1.5 Gbps 2x2 LVDS Crosspoint Switch

DS10CP152 Evaluation Kit

USER MANUAL

Part Number: DS10CP152EVK 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.

November 2007
Rev. 0.1

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Overview

The DS10CP152EVK is an evaluation kit designed for demonstrating performance of the DS10CP152, a 1.5 Gbps 2x2 LVDS Crosspoint Switch. The evaluation kit is comprised of the DS10CP152 with its associated input and output SMA connectors and jumpers to manually configure the switch.

The purpose of this document is to familiarize the user with the DS10CP152EVK, to suggest test setup procedures and instrumentation to test the device optimally, and to guide the user through some typical measurements that demonstrate the performance of the DS10CP152 in typical applications.

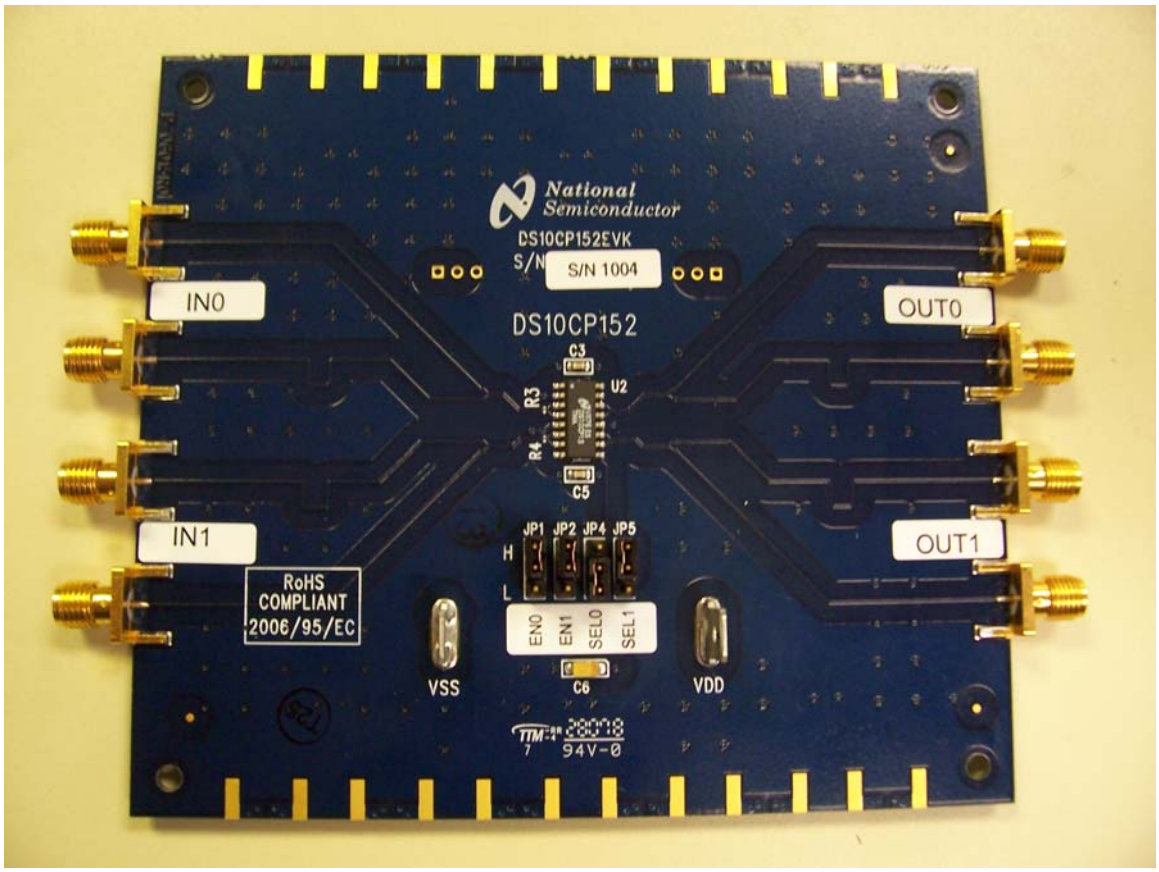
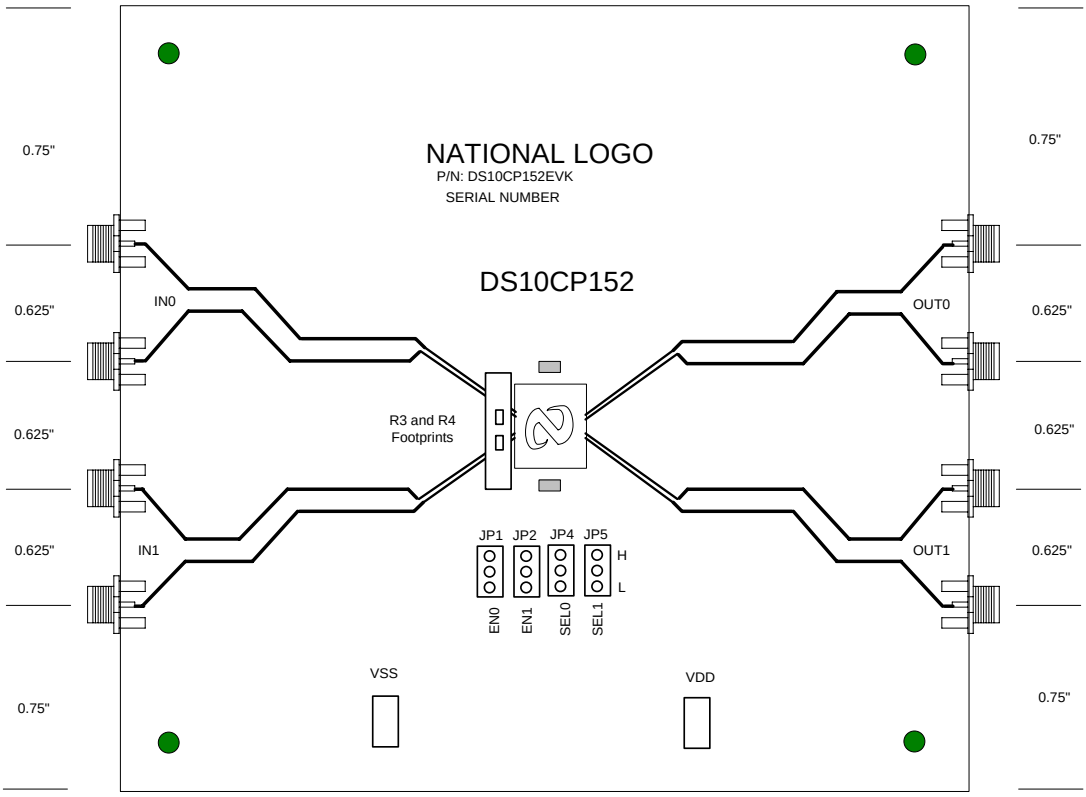


Figure 1. Photo of the DS10CP152EVK

Description

Figure 2 shows the top layer drawing of the PCB with the silkscreen annotations. The 4.5 by 4.0 inch, four-layer PCB is designed to evaluate the functions of the DS10CP152.



4.5" x 4.0" PCB

Figure 2. Top Layer Floor Plan of the DS10CP152EVK

Evaluation

This section provides recommended test setup procedure for the device evaluation. Figure 3 depicts a typical setup and instrumentation you may use for the device evaluation.

1. Configure the test setup as shown in Figure 3.

2. Set and enable the desired INn to OUTn drivers by selecting SEL0, SEL1, EN0 and EN1 according to Tables 1 – 2.

3. Apply + supply (3.3V typical) to the VDD and – supply (ground) to the VSS connectors.

4. Connect a signal source (signal generator, data source, or an LVDS driver) to the desired INn inputs on the board and adjust the signal parameters (VOH, VOL, VCM) so that they comply with the device input recommendations.

5. Connect an oscilloscope to the selected OUTn outputs and view the output signals with an oscilloscope with the analog bandwidth of at least 3 GHz.

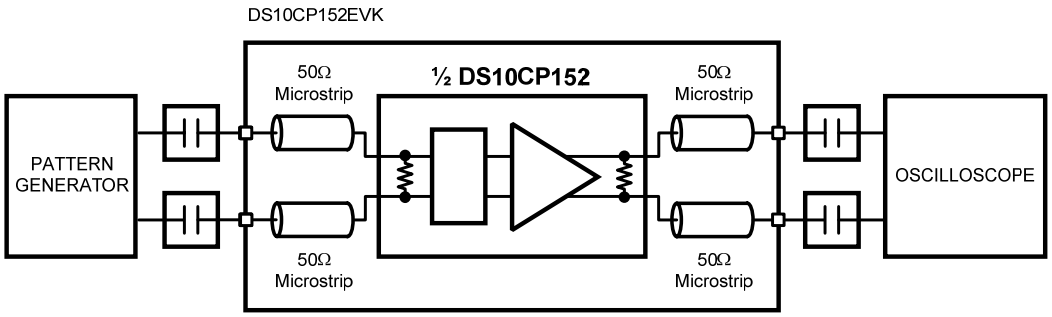


Figure 3. DS10CP152 Test Setup Example

Switch Configuration Truth Tables

SEL1	SEL0	OUT1	OUT0
0	0	IN0	IN0
0	1	IN0	IN1
1	0	IN1	IN0
1	1	IN1	IN1

Table 1. Switch Configuration Truth Table

EN1	EN0	OUT1	OUT0
0	0	Disabled	Disabled
0	1	Disabled	Enabled
1	0	Enabled	Disabled
1	1	Enabled	Enabled

Table 2. Output Enable Truth Table

Typical Performance

This section of the User Manual shows a typical eye diagram you can expect to see when evaluating the DS10CP152EVK.

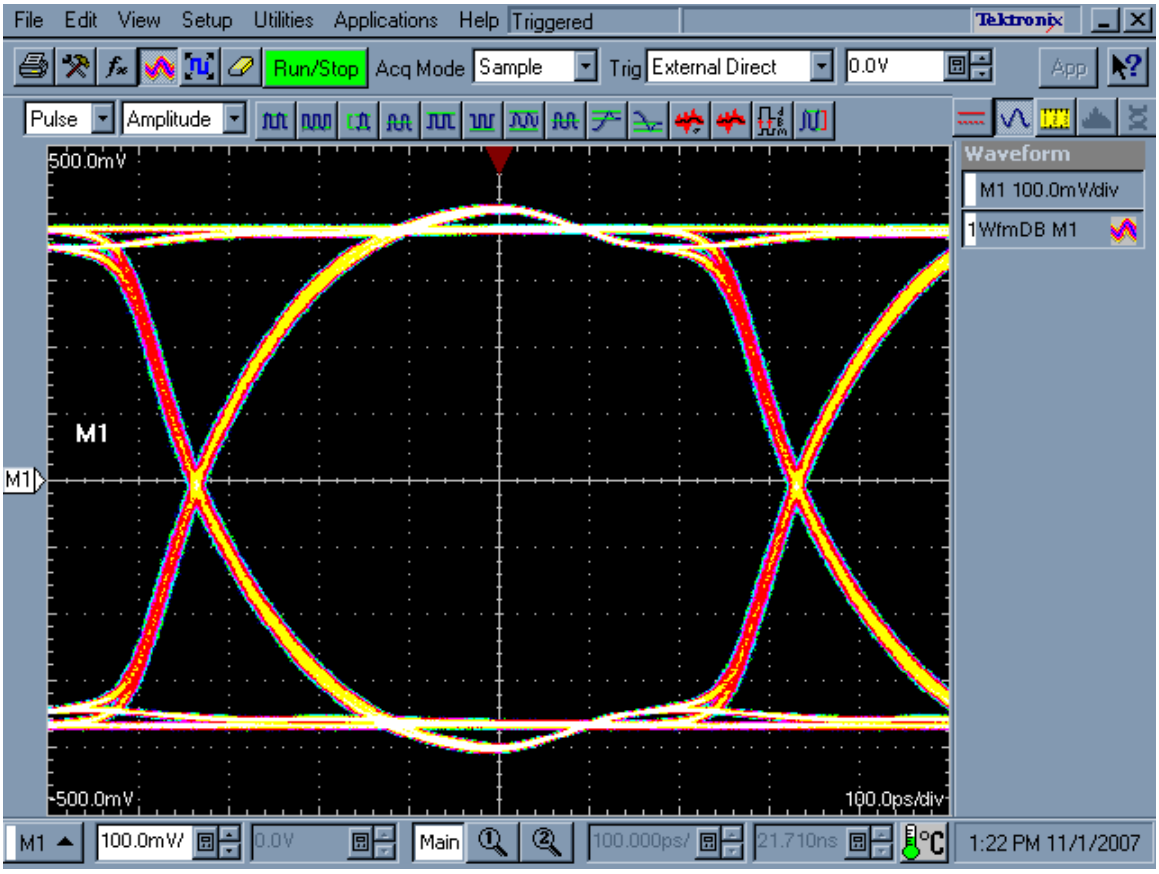
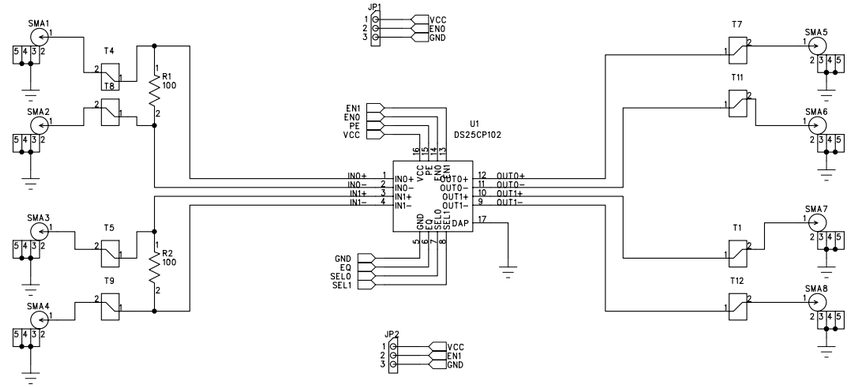
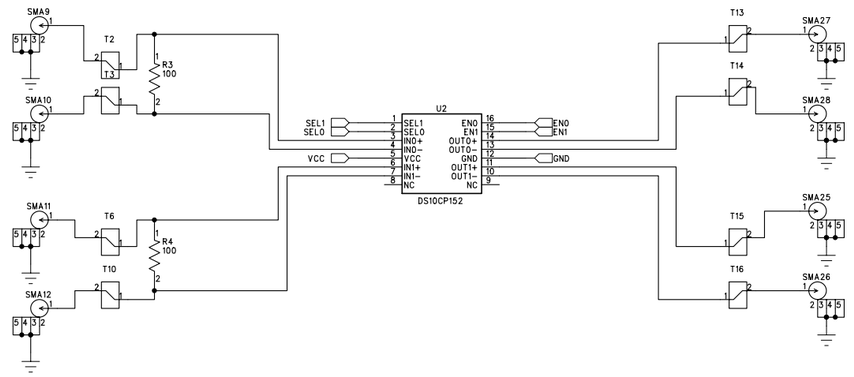
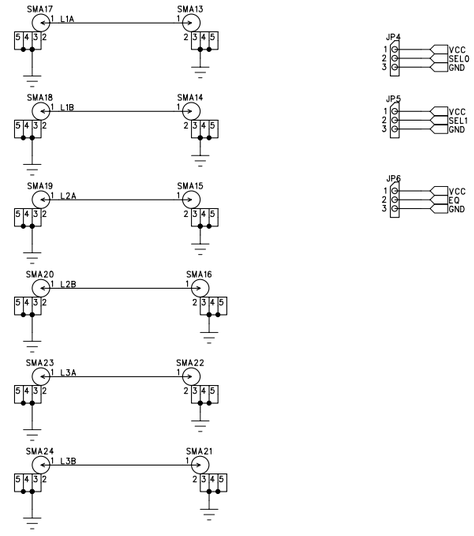


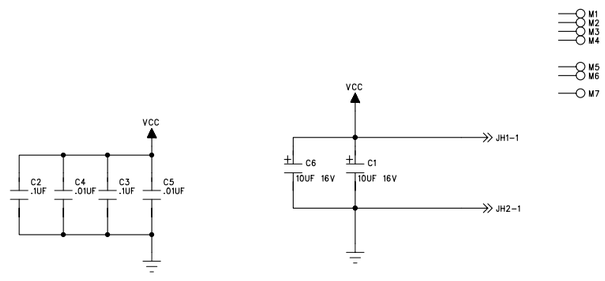
Figure 4. DS10CP152 1.5 Gbps NRZ PRBS-7 Output Eye Diagram

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









COMPANY:	NATIONAL SEMICONDUCTOR		
TITLE:	SCHEMATIC DS25CP102EVK/DS10CP152EVK, ROHS		
Enercon technologies 25 NorthBrook Drive Gray, Maine 04039 U.S.A.	CODE:	SIZE: C	DRAWING NO: S-06016 REV: 0
DRAWN: ACF	DATED: 6/6/07	SCALE:	SHEET: 1 OF 1

ENERCON - BILL OF MATERIALS	TITLE: NATIONAL SEMICONDUCTOR PCBA, DS10CP152EVK, ROHS	PL Number: Z3103-01	Rev: 0	Rev By:	Rev Date: 6/7/2007	PL Status: Released
Main Product: PCBA, DS10CP152EVK		Responsible Eng/Mgr:		Creator: Arlene Fox		Creation Date: 6/7/2007

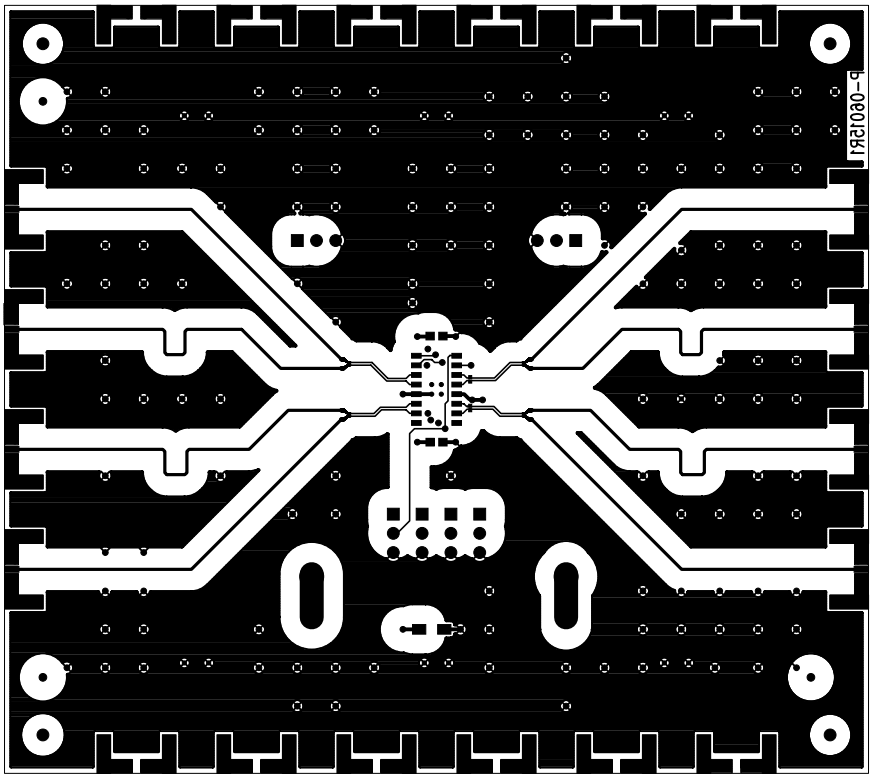
Item	Part Type	Part Number/Value	Mfg	NoSub	Description	Qty	SMT	Ref Des	Notes	Rev
1	PCB	P-06015R0			DS25CP102: 4.00x4.50x.060in, 8 layer	1			Bd: (101.60x 114.30mm) Panel: (4.50x 8.10in) (114.30x205.74mm) 2 bds/panel	0
2										
3	IC	DS10CP102M-8	NAT		1.5 Gbps lvds Crosspoint Switch, SOIC16, Pb-Free	1	X	U2	Customer Supplied	0
4										
5	CAP	06035C103KAT	AVX		.01µF, 50V, ±10%, 0603, Ceramic, X7R, Pb-Free	1	X	C5		0
	<ALT>	C0603C103K5RAC	KEMET		.01µF, 50V, ±10%, 0603, Ceramic, X7R, Pb-Free					
	<ALT>	ECJ-1VB1H103K	PANA		.01µF, 50V, ±10%, 0603, Ceramic, X7R, Pb-Free					
6	CAP	0603YC104KAT	AVX		.1µF, 16V, ±10%, 0603, Ceramic, X7R, Pb-Free	1	X	C3		0
	<ALT>	C0603C104K4RAC	KEMET		.1µF, 16V, ±10%, 0603, Ceramic, X7R, Pb-Free					
	<ALT>	ECJ-1VB1C104K	PANA		.1µF, 16V, ±10%, 0603, Ceramic, X7R, Pb-Free					
7	CAP	TAJA106K016	AVX		10µF, 16V, ±10%, A-Case, Tantalum, Pb-Free	1	X	C6		0
	<ALT>	T491A106K016AT	KEMET		10µF, 16V, ±10%, A-Case, Tantalum, Pb-Free					
8										
9	CONN	1287	KEYSTONE		Faston, Male, .250", Pb-Free	2		JH1-2	VDD, VSS, Mount On U2 Side	0
10	CONN	142-0701-851	EMERSON		SMA, Jack Receptacle, 50 OHM, Pb-Free	8		SMA 9,10,11,12,25,26 ,27,28	Mount On U2 Side	0
11	CONN	TSW-103-07-G-S	SAMTEC		Header, 3p, Male, .100"sp, Gold, Pb-Free	4		JP1,2,4,5	Mount On U2 Side	0
12										
13	STENCL	T-06020R0	ENERCON		STENCIL FABRICATION, BOT, DS25CP102/DS10CP152EVK	1				0

ENERCON - BILL OF MATERIALS	TITLE: NATIONAL SEMICONDUCTOR PCBA, DS10CP152EVK, ROHS	PL Number: Z3103-01	Rev: 0	Rev By:	Rev Date: 6/7/2007	PL Status: Released
Main Product: PCBA, DS10CP152EVK		Responsible Eng/Mgr:		Creator: Arlene Fox		Creation Date: 6/7/2007

Item	Part Type	Part Number/Value	Mfg	NoSub	Description	Qty	SMT	Ref Des	Notes	Rev
14										
15	REF	C-06017R0	ENERCON		FABRICATION DWG, DS25CP102/DS10CP152EVK					0
16	REF	C-06018R0	ENERCON		PALLET DWG, DS25CP102/DS10CP152EVK					0
17	REF	S-06016R0	ENERCON		SCHEMATIC, DS25CP102/DS10CP152EVK					0
18										

Notes:

DO NOT STUFF:
R1,2
C1,2,4
SMA1-8,13-24
JP3,6


p-080rsr1

National
Semiconductor
DS10CP152EVK
S/N:
DS10CP152
OUT0
OUT1
IN0
IN1
C3
U2
R3
R4
C5
JP5
JP4
JP2
JP1
H
L
I2S
O2S
IN3
ON3
C6
VDD
VSS
RoHS
COMPLIANT
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