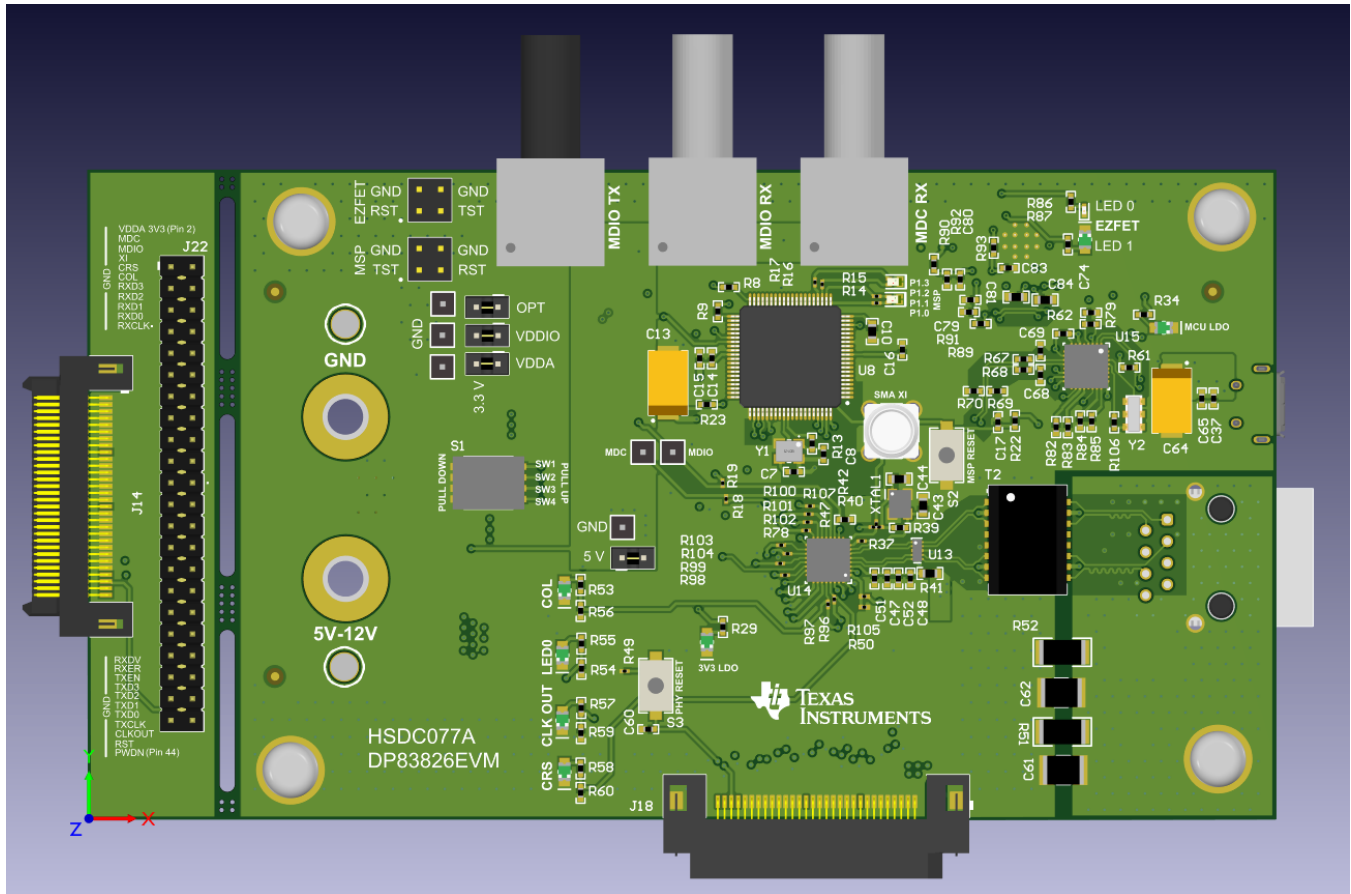


DP83826EVM User's Guide

This User's Guide discusses how to properly operate and configure the DP83826EVM.



Contents

1	Definitions	2
2	Introduction	4
3	Board Setup Details	9
4	Configurations Options	10
5	EMI Results	10
6	DP83826EVM Schematics	14
7	DP83826EVM BOM.....	19

List of Figures

1	DP83826EVM – Top Side	5
2	DP83826EVM – Bottom Side	6
3	DP83826EVM Power Headers.....	7
4	DP83826EVM Power Inputs	7
5	DP83826EVM External MSP Connection	8
6	DP83826EVM Block Diagram.....	9
7	Block Diagram Setup for EMI Testing	11
8	EMI Testing Setup in Chamber.....	11
9	Radiated Emissions 100M MII.....	12
10	Radiated Emissions 100M RMII Master.....	12
11	Conducted Emissions 100M MII	13
12	Conducted Emissions 100M RMII Master	13
13	DP83826EVM Power Schematic.....	14
14	DP83826EVM Main Schematic.....	15
15	DP83826EVM USB HUB and EZFET Schematic.....	16
16	DP83826EVM MSP430 and SMI Schematic	17
17	DP83826EVM Breakout Board Schematic.....	18

List of Tables

1	Terminology	2
2	DP83826EVM Applications	10
3	DP83826EVM EMI Tests Performed	10
4	DP83826EVM BOM.....	19

Trademarks

All trademarks are the property of their respective owners.

1 Definitions

Table 1. Terminology

ACRONYM	DEFINITION
PHY	Physical Layer Transceiver
MAC	Media Access Controller
SMI	Serial Management Interface
MDIO	Management Data I/O
MDC	Management Data Clock
MII	Media Independent Interface
RMII	Reduced Media Independent Interface
SFD	Start-of-Frame Detection
VDDA	Analog Core Supply Rail

Table 1. Terminology (continued)

ACRONYM	DEFINITION
VDDIO	Digital Supply Rail
PD	Pulldown
PU	Pullup
MCU	Microcontroller
PMD	Physical Medium Dependent
PRBS	Pseudo Random Binary Sequence

2 Introduction

The DP83826 is a low latency, deterministic, and low power Ethernet Physical Layer transceiver with integrated PMD sublayers to support both 10BASE-T_e and 100BASE-TX Ethernet protocols. The DP83826 interfaces directly to twisted pair media via an external transformer and offers integrated cable diagnostic tools, built-in self-test and loopback capabilities for ease of use. It interfaces to the MAC layer through a Media Independent Interface (MII) or a Reduced MII (RMII) both in Master and Slave mode. The 50 MHz clock in RMII Master mode is synchronized to the MDI derived clock to improve the system's jitter. The DP83826EVM will demonstrate all features of DP83826. The EVM supports 10BASE-T_e and 100BASE-TX Ethernet protocols. The EVM includes connections to use the DP83826 MII and RMII pins through header pins.

2.1 Key Features

- 100Base-TX, 10Base-T_e with Auto-Negotiation and Force 100M Mode
- Onboard Clock
- Output Clock
- Onboard MSP430F5529 for easy MDIO Register Access
- Onboard MSP430F5528 for flashing firmware
- LDO and External Power Supply Options
- Status LEDs
- 100BASE-TX Data Transfer Over 150 Meters CAT5 Cable
- Fiber Optic transceivers option for MDIO/MDC
- EMI/EMC Compliance Testing Completed:
- CISPR 22 Radiated Emissions Class B
- CISPR 22 Conducted Emissions Class B
- IEC 61000-4-2 ESD: ±8 kV contact, ±15 kV air
- IEC 61000-4-4 EFT: ±4 kV @ 5 kHz, 100 kHz

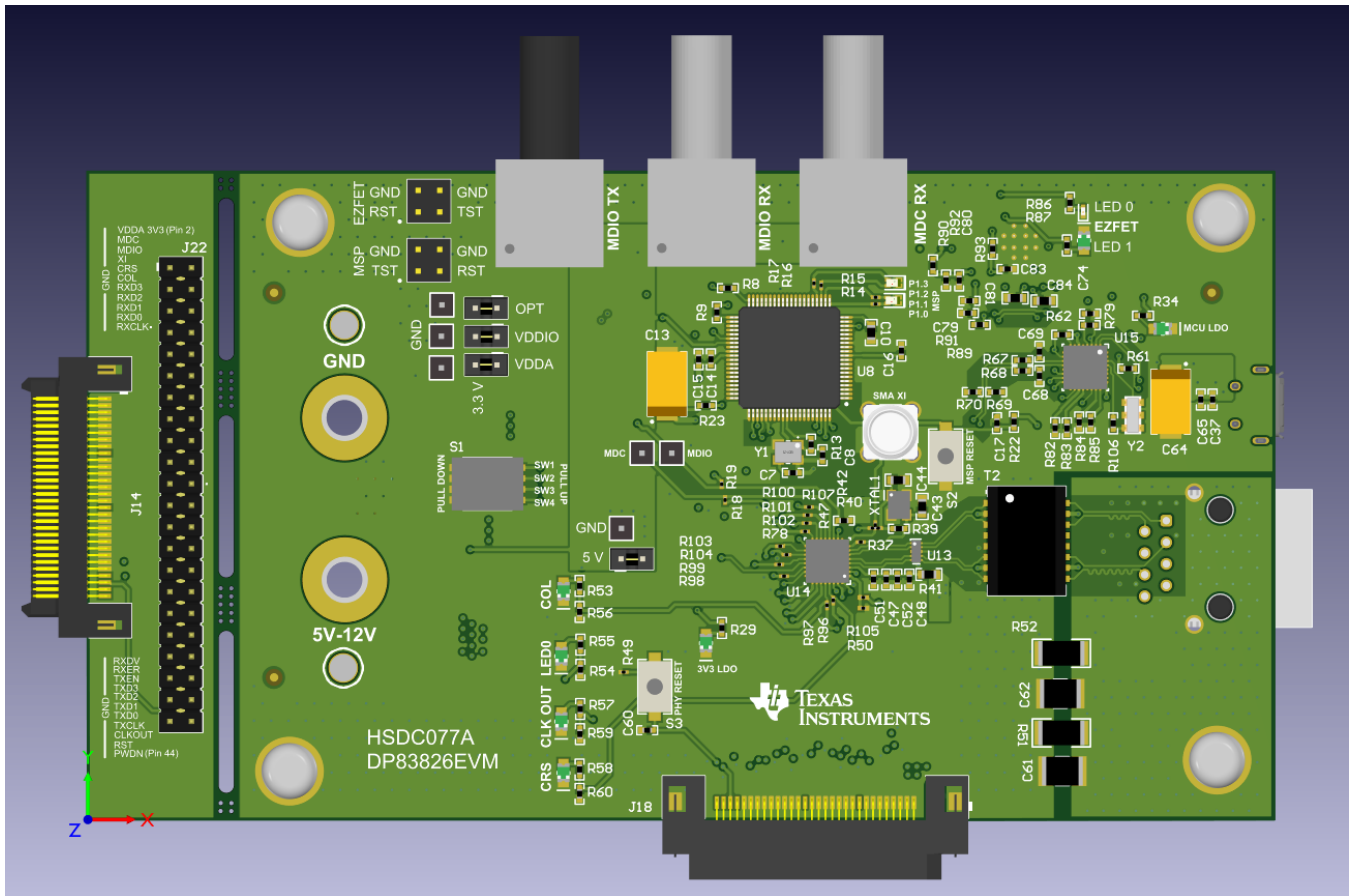


Figure 1. DP83826EVM – Top Side

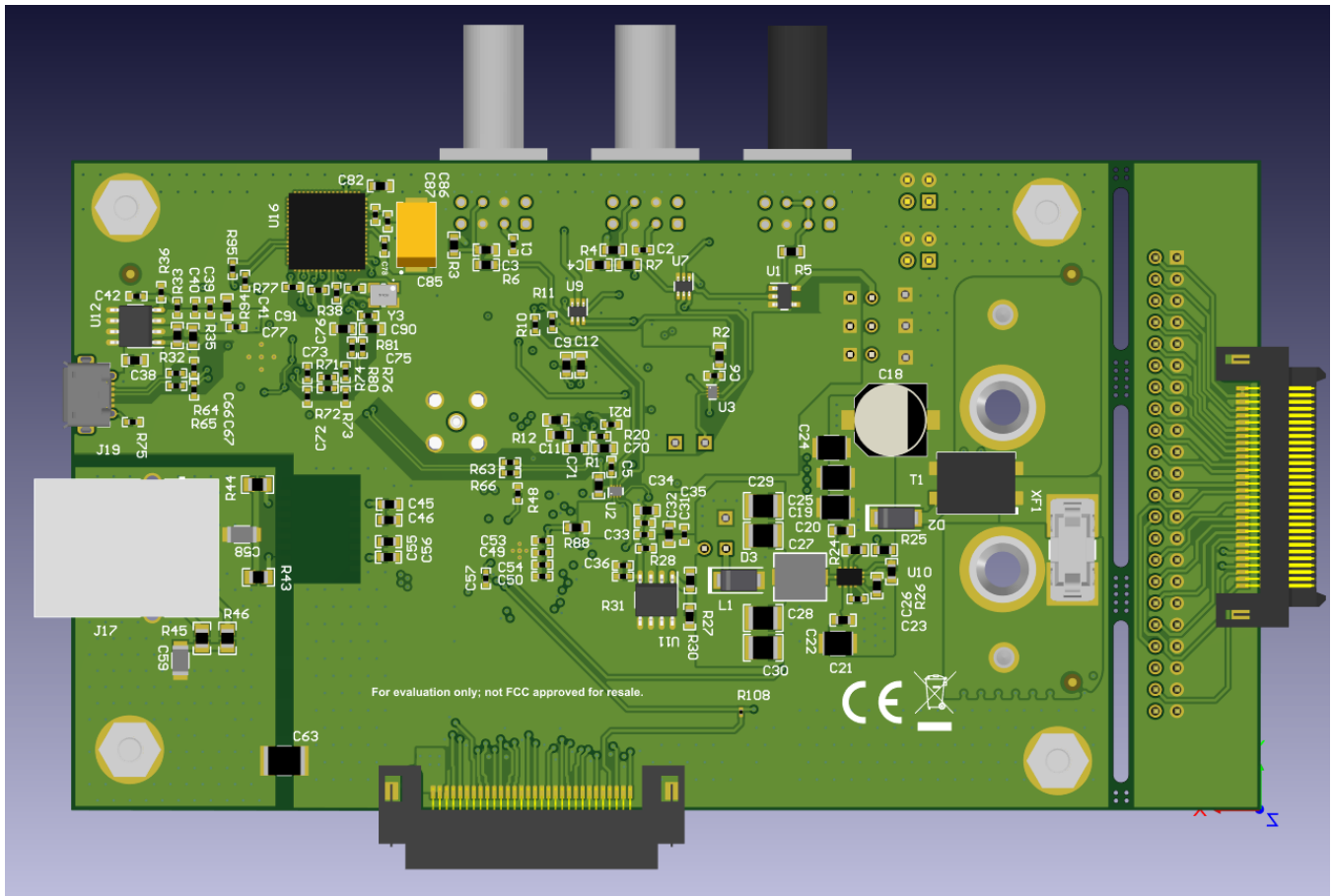


Figure 2. DP83826EVM – Bottom Side

2.2 Operation – Quick Setup

2.2.1 Power Supply

The DP83826EVM power is supplied by the 5-12V input connection in [Figure 3](#). Single supply operation uses on-board LDOs to generate the voltages required for operating various sections of the EVM. Power can also be supplied externally to individual voltage rails. The micro-USB supplies power to the on-board LDOs that power all microcontroller related components.

NOTE: Before supplying power at the 5-12V input, ensure the correct shunts are added to the appropriate headers to properly operate the on-board LDOs as seen in [Figure 4](#).

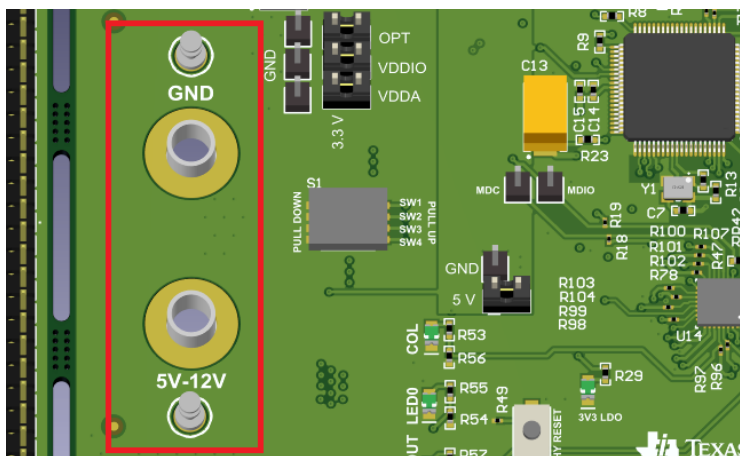


Figure 3. DP83826EVM Power Headers

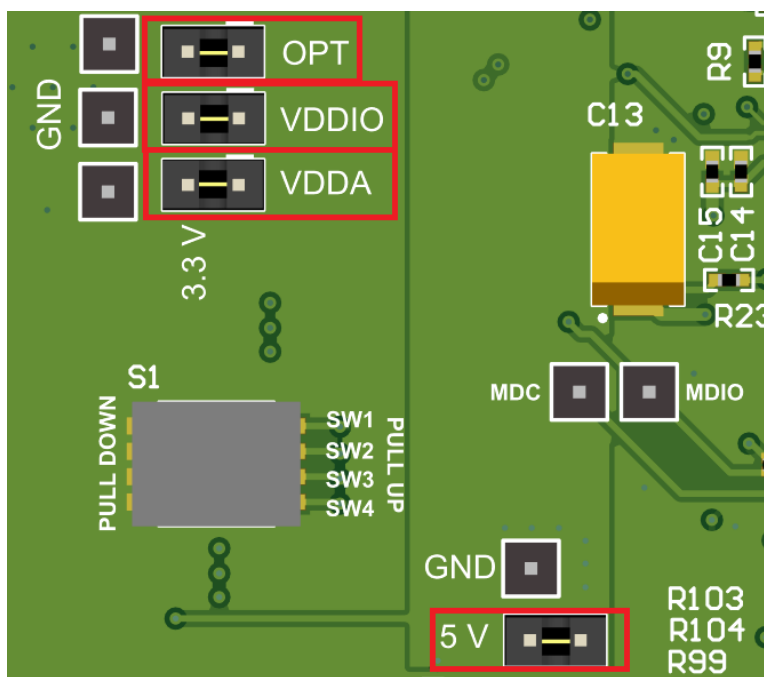


Figure 4. DP83826EVM Power Inputs

In the case the user would like to power the EVM from external sources, J7, J8, and J9, VDDA, VDDIO and the fiber optic transceivers respectively, can be removed and supplied power at pin 2 for all three jumpers. J23 can also be used to supply an external 5V to the USB and MSP430.

2.2.2 Software

The on-board MSP430 comes pre-programmed and ready to use. When using this EVM for the first time on a Windows 7 (or above) PC, MSP430 drivers and USB-2-MDIO software utility will have to be installed. USB-2-MDIO software can be used for accessing the PHY's registers. In the case where an external MSP430 or EZFET is needed, the user may simply connect the TST and RST pins of their device to the DP83826EVM.

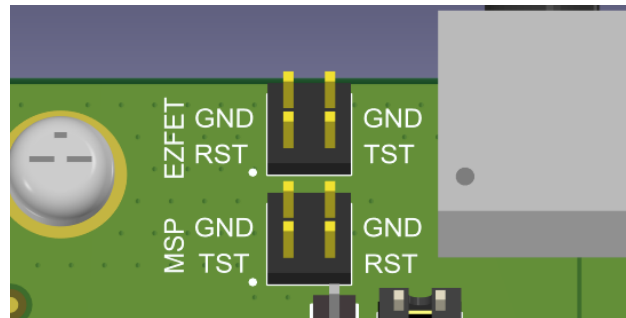


Figure 5. DP83826EVM External MSP Connection

2.2.2.1 MSP430 Driver

Install the latest MSP430 drive from this website: http://software-dl.ti.com/msp430/msp430_public_sw/mcu/msp430/MSP430_FET_Drivers/latest/index_FDS.html .

2.2.2.2 USB-2-MDIO Software

Download the software from <http://www.ti.com/tool/usb-2-mdio> .

The webpage also contains the User's Guide for installing and using the software. Because the MSP430 is on-board the DP83826EVM, it is not necessary to purchase a separate MSP430 Launchpad kit and connect to the PHY using wires.

In the case the on-board MSP430 cannot be used for some reason, MDIO and MDC pins are also broken out on J1 and J2 pins, respectively. Users can connect an MSP430 launchpad or their own MDIO-MDC utility on J1 and J2 to access the PHY.

3 Board Setup Details

3.1 Block Diagram

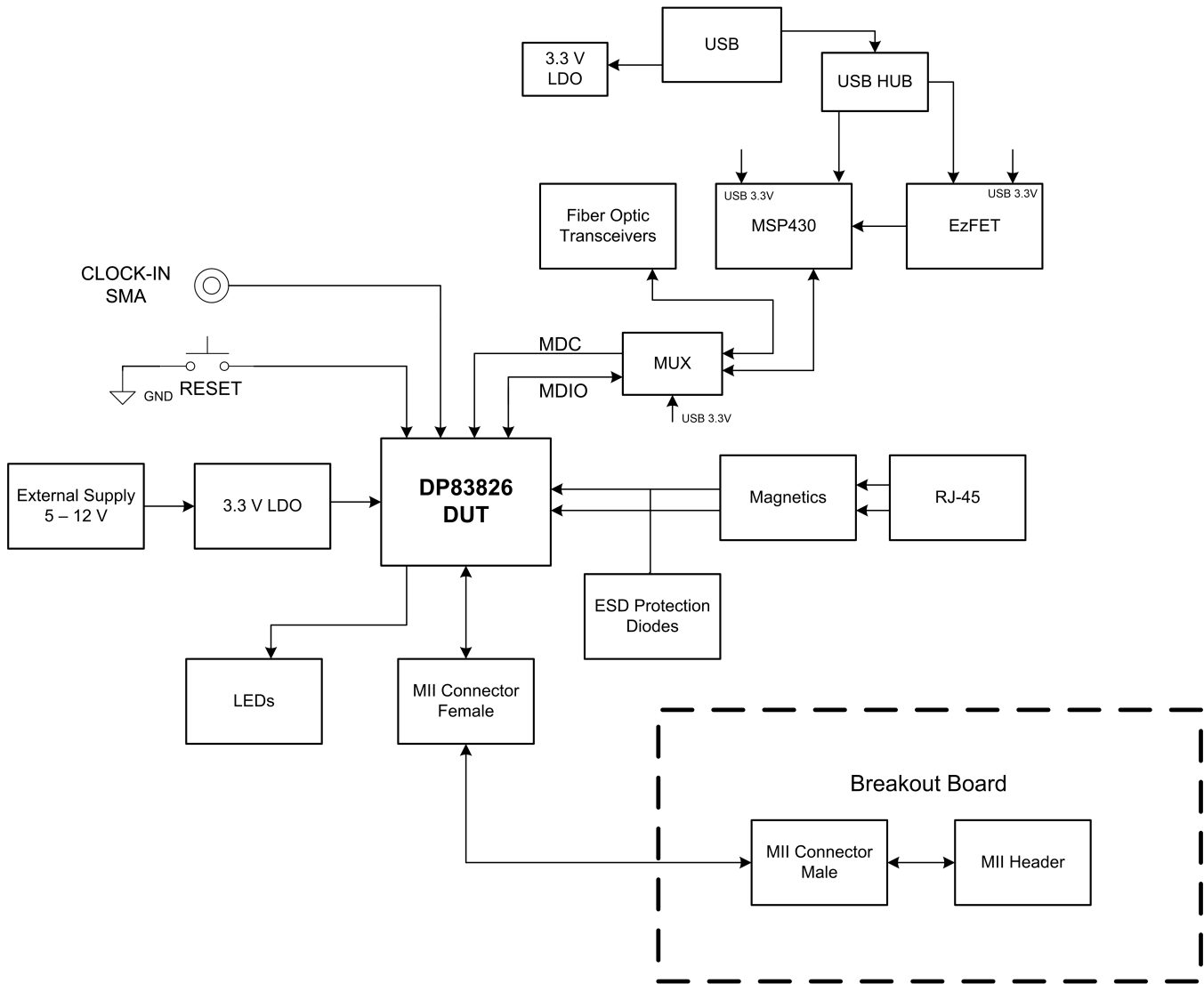


Figure 6. DP83826EVM Block Diagram

3.2 EVM High Level Summary

Table 2. DP83826EVM Applications

NO.	TEST CASES	APPLICATIONS	HOW TO USE
1	MII/RMII to Copper	Run traffic between MII/RMII and Copper.	Connect to DP83826 EVM or MAC System using Header pins.
		Perform IEEE and UNH compliance testing	Using onboard MSP430 and software.
		Run EMI/EMC Test on EVM	Use internal PRBS and loopback. Onboard MSP430 can be used for register access.
		Measure Power Dissipation	Connect external power supplies.
		External MAC loopback	Connect external MAC to headers and use MAC loopback register settings
		50MHz output clock	Optional Clock out SMA
2	Loopback	Data received by the PHY can be looped back through the interface without needing a MAC.	Use onboard MSP430 to enable loopback.
3	Repeater Mode	RMII back to back as range extender.	Two EVMs can be connected back to back using custom header cable.
4	Low Power modes	Demonstrate EEE	Use onboard MSP430 to enable EEE.
		Demonstrate Sleep and Power down mode	Use onboard MSP430 to activate low power mode

4 Configurations Options

4.1 MDIO Register Access

To update or read the registers of the device, the user can simply connect the DP83826EVM to a computer and use the USB-2-MDIO software. The EVM is designed to easily enable and test strap functionality through software instead without the need to modify the board and hardware. This allows for simple hardware and software support for those that do not have MDIO communication capability. The register map used for the DP83826EVM can be found in section 8.7 of the DP83826E Datasheet.

More information on how to access the DP83826 MDIO status and control registers can be found in the [USB-2-MDIO Software User's Guide](#).

5 EMI Results

This section provides details of the EMI tests performed and its results.

Table 3. DP83826EVM EMI Tests Performed

TEST	STANDARD	TEST LEVEL	RESULT
Radiated Emissions 100M MII	CISPR 22	Class B	Below Limit Levels
Radiated Emissions 100M RMII Master			
Conducted Emissions 100M MII			
Conducted Emissions 100M RMII Master			

5.1 Setup

Below are a simple diagram and photo outlining the setup of the DP83826EVM in a 10m anechoic chamber.

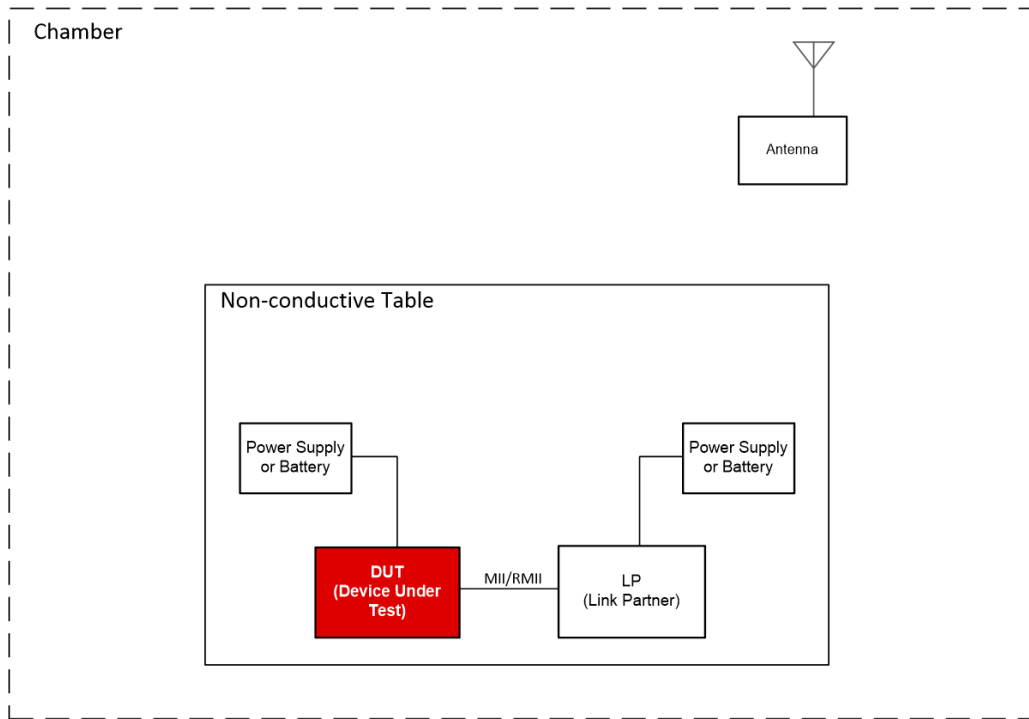


Figure 7. Block Diagram Setup for EMI Testing

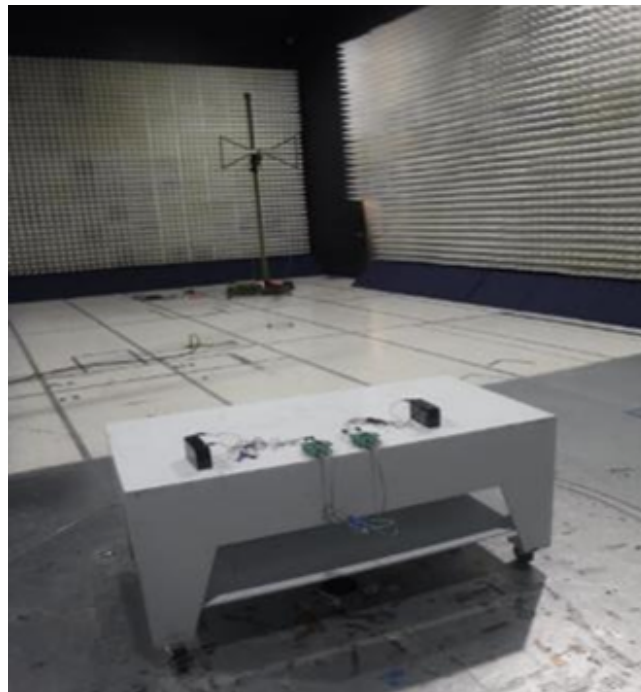


Figure 8. EMI Testing Setup in Chamber

5.2 Results

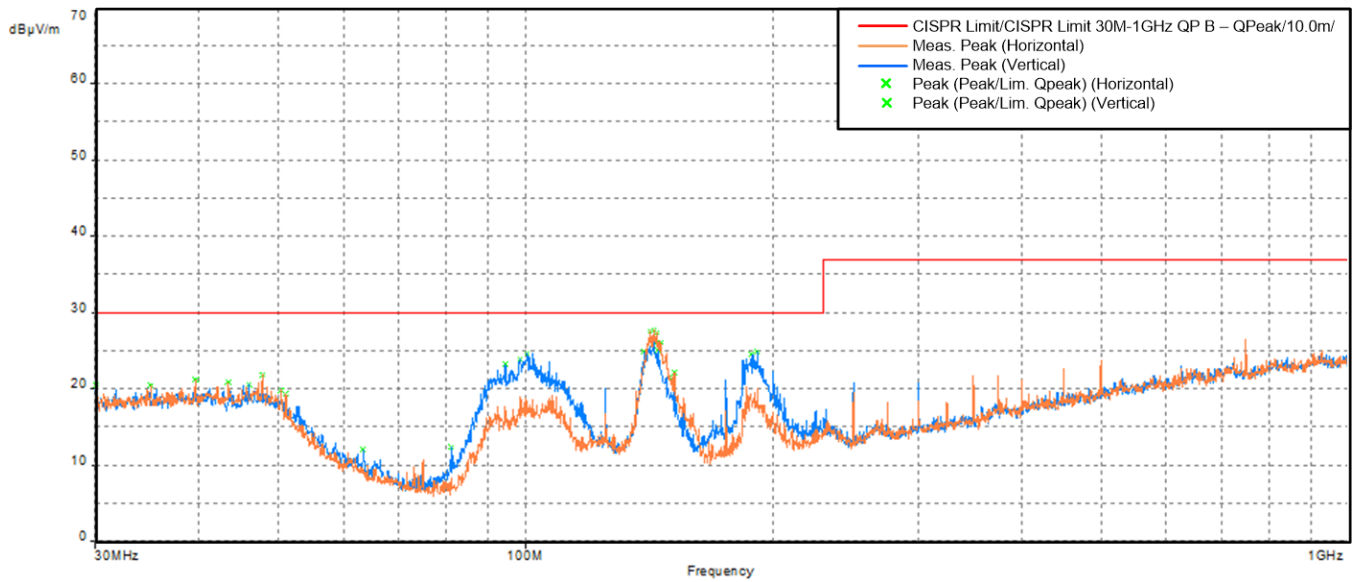


Figure 9. Radiated Emissions 100M MII

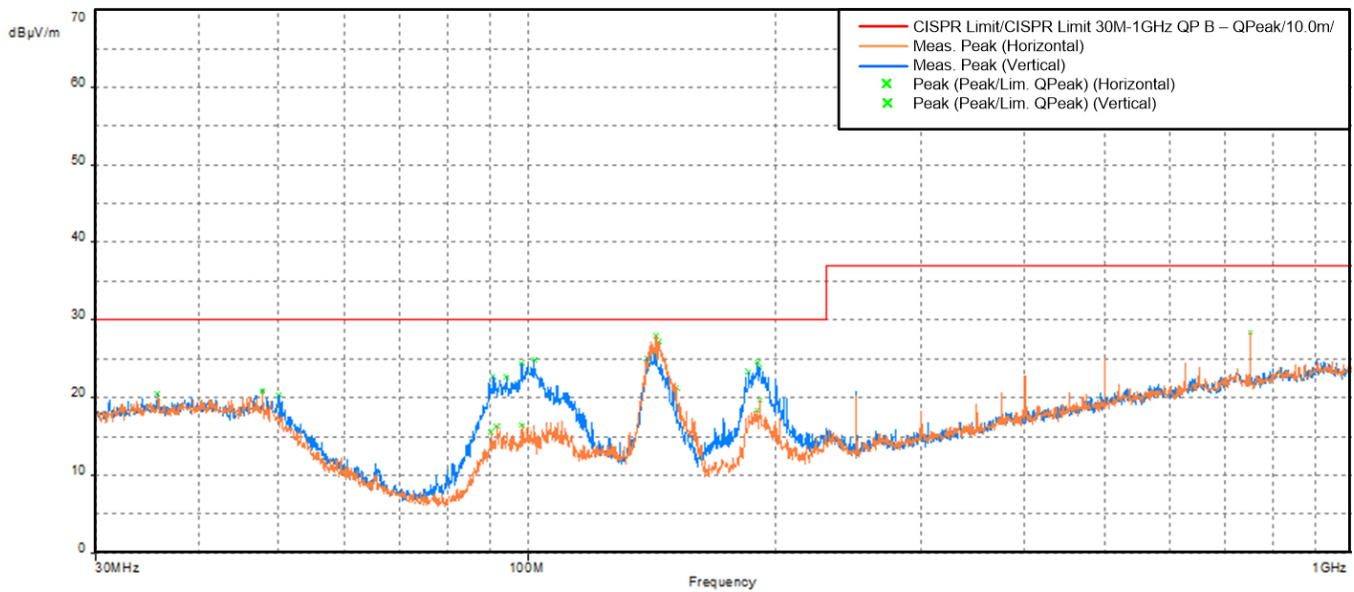


Figure 10. Radiated Emissions 100M RMII Master

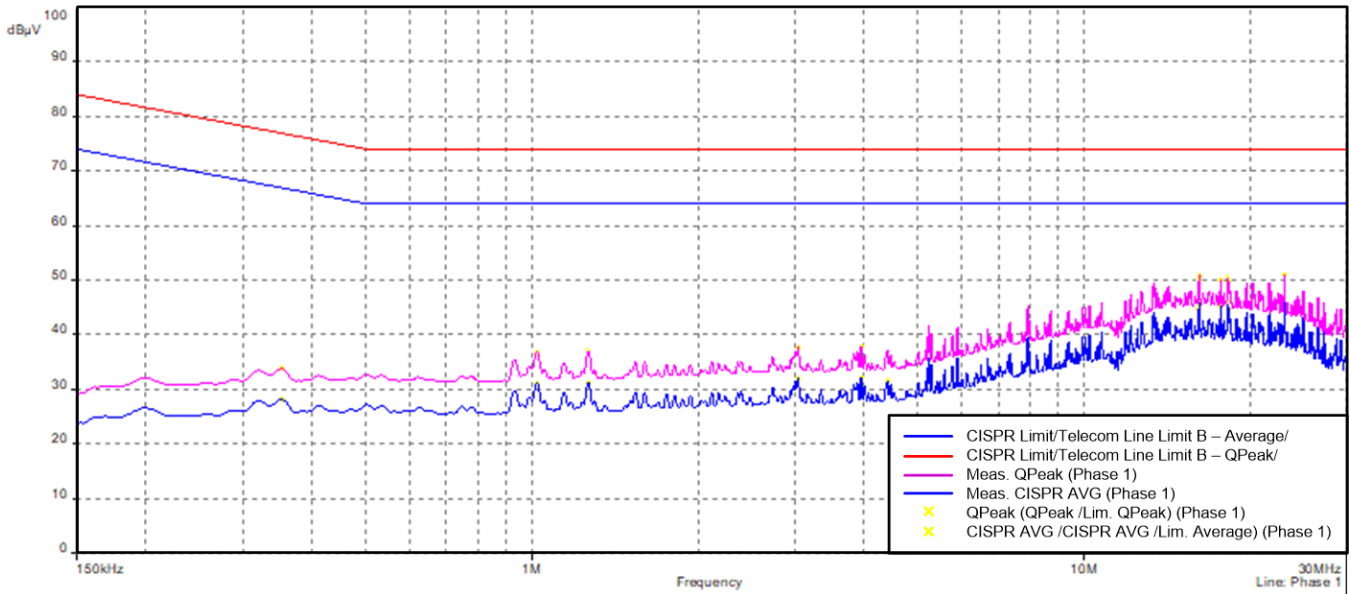


Figure 11. Conducted Emissions 100M MII

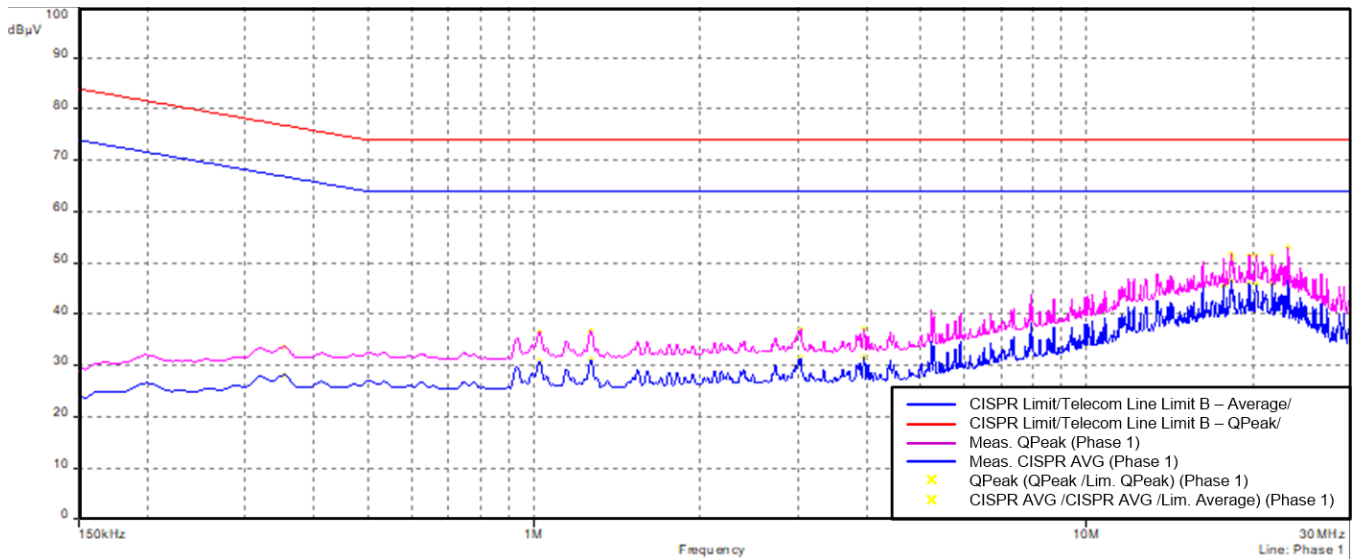


Figure 12. Conducted Emissions 100M RMII Master

6 DP83826EVM Schematics

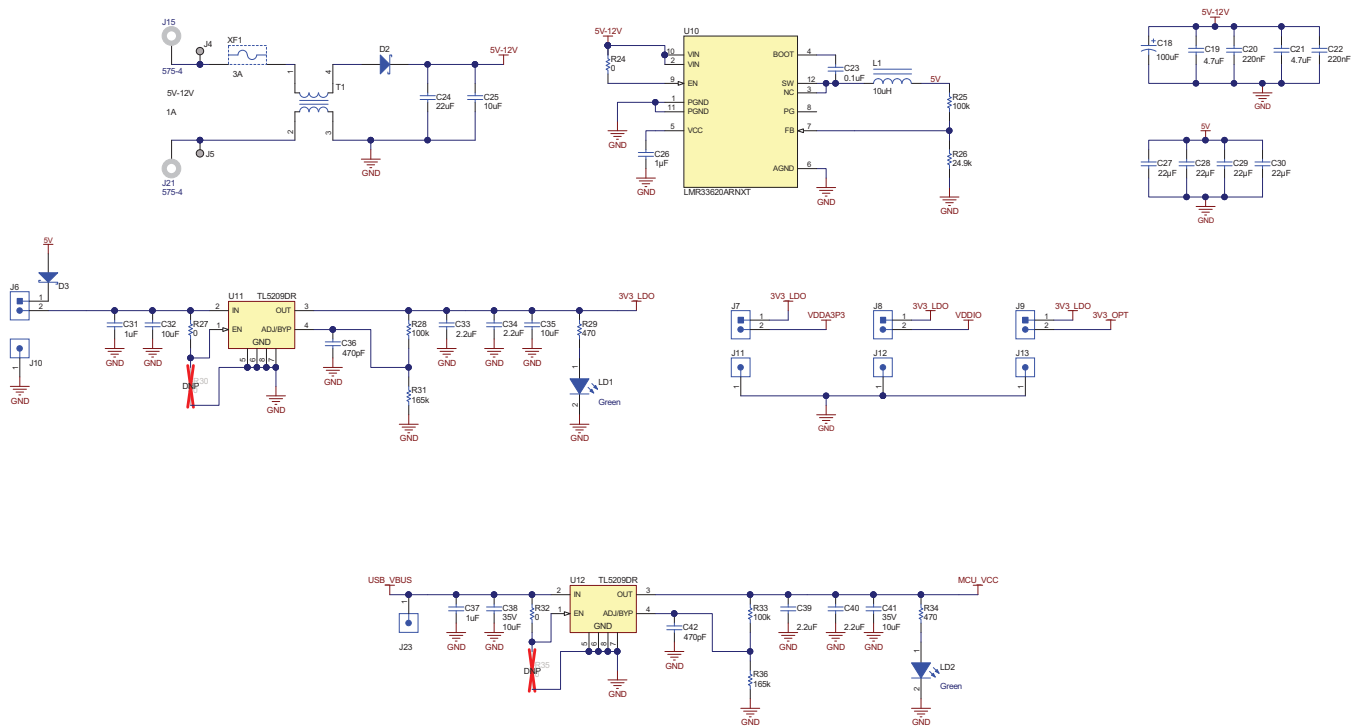


Figure 13. DP83826EVM Power Schematic

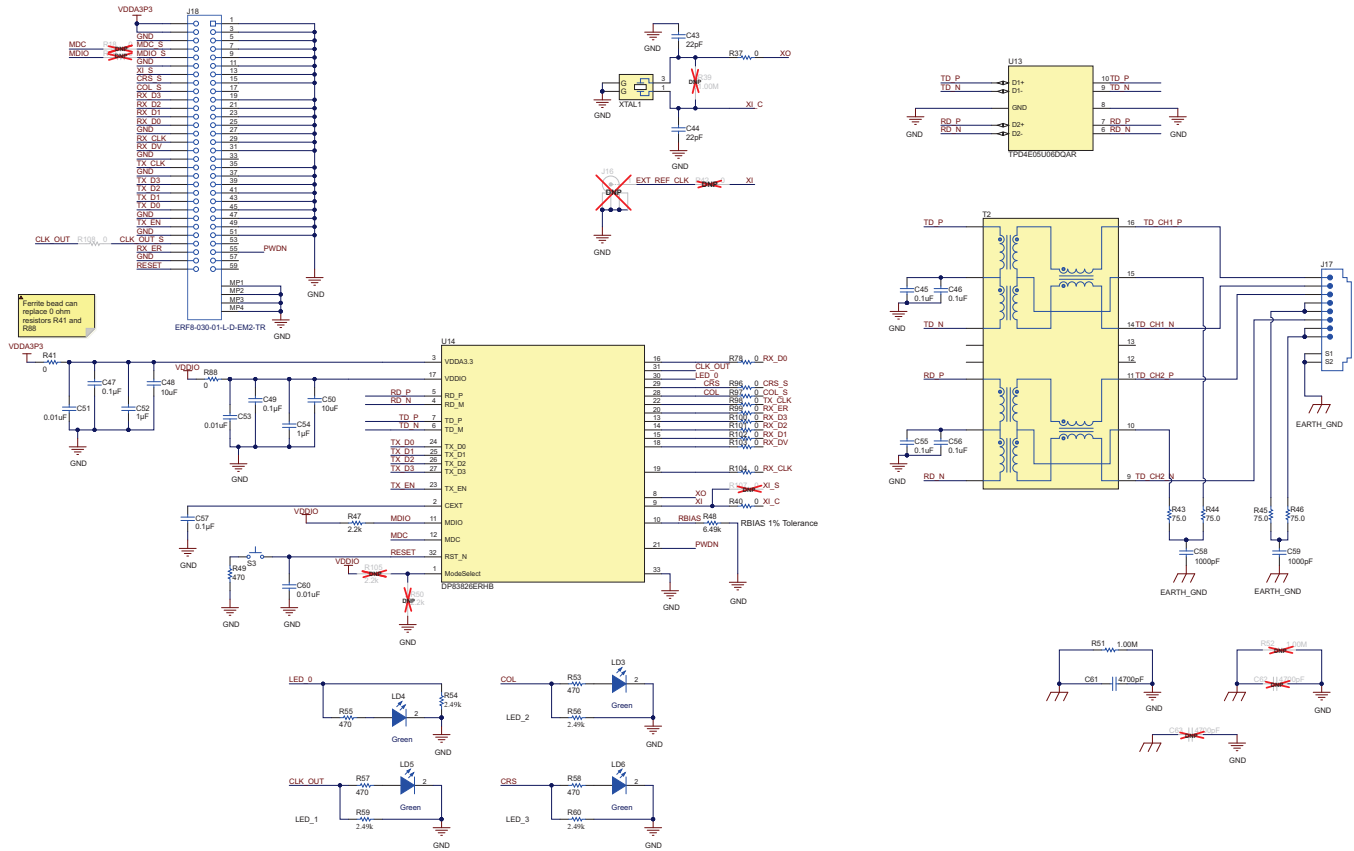


Figure 14. DP83826EVM Main Schematic

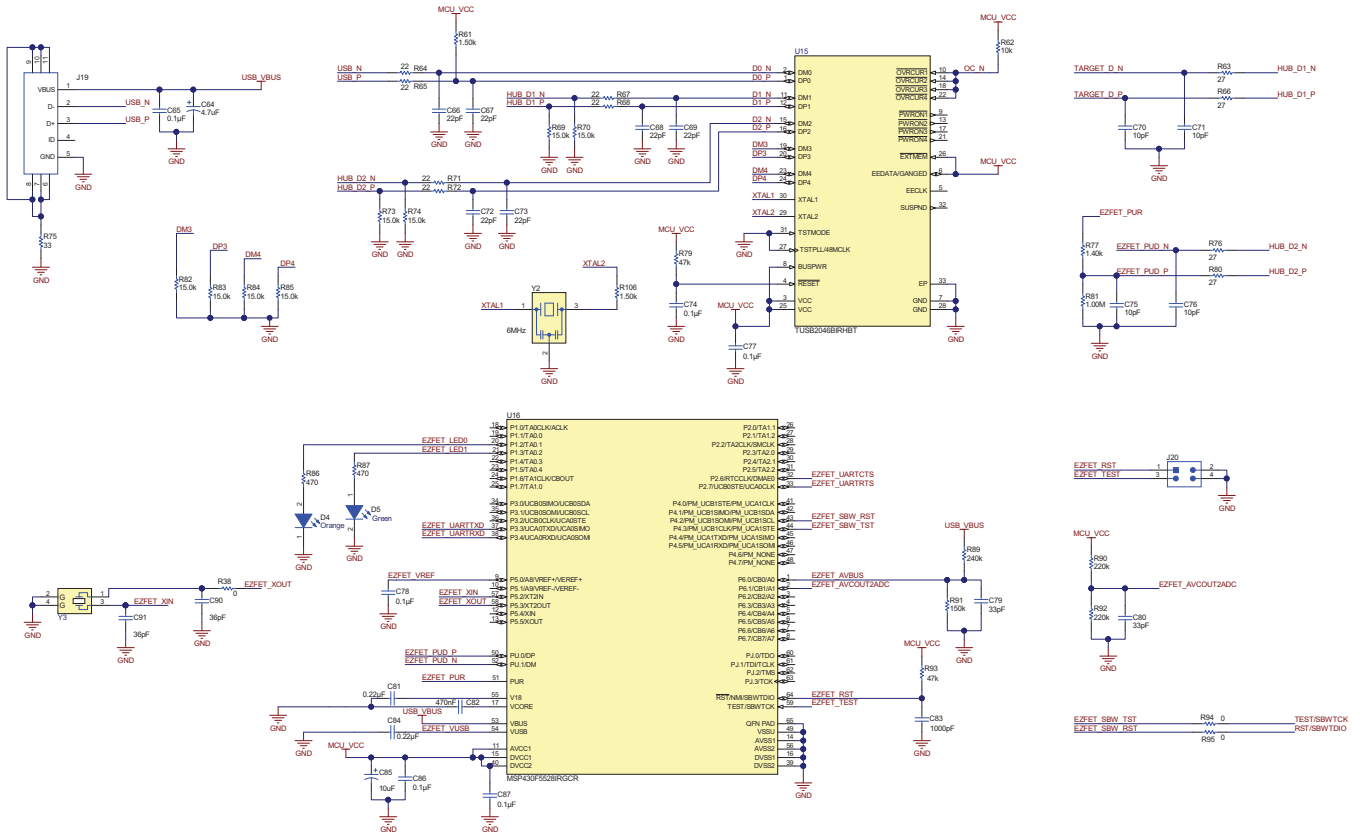


Figure 15. DP83826EVM USB HUB and EZFET Schematic

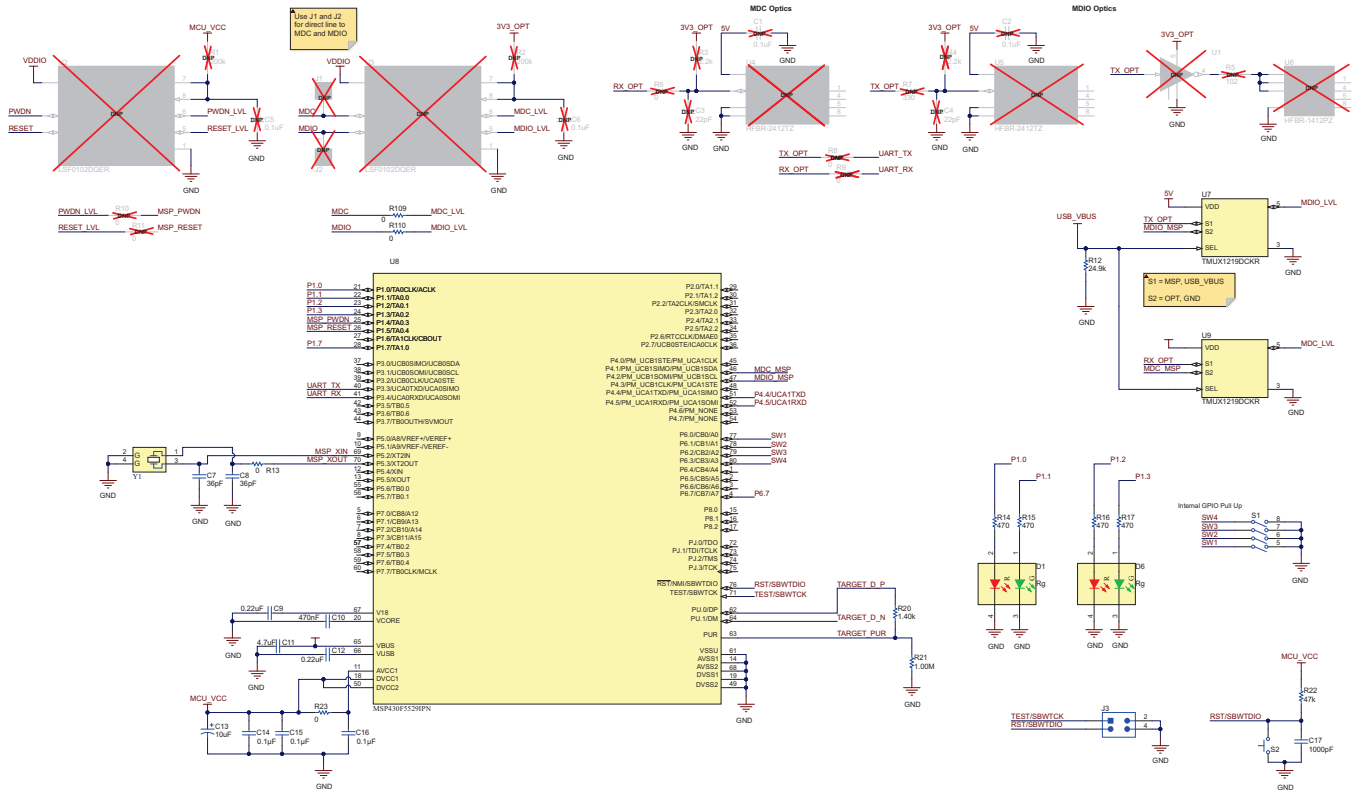


Figure 16. DP83826EVM MSP430 and SMI Schematic

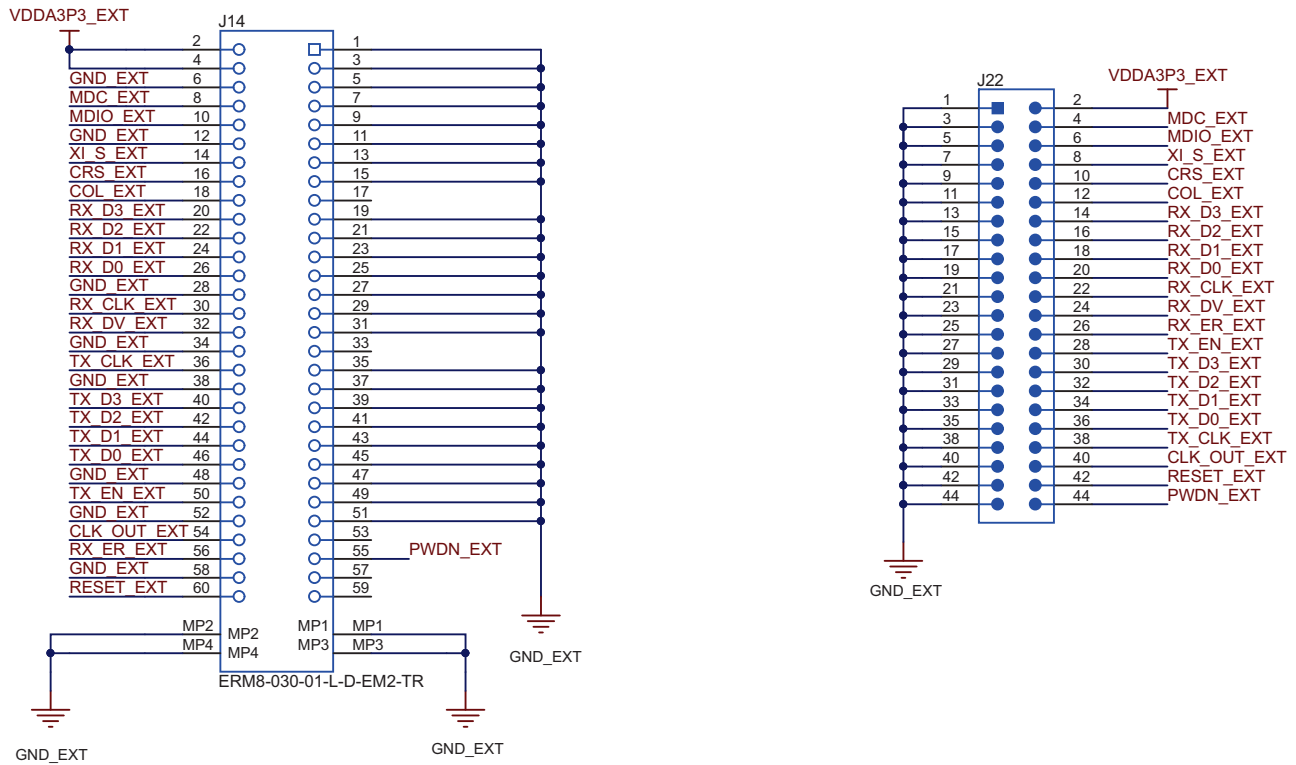


Figure 17. DP83826EVM Breakout Board Schematic

7 DP83826EVM BOM

Table 4. DP83826EVM BOM

Designator	Quantity	Value	Description	Package Reference	Part Number	Manufacturer
!PCB1	1		Printed Circuit Board		HSDC077	Any
C7, C8, C90, C91	4	36pF	CAP, CERM, 36 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	CL05C360JB5N NNC	Samsung Electro-Mechanics
C9, C12	2	0.22uF	CAP, CERM, 0.22 uF, 16 V, +80/-20%, Y5V, 0603	0603	C0603C224Z4V ACTU	Kemet
C10	1	0.47uF	CAP, CERM, 0.47 uF, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	GCM188R71C474KA55D	MuRata
C11	1	4.7uF	CAP, CERM, 4.7 uF, 35 V, +/- 10%, X5R, 0603	0603	C1608X5R1V475K080AC	TDK
C13, C85	2	10uF	CAP, TA, 10 uF, 35 V, +/- 10%, 0.125 ohm, SMD	7343-31	TPSD106K035R0125	AVX
C14, C15, C16, C47, C49, C57, C65	7	0.1uF	CAP, CERM, 0.1 uF, 10 V, +/- 10%, X7R, 0402	0402	C0402C104K8R ACTU	Kemet
C17, C83	2	1000pF	CAP, CERM, 1000 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	C1005NP01H102J050BA	TDK
C18	1	100uF	CAP, AL, 100 uF, 50 V, +/- 20%, SMD	HA0	EMVE500ADA101MHA0G	Chemi-Con
C19, C21	2	4.7uF	CAP, CERM, 4.7 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1210	1210	CGA6P3X7R1H475K250AB	TDK
C20, C22	2	0.22uF	CAP, CERM, 0.22 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	CGA3E3X7R1H224K080AB	TDK
C23	1	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	GCM155R71H104KE02D	MuRata
C24	1	22uF	CAP, CERM, 22 uF, 16 V, +/- 20%, X7R, AEC-Q200 Grade 1, 1210	1210	CGA6P1X7R1C226M250AC	TDK
C25	1	10uF	CAP, CERM, 10 uF, 25 V, +/- 20%, X7R, AEC-Q200 Grade 1, 1210	1210	CGA6P1X7R1E106M250AC	TDK

Table 4. DP83826EVM BOM (continued)

C26	1	1uF	CAP, CERM, 1 uF, 35 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	CGA3E1X7R1V105K080AC	TDK
C27, C28, C29, C30	4	22uF	CAP, CERM, 22 uF, 25 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1210	1210	TMK325B7226KMHP	Taiyo Yuden
C31, C37	2	1uF	CAP, CERM, 1 uF, 35 V, +/- 20%, X5R, 0402	0402	GRM155R6YA105ME11D	MuRata
C32, C35, C38, C41	4	10uF	CAP, CERM, 10 uF, 35 V, +/- 20%, X5R, 0603	0603	GRM188R6YA106MA73D	Murata
C33, C34, C39, C40	4	2.2uF	CAP, CERM, 2.2 uF, 16 V, +/- 10%, X6S, 0402	0402	GRM155C81C225KE11D	MuRata
C36, C42	2	470pF	CAP, CERM, 470 pF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	GCM155R71H471KA37D	MuRata
C43, C44	2	22pF	CAP, CERM, 22 pF, 50 V, +/- 5%, C0G/NP0, AEC-Q200 Grade 1, 0603	0603	CGA3E2C0G1H220J080AA	TDK
C45, C46, C55, C56	4	0.1uF	CAP, CERM, 0.1 uF, 10 V, +/- 10%, X7R, 0603	0603	C0603C104K8RACTU	Kemet
C48, C50	2	10uF	CAP, CERM, 10 uF, 6.3 V, +/- 20%, X5R, 0402	0402	CL05A106MQ5NUNC	Samsung Electro-Mechanics
C51, C53, C60	3	0.01uF	CAP, CERM, 0.01 uF, 16 V, +/- 10%, X7R, 0402	0402	885012205031	Wurth Elektronik
C52, C54	2	1uF	CAP, CERM, 1 uF, 10 V, +/- 20%, X5R, 0402	0402	CC0402MRX5R6BB105	Yageo America
C58, C59	2	1000pF	CAP, CERM, 1000 pF, 2000 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206	C1206C102KGRACAUTO	Kemet
C61	1	4700pF	CAP, CERM, 4700 pF, 2000 V, +/- 10%, X7R, 1812	1812	1812GC472KAT1A	AVX
C64	1	4.7uF	CAP, TA, 4.7 uF, 35 V, +/- 10%, 1.3 ohm, SMD	7343-31	293D475X9035D2TE3	Vishay-Sprague
C66, C67, C68, C69, C72, C73	6	22pF	CAP, CERM, 22 pF, 50 V, +/- 5%, C0G/NP0, 0402	0402	C1005NP01H220J050BA	TDK
C70, C71, C75, C76	4	10pF	CAP, CERM, 10 pF, 50 V, +/- 5%, C0G/NP0, 0603	0603	CGA3E2NP01H100D080AA	TDK
C74, C77, C78, C86, C87	5	0.1uF	CAP, CERM, 0.1 uF, 16 V, +/- 10%, X7R, 0402	0402	CL05B104KO5NUNC	Walsin

Table 4. DP83826EVM BOM (continued)

C79, C80	2	33pF	CAP, CERM, 33 pF, 50 V,+/- 5%, C0G/NP0, AEC-Q200 Grade 1, 0402	0402	GCM1555C1H330JA16D	MuRata
C81, C84	2	0.22uF	CAP, CERM, 0.22 µF, 50 V,+/- 10%, X5R, 0603	0603	CL10A224KB8N NNC	Samsung Electro-Mechanics
C82	1	0.47uF	CAP, CERM, 0.47 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0603	0603	CGA3E3X7R1H474K080AB	TDK
D1, D6	2	Rg	LED, Rg, SMD	1.6x0.8mm	HSMF-C165	Avago
D2, D3	2	60V	Diode, Schottky, 60 V, 1 A, AEC-Q101, SMA	SMA	NRVBA160T3G	ON Semiconductor
D4	1	Orange	LED, Orange, SMD	1x0.5mm	APHHS1005SECK	Kingbright
D5, LD1, LD2, LD3, LD4, LD5, LD6	7	Green	LED, Green, SMD	2x1.25mm	QTLPL630C4TR	Everlight
F1	1		Fuse, 3 A, 63VAC/VDC, SMD	7.4x3.1mm	3402.0014.11	Schurter
H1, H2, H3, H4	4		Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead	Screw	NY PMS 4400025 PH	B&F Fastener Supply
H5, H6, H7, H8	4		Standoff, Hex, 1"L #4-40 Nylon	Standoff	1902E	Keystone
J3, J20	2		Header, 100mil, 2x2, Gold, TH	2x2 Header	TSW-102-07-G-D	Samtec
J4, J5	2		Terminal, Turret, TH, Double	Keystone1502-2	1502-2	Keystone
J6, J7, J8, J9	4		Header, 100mil, 2x1, Tin, TH	Header, 2 PIN, 100mil, Tin	PEC02SAAN	Sullins Connector Solutions
J10, J11, J12, J13, J23	5		Header, 1x1, Tin, TH	Header, 1x1	PEC01SAAN	Sullins Connector Solutions
J14	1		Receptacle, 0.8mm, 30x2, Tin, Edge mount	Receptacle, 0.8mm, 30x2, Edge mount	ERM8-030-01-L-D-EM2-TR	Samtec
J15, J21	2		Standard Banana Jack, Uninsulated, 5.5mm	Keystone_575-4	575-4	Keystone
J17	1		RJ45, 1.27mm, R/A, Gold, TH	RJ-45, 1.27mm, R/A, TH	SS-7188S-A-NF	Stewart Connector
J18	1		Receptacle, 0.8mm, 30x2, Gold, Edge Mount	Receptacle, 0.8mm, 30x2, Edge Mount	ERF8-030-01-L-D-EM2-TR	Samtec
J19	1		Connector, Receptacle, Micro-USB Type AB, R/A, Bottom Mount SMT	5.6x2.5x8.2mm	475890001	Molex
J22	1		Header, 2.54mm, 22x2, Gold, TH	Header, 2.54mm, 22x2, TH	TSW-122-07-G-D	Samtec

Table 4. DP83826EVM BOM (continued)

L1	1	10uH	Inductor, Shielded, Ferrite, 10 uH, 2.75 A, 0.128 ohm, SMD	Inductor, 5.7x2.8x5.2mm	SRP5030T-100M	Bourns
R12, R26	2	24.9k	RES, 24.9 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW060324K9FKEA	Vishay-Dale
R13, R23	2	0	RES, 0, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04020000Z0ED	Vishay-Dale
R14, R15, R16, R17, R49	5	470	RES, 470, 5%, 0.05 W, 0201	0201	RC0201JR-07470RL	Yageo America
R20, R77	2	1.40k	RES, 1.40 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021K40FKED	Vishay-Dale
R21, R81	2	1.00Meg	RES, 1.00 M, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021M00FKED	Vishay-Dale
R22, R79, R93	3	47k	RES, 47 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040247K0JNED	Vishay-Dale
R24	1	0	RES, 0, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	RMCF0603ZT0R00	Stackpole Electronics Inc
R25	1	100k	RES, 100 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW0603100KFKEA	Vishay-Dale
R27, R32	2	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ-3GEY0R00V	Panasonic
R28, R33	2	100k	RES, 100 k, 0.5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402100KDHEDP	Vishay-Dale
R29, R34, R53, R55, R57, R58, R86, R87	8	470	RES, 470, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402470RJNED	Vishay-Dale
R31, R36	2	165k	RES, 165 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402165KFKED	Vishay-Dale
R37, R40, R78, R96, R97, R98, R99, R100, R101, R102, R103, R104	12	0	RES, 0, 5%, 0.05 W, 0201	0201	CRCW02010000Z0ED	Vishay-Dale
R38, R94, R95	3	0	RES, 0, 5%, 0.063 W, 0402	0402	RC0402JR-070RL	Yageo America
R41, R88	2	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	CRCW06030000Z0EA	Vishay-Dale
R43, R44, R45, R46	4	75.0	RES, 75.0, 1%, 0.125 W, AEC-Q200 Grade 0, 0805	0805	CRCW080575R0FKEA	Vishay-Dale

Table 4. DP83826EVM BOM (continued)

R47	1	2.2k	RES, 2.2 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K20 JNED	Vishay-Dale
R48	1	6.49k	RES, 6.49 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04026K49 FKED	Vishay-Dale
R51	1	1.00Meg	RES, 1.00 M, 1%, 1 W, 2010	2010	HVCB2010FKC1 M00	Stackpole Electronics Inc
R54, R56, R59, R60	4	2.49k	RES, 2.49 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04022K49 FKED	Vishay-Dale
R61, R106	2	1.50k	RES, 1.50 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04021K50 FKED	Vishay-Dale
R62	1	10k	RES, 10 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0 JNED	Vishay-Dale
R63, R66, R76, R80	4	27	RES, 27, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040227R 0JNED	Vishay-Dale
R64, R65, R67, R68, R71, R72	6	22	RES, 22, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040222R 0JNED	Vishay-Dale
R69, R70, R73, R74, R82, R83, R84, R85	8	15.0k	RES, 15.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040215K0 FKED	Vishay-Dale
R75	1	33	RES, 33, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040233R 0JNED	Vishay-Dale
R89	1	240k	RES, 240 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402240K JNED	Vishay-Dale
R90, R92	2	220k	RES, 220 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402220K JNED	Vishay-Dale
R91	1	150k	RES, 150 k, 5%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402150K JNED	Vishay-Dale
R109, R110	2	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ-2GE0R00X	Panasonic
S1	1		Switch, Slide, SPST 4 poles, SMT	SW, SMT Half Pitch 4SPST, 5.8x2.7x6.25 mm	218-4LPST	CTS Electrocomponents
S2, S3	2		Switch, Normally open, 2.3N force, 200k operations, SMD	KSR	KSR221GLFS	C&K Components

Table 4. DP83826EVM BOM (continued)

SH-J1, SH-J2, SH-J3, SH-J4	4		Single Operation 2.54mm Pitch Open Top Jumper Socket	Single Operation 2.54mm Pitch Open Top Jumper Socket	M7582-05	Harwin
T1	1		Coupled inductor, 5 A, 0.01 ohm, SMD	9x7mm	ACM9070-701- 2PL-TL01	TDK
T2	1	350uH	Transformer, 350 uH, SMT	12.7x9.09mm	HX1188FNLT	Pulse Engineering
U8	1		25 MHz Mixed Signal Microcontroller with 128 KB Flash, 8192 B SRAM and 63 GPIOs, -40 to 85 degC, 80-pin QFP (PN), Green (RoHS & no Sb/Br)	PN0080A	MSP430F5529IP N	Texas Instruments
U10	1		3.8-V to 36-V 2- A Synchronous Step-Down Voltage Regulator, RNX0012B (VQFN-HR-12)	RNX0012B	LMR33620ARNX T	Texas Instruments
U11, U12	2		Single Output Low Noise LDO, 500 mA, Adjustable 1.3 to 6.5 V Output, 2.5 to 16 V Input, 8- pin SOIC (D), -40 to 125 degC, Green (RoHS & no Sb/Br)	D0008A	TL5209DR	Texas Instruments
U13	1		4-Channel Ultra- Low- Capacitance IEC ESD Protection Diode, DQA0010A (USON-10)	DQA0010A	TPD4E05U06DQ AR	Texas Instruments
U14	1		DP83826ERHB, RHB0032M (VQFN-32)	RHB0032M	DP83826ERHB	Texas Instruments
U15	1		4-Port Full- Speed USB Hub, 3.3V, -40 to 85 degC, 32-Pin QFN (RHB), Green (RoHS & no Sb/Br)	RHB0032E	TUSB2046BIRH BT	Texas Instruments
U16	1		16-Bit Ultra-Low- Power Microcontroller, 128KB Flash, 8KB RAM, USB, 12Bit ADC, 2 USCs, 32Bit HW MPY, RGC0064B (VQFN-64)	RGC0064B	MSP430F5528IR GCR	Texas Instruments

Table 4. DP83826EVM BOM (continued)

XF1	1		FUSE HLDR CARTRIDGE 125V 5A SMD	12x5.2mm	0031.7701.11	Schurter
XTAL1	1		Crystal, 25 MHz, 20 ppm, AEC- Q200 Grade 1, SMD	2.5x3.2mm	ECS-250-12- 33Q-JES-TR	ECS Inc.
Y1, Y3	2		Crystal, 24 MHz, 20pF, SMD	3.2x2.5mm	ECS-240-20-33- DU-TR	ECS Inc.
Y2	1		Resonator, 6 MHz, 15pF SMD	4.5x1.2x2 mm	CSTCR6M00G5 3Z-R0	MuRata
C1, C2, C5, C6	0	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, AEC- Q200 Grade 1, 0402	0402	GCM155R71H10 4KE02D	MuRata
C3, C4	0	22pF	CAP, CERM, 22 pF, 50 V, +/- 5%, C0G/NP0, AEC- Q200 Grade 1, 0603	0603	CGA3E2C0G1H 220J080AA	TDK
C62, C63	0	4700pF	CAP, CERM, 4700 pF, 2000 V, +/- 10%, X7R, 1812	1812	1812GC472KAT 1A	AVX
FID1, FID2, FID3, FID4, FID5, FID6	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
J1, J2	0		Header, 1x1, Tin, TH	Header, 1x1	PEC01SAAN	Sullins Connector Solutions
J16	0		SMA Straight PCB Socket Die Cast, 50 Ohm, TH	SMA Straight PCB Socket Die Cast, TH	5-1814832-1	TE Connectivity
R1, R2	0	200k	RES, 200 k, 5%, 0.1 W, AEC- Q200 Grade 0, 0603	0603	CRCW0603200K JNEA	Vishay-Dale
R3, R4	0	2.2k	RES, 2.2 k, 5%, 0.1 W, AEC- Q200 Grade 0, 0603	0603	ERJ- 3GEYJ222V	Panasonic
R5	0	102	RES, 102, 1%, 0.1 W, AEC- Q200 Grade 0, 0603	0603	CRCW0603102 RFKEA	Vishay-Dale
R6, R30, R35	0	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0603	0603	ERJ- 3GEY0R00V	Panasonic
R7	0	330	RES, 330, 5%, 0.1 W, AEC- Q200 Grade 0, 0603	0603	CRCW0603330 RJNEA	Vishay-Dale
R8, R9, R10, R11	0	0	RES, 0, 5%, 0.1 W, AEC-Q200 Grade 0, 0402	0402	ERJ-2GE0R00X	Panasonic
R18, R19, R42, R107, R108	0	0	RES, 0, 5%, 0.05 W, 0201	0201	CRCW02010000 Z0ED	Vishay-Dale
R39	0	1.00Meg	RES, 1.00 M, 1%, 0.063 W, 0402	0402	RC0402FR- 071ML	Yageo America

Table 4. DP83826EVM BOM (continued)

R50, R105	0	2.2k	RES, 2.2 k, 5%, 0.05 W, 0201	0201	CRCW02012K20 JNED	Vishay-Dale
R52	0	1.00Meg	RES, 1.00 M, 1%, 1 W, 2010	2010	HVCB2010FKC1 M00	Stackpole Electronics Inc
U1	0		Automotive Catalog Single Inverter, DBV0005A, LARGE T&R	DBV0005A	SN74LVC1G04Q DBVRQ1	Texas Instruments
U2, U3	0		Dual Bidirectional Multi-Voltage Level Translator, DQE0008A (X2SON-8)	DQE0008A	LSF0102DQER	Texas Instruments
U4, U5	0		Fiber Optic Receiver 5MBd, TH	12.7x27.2mm	HFBR-2412TZ	Broadcom Limited
U6	0		Fiber Optic Transmitter 820nm, TH	12.7x27.2mm	HFBR-1412PZ	Broadcom Limited

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2020, Texas Instruments Incorporated