

RJ45 to SMA Adapter Board

USER MANUAL

Part Number: DS91C176EVK NOPB

For the latest documents concerning these products and evaluation kit, visit lvds.national.com.
Schematics and gerber files are also available at lvds.national.com.

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Overview

The DS91C176EVK consists of two RJ45 to SMA adapter boards developed to complement National Semiconductor's evaluation boards for which evaluation with CAT5e cable assemblies is sometimes desirable (e.g. DriveCable02EVK, LVDS-18B-EVK, DS25BR100EVK, etc.).

In addition, each adapter board features a single DS91C176, an M-LVDS transceiver with Type 2 receiver inputs for optional passing of slow "control" signals over one of the twisted pairs of a twisted pair cable.



Figure 1. Photo of the RJ45 to SMA Adapter Board

Board Description

Figure 2 shows the adapter board drawing with the silkscreen annotations. The 2.5 by 3.0 inch, four-layer PCB is designed to bring RJ45 connector signal pins to SMA connectors. The SMA connector annotations correspond to the RJ45 connector pin numbers. There are only 2 SMA pairs installed (1&2 and 7&8) on the board. The end user may install additional SMA connectors.

One of the RJ45 connector signal pin pairs (3 and 6) are connected to DS91C176 (U1) M-LVDS I/O pins. There is a provision to disconnect the DS91C176 M-LVDS pins and connect the SMA connectors (3 and 6).

The JP2 and JP3 connectors connect to the DS91C176 LVCMOS I/O and control pins.

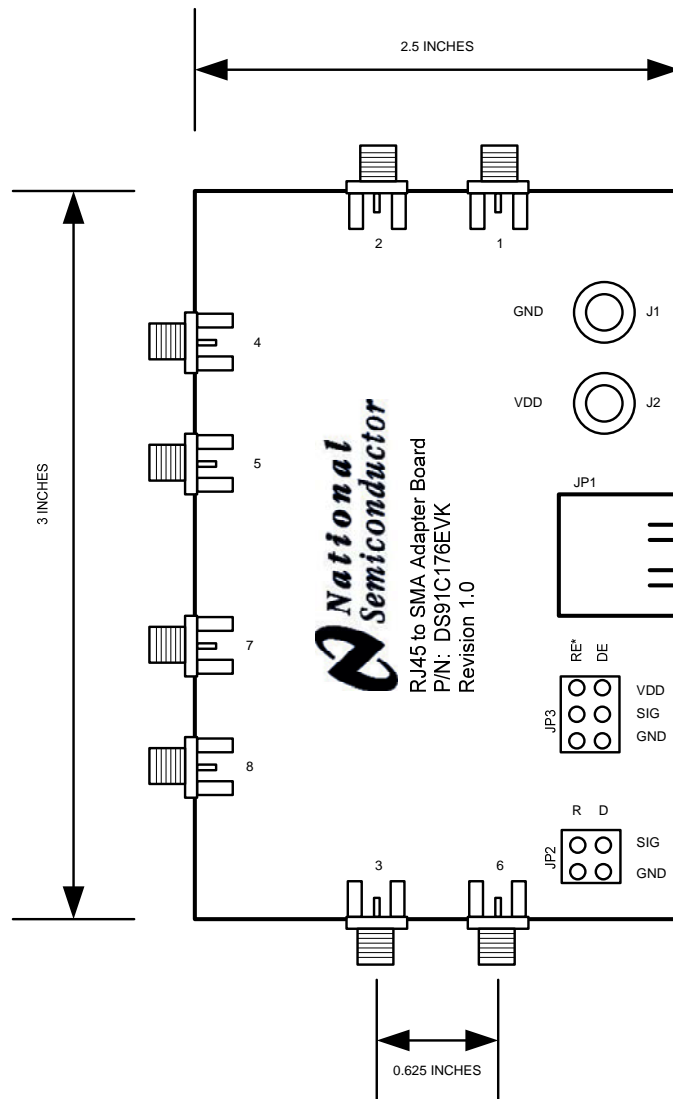


Figure 2. DS91C176EVK Drawing

User Instructions

This section provides adapter board user instructions:

1. It is always recommended to terminate unused twisted pairs of a twisted pair cable to minimize EMI, crosstalk, etc., thus termination resistors R6, R7 and R8. Remove resistors connected to the RJ45 pins that you plan to use. For example, remove R7 if you plan to use RJ45 pins 1 and 2 (they are connected to SMA1 and SMA2 connectors respectively).
2. If you want to use RJ45 pins 3 and 6 (they are connected to SMA3 and SMA6 connector pads respectively), disconnect the DS91C176 (U1) M-LVDS pins by removing R2 and R3 0-ohm resistors and placing them on the R4 and R5 resistor pads.
3. If you want to use the DS91C176 (U1), apply 3.3 V between the VDD (J2) and GND (J1) power connectors, configure the device as an M-LVDS driver or receiver using the JP3 and use the JP2 to access the DS91C176 LVCMOS I/O pins. For more info on the DS91C176 check its respective datasheet at lvds.national.com.

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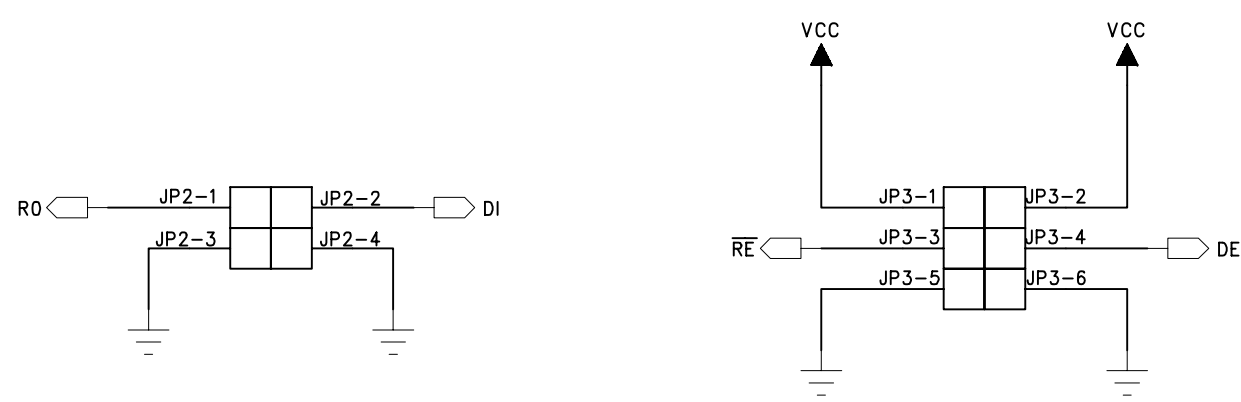
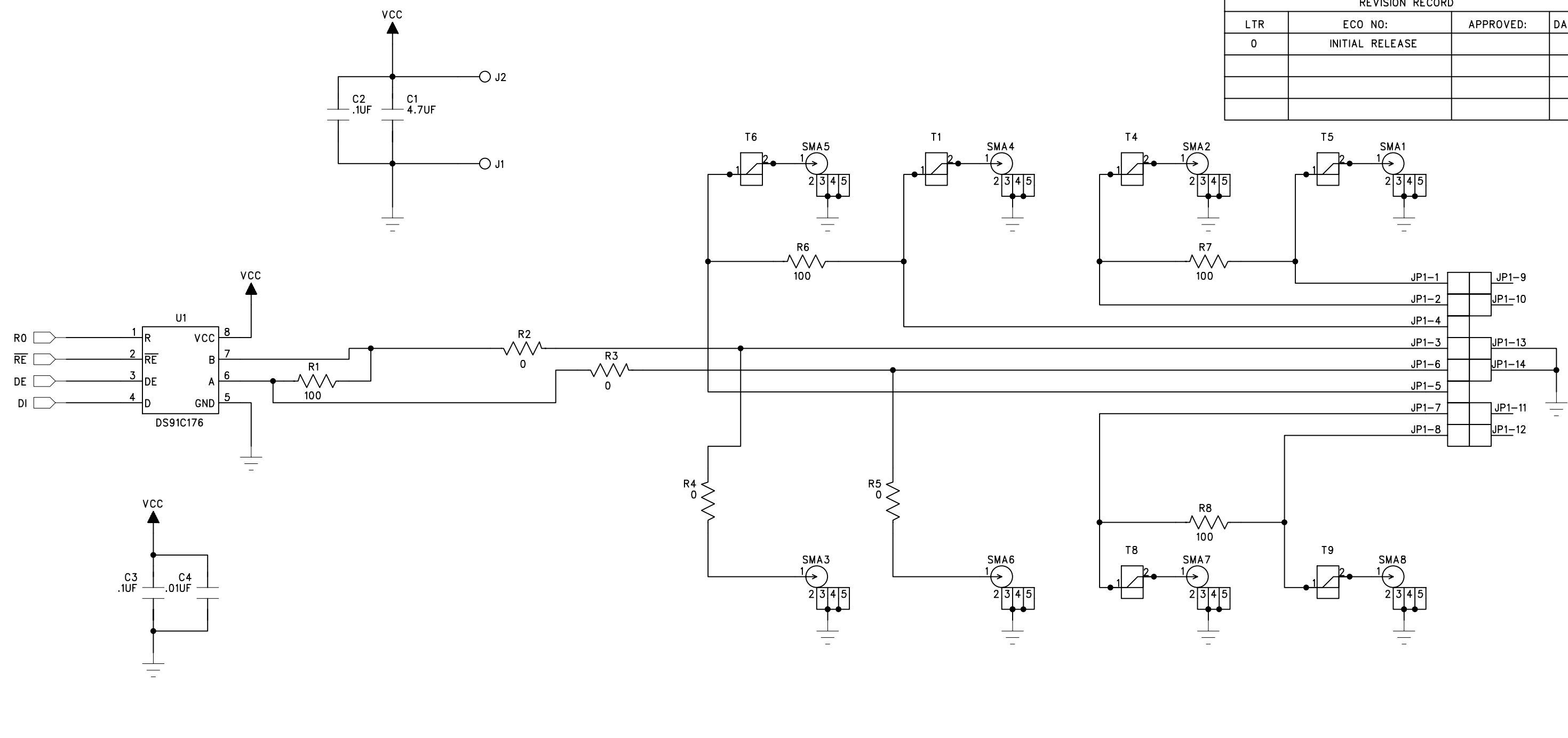
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3


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REVISION RECORD			
LTR	ECO NO:	APPROVED:	DATE:
0	INITIAL RELEASE		



COMPANY: NATIONAL SEMICONDUCTOR			
TITLE: SCHEMATIC DS91C176EVK			

 25 NorthBrook Drive Gray, Maine 04039 U.S.A.	CODE:	SIZE: B	DRAWING NO: S-06383	REV: 0
	DRAWN: ACF	DATED: ???		SCALE:
			SHEET: 1 OF 1	

ENERCON - BILL OF MATERIALS		TITLE: NATIONAL SEMICONDUCTOR PCBA, DS91C176EVK, ROHS DS91C176VK		PL Number: Z3213-01	Rev: 0	Rev By:	Rev Date: 11/30/07	PL Status: Released
Main Product: PCBA, DS91C176EVK, ROHS				Responsible Eng/Mgr:		Creator: Arlene Fox		Creation Date: 11/30/07

Item	Part Type	Part Number/Value	Mfg	NoSub	Description	Qty	SMT	Ref Des	Notes	Rev
1	PCB	P-06384R0	ENERCON		DS91C176: 2.50x3.00x.060in, 6 layer	1			Bd: (63.50x76.20mm) Panel: (9.20x5.00in) (233.68x127.00mm) 6 bds/panel	0
2										
3	IC	DS91C176/NOPB	NAT		1.5Gbps Differential Buffer, SOIC8, Pb-Free	1	X	U1	Customer Supplied	0
4										
5	RES	ERJ-2GE0R00	PANA		0 Ohm 1/16W ±5% 0402, Pb-Free	2	X	R2,3		0
	<ALT>	CRCW04020000Z0ED	VISHAY		0 Ohm 1/16W ±5% 0402, Pb-Free					
6	RES	ERJ-2RKF1000	PANA		100 Ohm 1/16W ±1% 0402 100ppm, Pb-Free	4	X	R1,6,7,8		0
	<ALT>	CRCW0402100RFKED	VISHAY		100 Ohm 1/16W ±1% 0402 100ppm, Pb-Free					
	<ALT>	RK73H1ETTP1000F	KOA		100 Ohm 1/16W ±1% 0402 100ppm, Pb-Free					
7										
8	CAP	0402YC103KAT	AVX		.01µF, 16V, ±10%, 0402, Ceramic, X7R, Pb-Free	1	X	C4		0
9	CAP	0402YD104KAT	AVX		.1µF, 16V, ±10%, 0402, Ceramic, X5R, Pb-Free	2	X	C2,3		0
10	CAP	1206YD475KAT	AVX		4.7µF, 16V, ±10%, 1206, Ceramic, X5R	1	X	C1		0
11										
12	CONN	142-0701-851	EMERSON		SMA, Jack Receptacle, 50 OHM, Pb-Free	4		SMA1-2,7-8		0
13	CONN	15-29-1024	MOLEX		Jumper Shunt, 2p, Gold, Pb-Free	2			Use With JP3 Between SIG AND GND	0
14	CONN	3267	POMONA		Banana, 1p, Female, Pb-Free	2		J1-2		0
15	CONN	RJHSE-5380	AMPHENOL		Telco, 8p, R/A, Shielded, Pb-Free	1		JP1		0
16	CONN	TSW-104-07-G-S	SAMTEC		Header, 4p, Male, .100"sp, Gold, Pb-Free	1		JP2		0
17	CONN	TSW-106-07-T-S	SAMTEC		Header, 6p, Male, .100"sp, Gold, Pb-Free	1		JP3		0
18										
19	STENCL	T-06387R0	ENERCON		STENCIL FABRICATION, TOP, DS91C176EVK	1				0

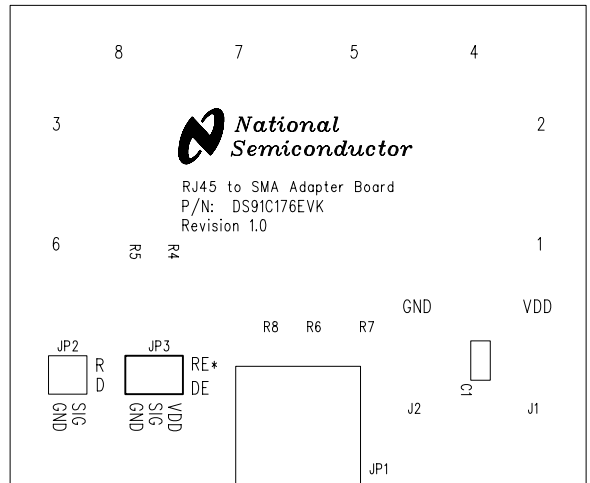
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Main Product: PCBA, DS91C176EVK, ROHS					Responsible Eng/Mgr:	Creator: Arlene Fox		Creation Date: 11/30/07	

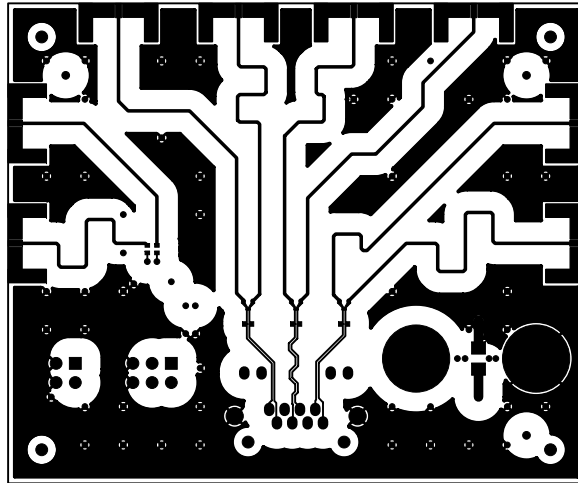
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21										
22	REF	C-06385R0	ENERCON		FABRICATION, DS91C176EVK					0
23	REF	C-06386R0	ENERCON		PALLET DWG, DS91C176EVK					0
24	REF	S-06383R0	ENERCON		SCHEMATIC, DS91C176EVK					0
25										

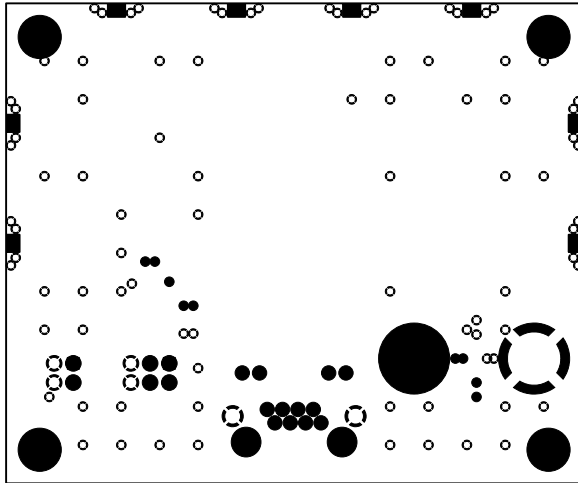
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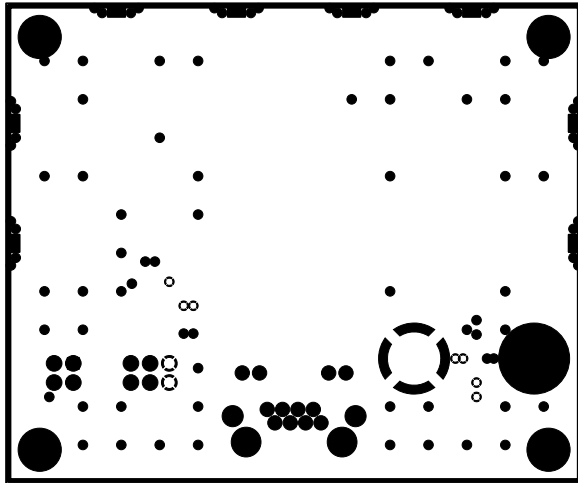
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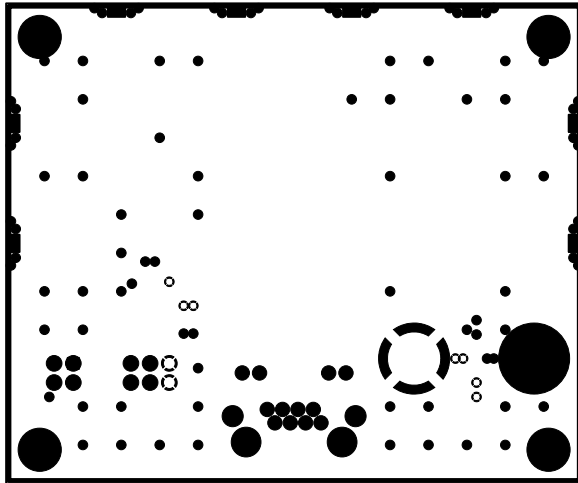
SMA3-4, 5-6
R4, 5

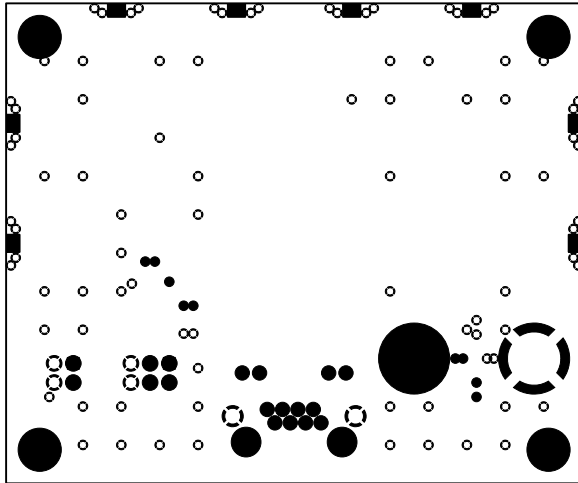


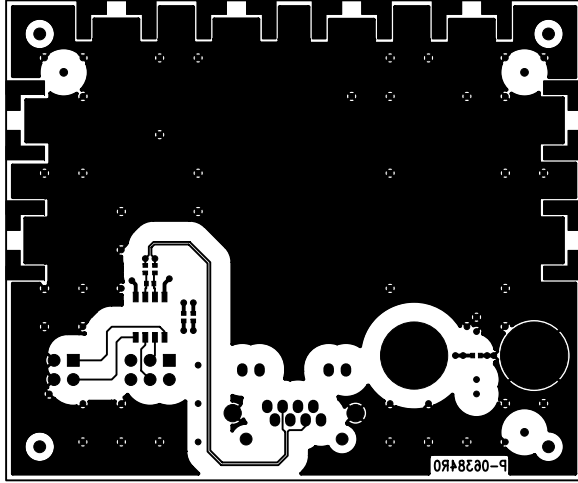












MADE IN USA
2008\02\EC
COMPLIANT
RoHS

C3
C2
C1

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