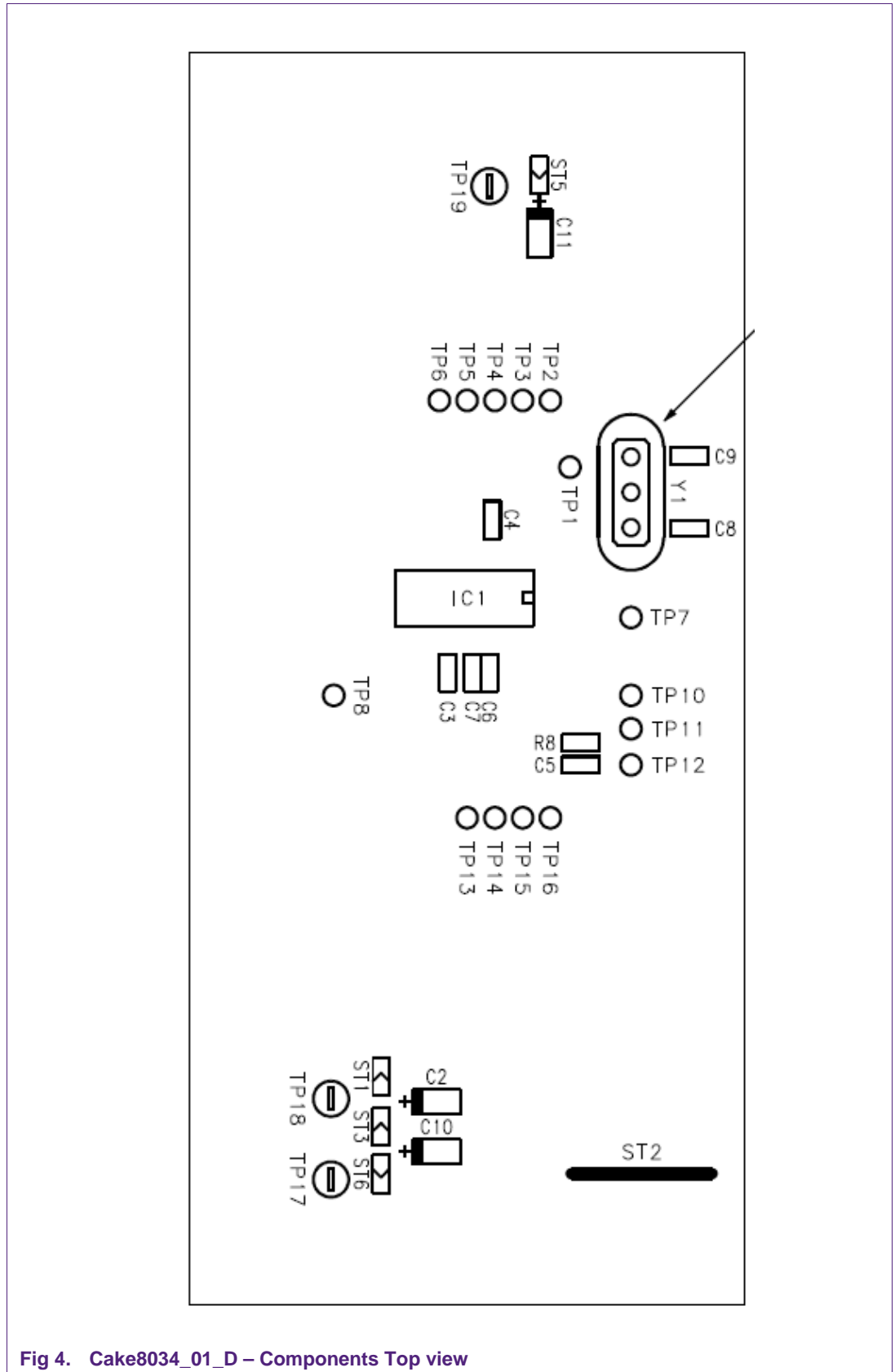


Fig 4. Cake8034_01_D – Components Top view

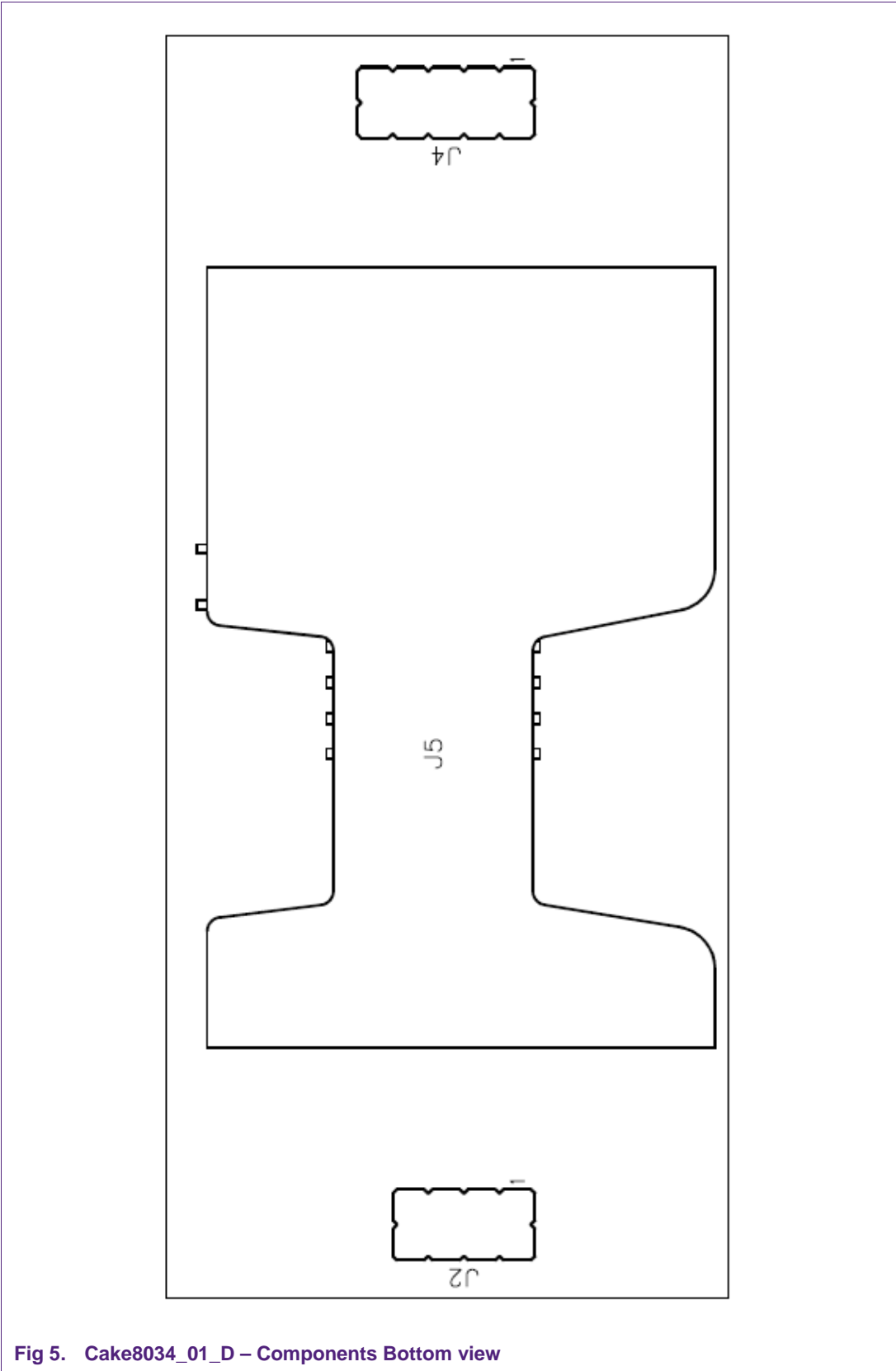


Fig 5. Cake8034_01_D – Components Bottom view

COMPANY PART NO.	COUNT	REFERENCE	GEOMETRY	DESCRIPTION	Fournisseur
pnxs_bar2x4md	1	J2	con_bar_254_2x4_md	Bar2x4, Barrette male droite double rangee, 2x4 points, Pas:2.54mm, H=7mm	
pnxs_bar2x5md	1	J4	con_bar_254_2x5_md	Bar2x5, Barrette male droite double rangee, 2x5 points, Pas:2.54mm, H=7mm	
pnxs_c0603_100nf_50V	3	C4 C6 C7	c0603	100nF, Capacite X7R 0603 50V, 10%	
pnxs_c0603_220nf_25V	1	C5	c0603	220nF, Capacite X7R 0603 25V, 10%	
pnxs_c0603_33pf_50V	2	C8 C9	c0603	33pF, Capacite COG 0603 50V, 5%	
pnxs_c0603_470nf_16V	1	C3	c0603	470nF, Capacite X5R 0603 16V, 10%	
pnxs_cav_1016	1	ST2	cav_1016	CAV_10.16, Cavalier dore 10.16mm KONTEK:3130676000500	
pnxs_chev_citr_s	3	ST3 ST5 ST6	chev_citr_o_bom	A_SOUDER, Chevron Citroen 0603 !!! A SOUDER !!!	
pnxs_hc49s_NC_plot	1	Y1	xtal_hc49s_plot	N.C., Quartz package HC49/S ***NON CABLE*** sur plot femelle	
pnxs_itt_ccm01_2251	1	J5	con_itt_ccm01_2251	CCM01-2251, ITT_CANNON: CM01-2251LFT, Lecteur de carte 8 voies plus detection	NXP
pnxs_r0603_0	1	R8	r0603	0, Resistance Package CMS 0603 1% 0.1W	
pnxs_taja_10u_10v	2	C10 C11	cap_320x160x160_a	10uF, Capacite Tantalum Package TAJA AVX:TAJA106K010R, 10%, 10V-85 degres / 7V-125 degres	
pnxs_taja_nc	1	C2	cap_320x160x160_a	N.C., Capacite Tantalum Package TAJA ***NON CABLE***, -, -	
pnxs_tda8034t	1	IC1	so16_sot109_1	TDA8034T, NXP: TDA8034T IC Card Interface package:so16	NXP
pnxs_tp_boucle1_n	3	TP17 TP18 TP19	tp_boucle_d100	5001, TestPoint:KEYSTONE:5001 Noir	
zbulle01	1			Circuit_imprime:BSX0085-1	
ztulipe03	1			BULLE06:barrette_femelle_tulipe_3points_type_E-TEC:SIB132504701	

Fig 6. Cake8034_01_D – Bill of material

2.2 TDA8034HN – HVQFN24 package – Cake8034_02_D

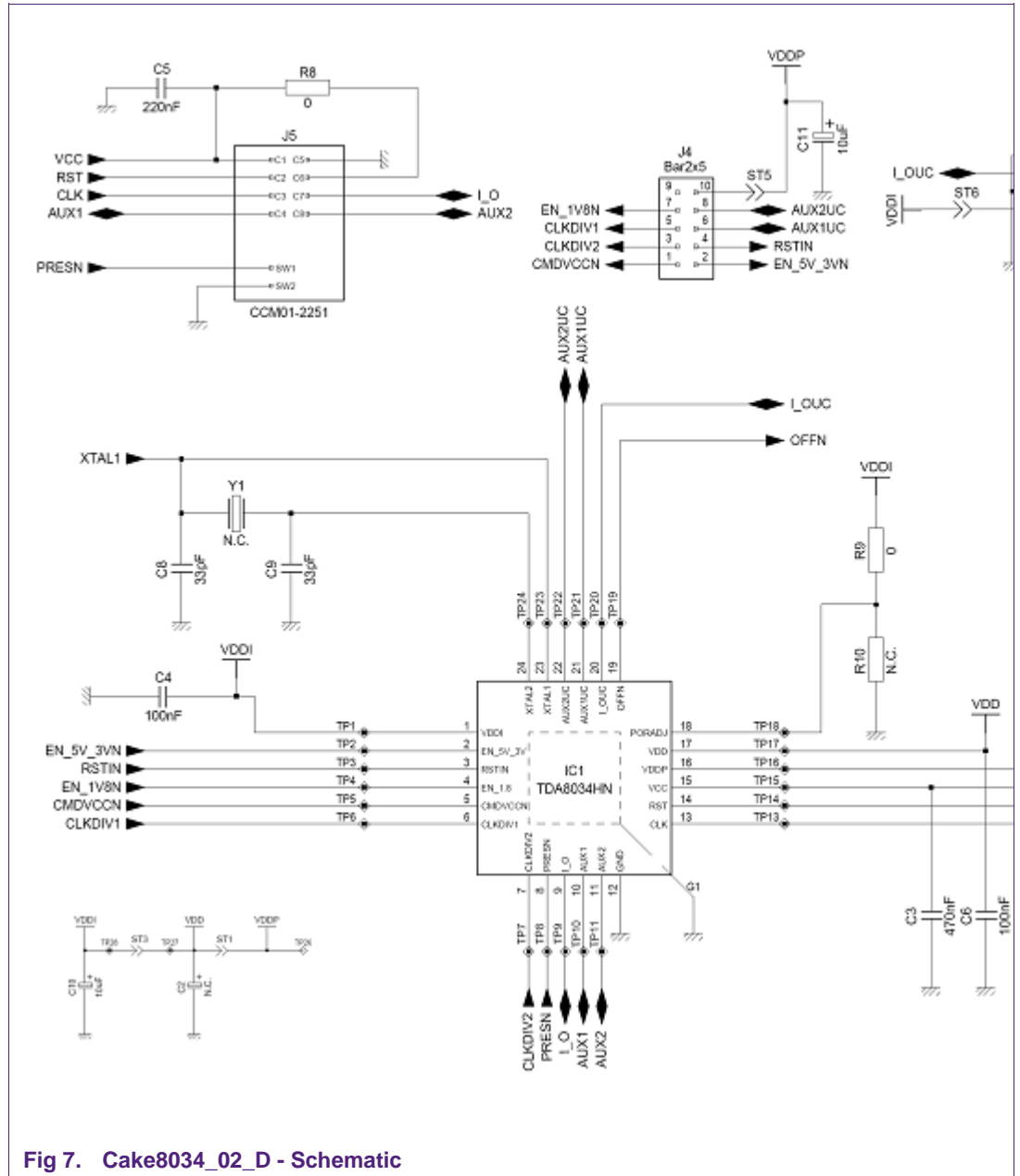
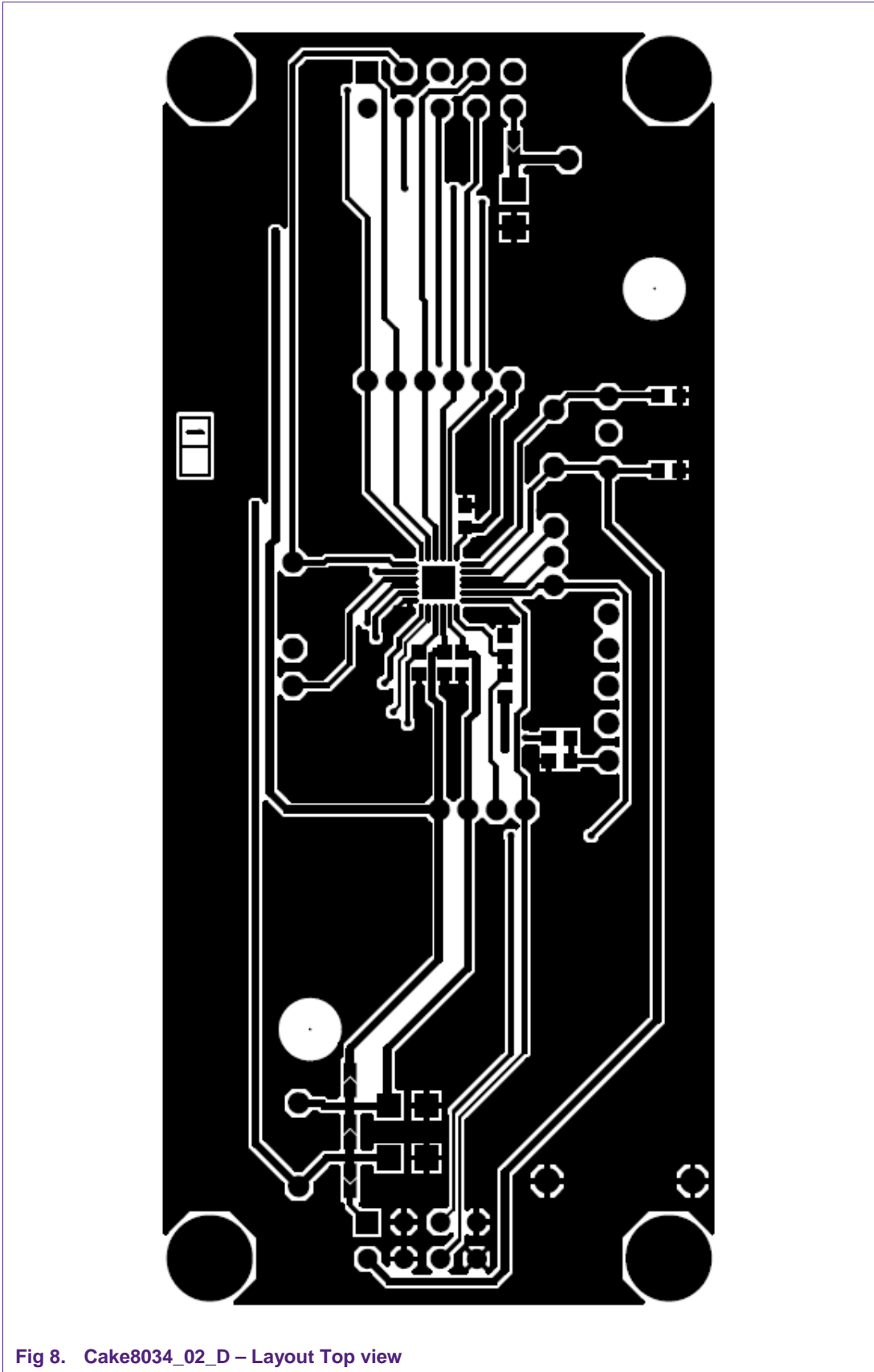


Fig 7. Cake8034_02_D - Schematic



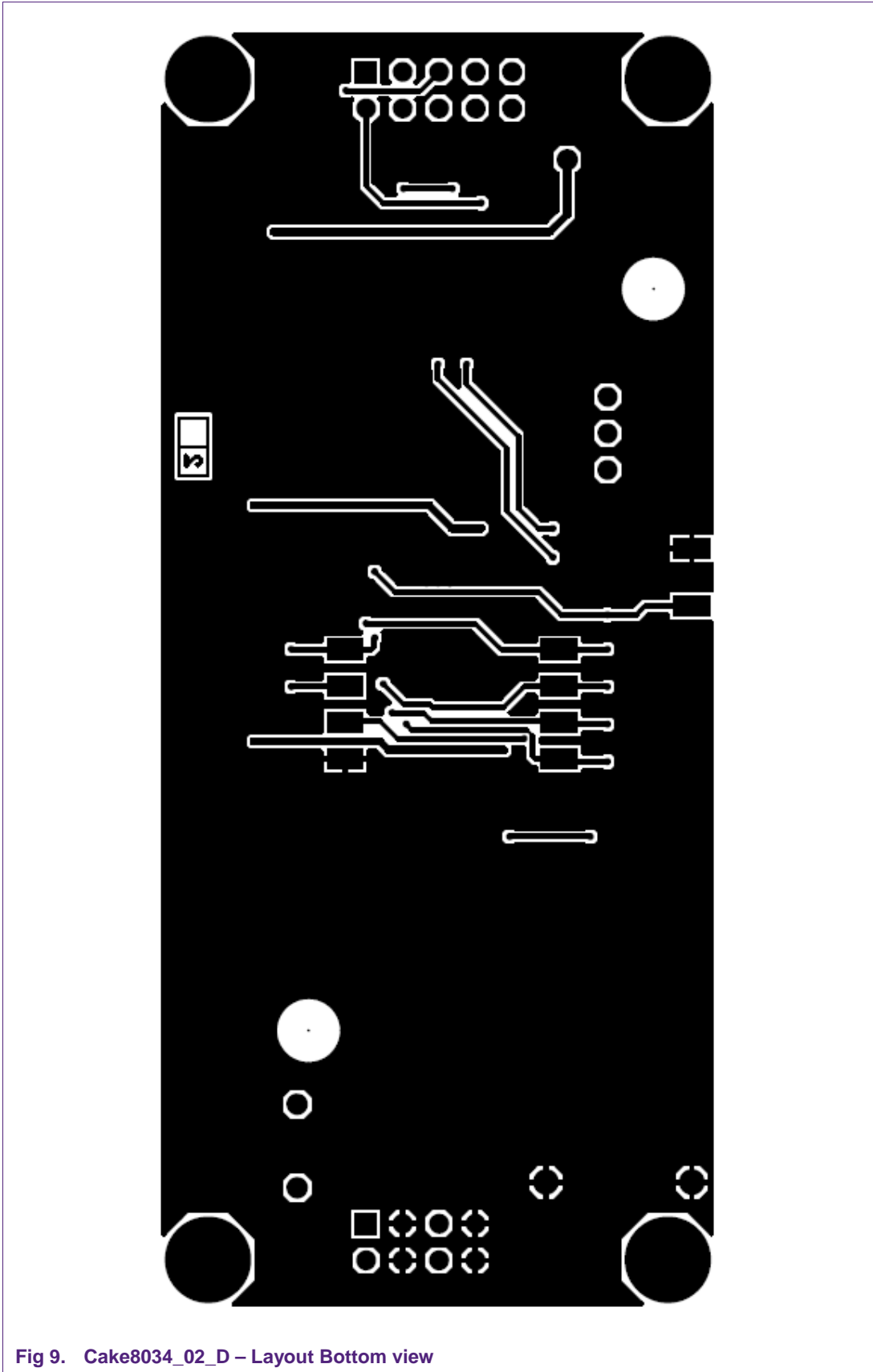


Fig 9. Cake8034_02_D – Layout Bottom view

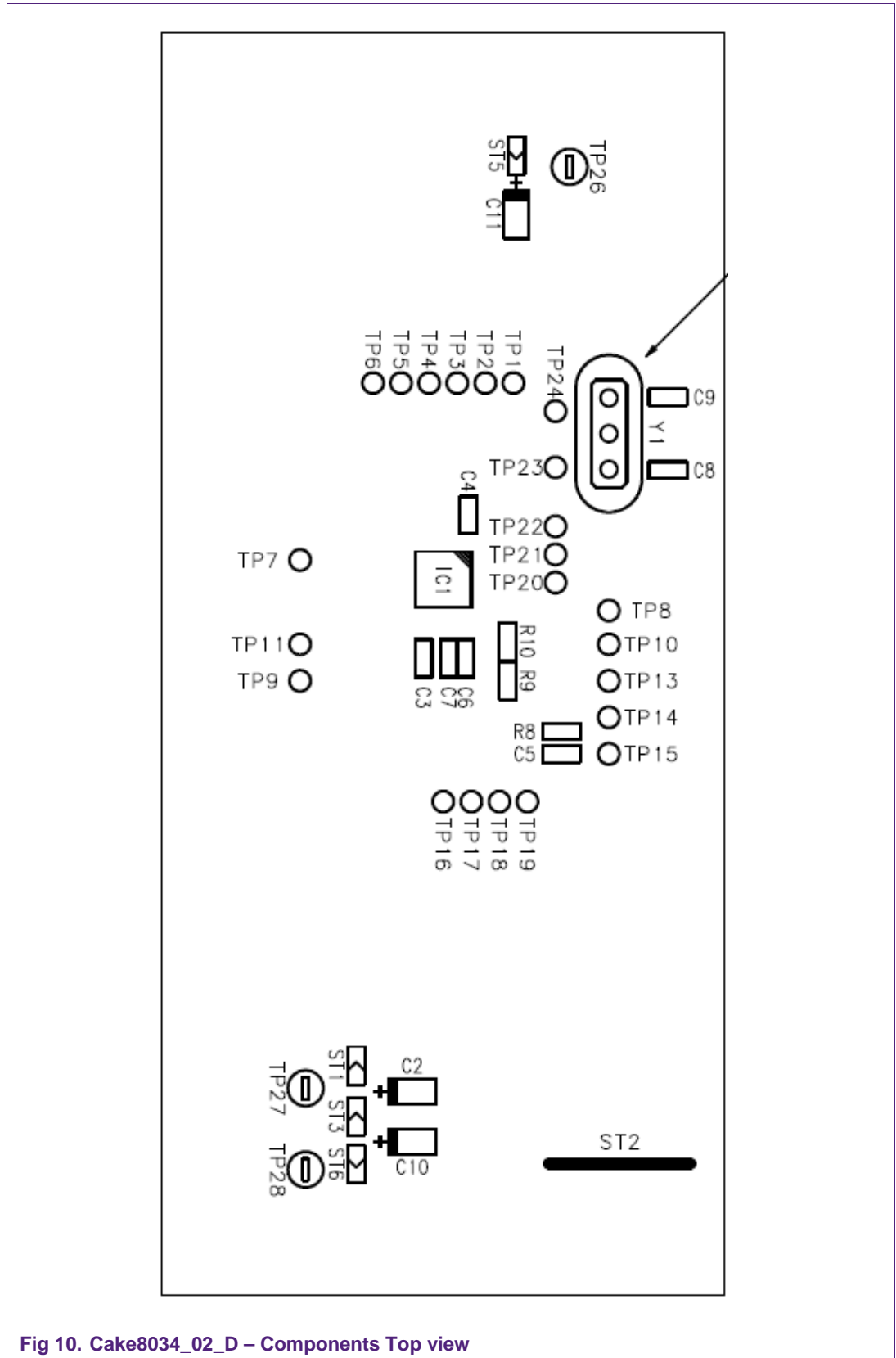


Fig 10. Cake8034_02_D – Components Top view

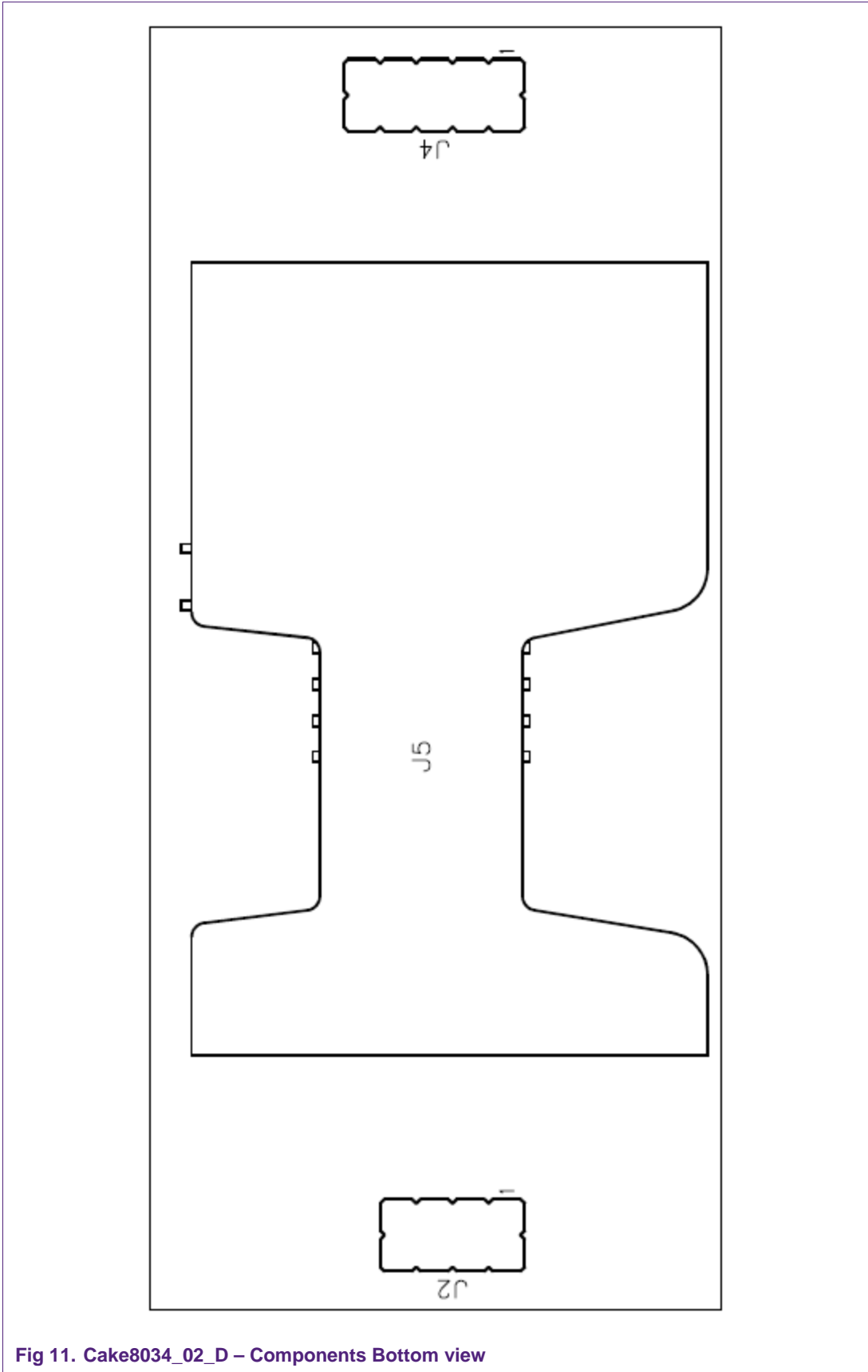


Fig 11. Cake8034_02_D – Components Bottom view

COMPANY PART NO.	COUNT	REFERENCE	GEOMETRY	DESCRIPTION	Fournisseur
pnsx_bar2x4md	1	J2	con_bar_254_2x4_md	Bar2x4, Barrette male droite double rangee, 2x4 points, Pas:2.54mm, H=7mm	
pnsx_bar2x5md	1	J4	con_bar_254_2x5_md	Bar2x5, Barrette male droite double rangee, 2x5 points, Pas:2.54mm, H=7mm	
pnsx_c0603_100nf_50V	3	C4 C6 C7	c0603	100nF, Capacite X7R 0603 50V, 10%	
pnsx_c0603_220nf_25V	1	C5	c0603	220nF, Capacite X7R 0603 25V, 10%	
pnsx_c0603_33pf_50V	2	C8 C9	c0603	33pF, Capacite COG 0603 50V, 5%	
pnsx_c0603_470nf_16V	1	C3	c0603	470nF, Capacite X5R 0603 16V, 10%	
pnsx_cav_1016	1	ST2	cav_1016	CAV_10.16, Cavalier dore 10.16mm KONTEK:3130676000500	
pnsx_chev_citr_s	3	ST3 ST5 ST6	chev_citr_o_bom	A_SOUDER, Chevron Citroen 0603 !!! A_SOUDER !!!	
pnsx_hc49s_NC_plot	1	Y1	xtal_hc49s_plot	N.C., Quartz package HC49/S ***NON CABLE*** sur plot femelle	
pnsx_itt_ccm01_2251	1	J5	con_itt_ccm01_2251	CCM01-2251, ITT_CANNON: CM01-2251LFI, Lecteur de carte 8 voies plus detection	NXP
pnsx_r0603_0	2	R8 R9	r0603	0, Resistance Package CMS 0603 1% 0.1W	
pnsx_r0603_nc	1	R10	r0603	N.C., Resistance Package CMS 0603 1% 0.1W ***NON CABLE***	
pnsx_taja_10u_10v	2	C10 C11	cap_320x160x160_a	10uF, Capacite Tantalium Package TAJA AVX:TAJA106K010R, 10%, 10V-85 degrees / 7V-125 degrees	
pnsx_taja_nc	1	C2	cap_320x160x160_a	N.C., Capacite Tantalium Package TAJA ***NON CABLE***, -, -	
pnsx_tda8034hn	1	IC1	hvqfn24_050_400x400_sot616_1	TDA8034HN, NXP: TDA8034HN IC Card Interface package: hvqfn24	NXP
pnsx_tp_boucle1_n	3	TP26 TP27 TP28	tp_boucle_d100	5001, TestPoint:KEYSTONE:5001 Noir	
zbulle01	1			Circuit_imprieme:BSX0086-1	
ztulipe03	1			BULLE06:barrette_femelle_tulipe_3points_type_E-TEC:SIB132S04701	

Fig 12. Cake8034_02_D – Bill of material

3. Daughter board

The Cake8034 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

3.1 Connection

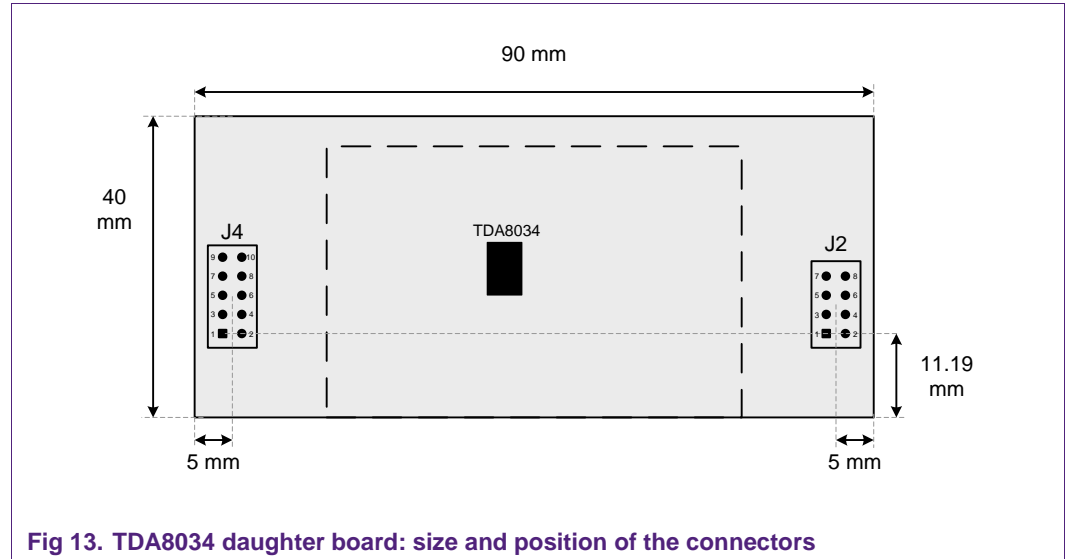


Fig 13. TDA8034 daughter board: size and position of the connectors

All the contact interfaces needed to drive the TDA8034 are available on the J2 and J4 connectors. These signals are defined below.

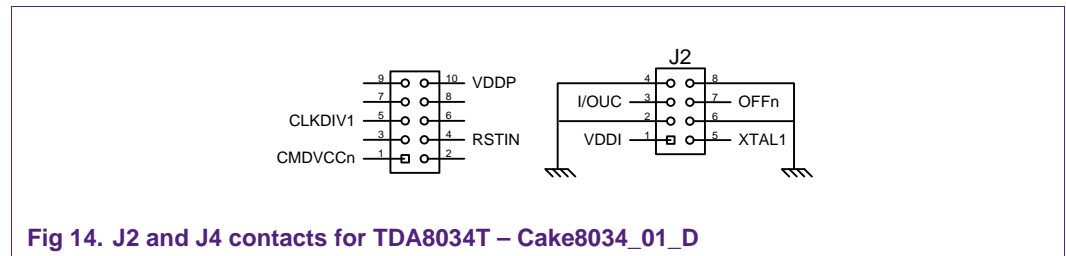


Fig 14. J2 and J4 contacts for TDA8034T – Cake8034_01_D

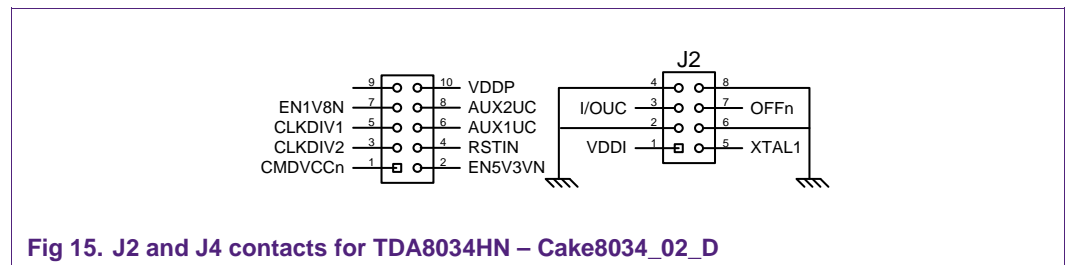


Fig 15. J2 and J4 contacts for TDA8034HN – Cake8034_02_D

3.2 Power supply

Using this application, there are two power supply inputs for the TDA8034 (J2-1: VDDI and J4-10: VDDP). Therefore VDDI and VDD can be connected together.

This is the default configuration with ST3 soldered.

The power supply can also come from another external source, using the test points. In this case, it is possible to unconnect these pins from the mother board by unsoldering ST6 for VDD / VDDI, and ST5 for VDDP.

3.3 Clock

With the TDA8034 demo board, it is assumed that the clock is supplied by the mother board.

In this case, the crystal doesn't need to be present on the board.

If the host cannot supply the clock, a crystal must be plugged in the Y1 connector. Two 33pF capacitors (C8, C9) are already present on the board for this option.

3.4 Application

To develop an application with these boards, refer to the TDA8034 application note: AN10792.

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