Eval-2ED3146MC12L-SiC

Evaluation board description and getting started guide

About this document

Scope and purpose

This user guide is intended to introduce and provide an overview of the gate driver evaluation board Eval-2ED3146MC12L-SiC with the 2ED3146MC12L gate driver integrated circuits (IC), including the functionality and key features of the Infineon EiceDRIVER™ 2ED3146MC12L gate driver IC family.

The Eval-2ED3146MC12L-SiC board is designed to evaluate the functionality and capability of 2ED3146MC12L gate driver ICs.

This user guide presents only key features of the gate driver, and the datasheet should be consulted to ensure the full functionality and flexibility of the 2ED3146MC12L gate driver and Eval-2ED3146MC12L-SiC.

Intended audience

This document is intended for all technical specialists who want to evaluate the functionality, performance, and features of 2ED3146MC12L gate driver ICs. The evaluation board is intended to be used under laboratory conditions only by trained specialists.

It is a prerequisite to read the datasheet of the 2ED3146MC12L to become familiar with the parameters of the gate driver.

Evaluation Board

This board is to be used during the design-in process for evaluating and measuring characteristic curves, and for checking datasheet specifications.

Note: PCB and auxiliary circuits are NOT optimized for final customer design.

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Safety precautions

Note: Please note the following warnings regarding the hazards associated with development systems.

Table 1 Safety precautions

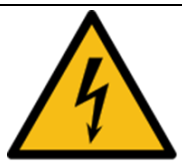	**Warning:** *The DC link potential of this board is up to 900 VDC. When measuring voltage waveforms by oscilloscope, high voltage differential probes must be used. Failure to do so may result in personal injury or death.*
	**Warning***: The evaluation board contains DC bus capacitors which take time to discharge after removal of the main supply. Before working on the drive system, wait five minutes for capacitors to discharge to safe voltage levels. Failure to do so may result in personal injury or death. Darkened display LEDs are not an indication that capacitors have discharged to safe voltage levels.*
	**Warning:** *Remove or disconnect power from the drive before you disconnect or reconnect wires, or perform maintenance work. Wait five minutes after removing power to discharge the bus capacitors. Do not attempt to service the drive until the bus capacitors have discharged to zero. Failure to do so may result in personal injury or death.*
	**Caution:** *Only personnel familiar with the drive, power electronics and associated machinery should plan, install, commission and subsequently service the system. Failure to comply may result in personal injury and/or equipment damage.*
	**Caution:** *The evaluation board contains parts and assemblies sensitive to electrostatic discharge (ESD). Electrostatic control precautions are required when installing, testing, servicing or repairing the assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with electrostatic control procedures, refer to the applicable ESD protection handbooks and guidelines.*
	**Caution:** *A drive that is incorrectly applied or installed can lead to component damage or reduction in product lifetime. Wiring or application errors such as undersizing the motor, supplying an incorrect or inadequate AC supply, or excessive ambient temperatures may result in system malfunction.*
	**Caution:** *The evaluation board is shipped with packing materials that need to be removed prior to installation. Failure to remove all packing materials that are unnecessary for system installation may result in overheating or abnormal operating conditions.*

Table of contents

1 The board at a glance

The Eval-2ED3146MC12L-SiC evaluation board is designed to be used by design engineers to evaluate the 2ED3146MC12L EiceDRIVER™ isolated gate driver IC in a half-bridge configuration. The evaluation board can be used to evaluate other pin-compatible ICs from the EiceDRIVER™ 2ED314xMC12L gate driver family by replacing the gate driver IC.

The board comes with two Infineon IMZA120R020M1H CoolSiC™ 1200 V SiC Trench MOSFETs in a TO247-4 package, assembled on the PCB, as seen in Figure 1. These switches can be substituted by any other desired switches, such as Infineon IGBTs, CoolSiC™ or CoolMOS™ transistors.

Details about the EiceDRIVER™ 2ED3146MC12L can be found on our product pages at *https://www.infineon.com/gdisolated* or by using the product search.

The board has a size of 100 × 65 × 25 mm^3 with power switches assembled. As the board was designed for non-continuous evaluation, such as double-pulse testing, special consideration should be taken regarding the current capabilities of the power tracks and to ensure proper cooling of the power switches. It is also recommended to add additional high-voltage bulk capacitors at the high-voltage input.

The board has a galvanically isolated on-board power supply which generates the output side positive and negative power supply voltages for the high-side and low-side channels. This power supply is designed with the transformer driver IC EiceDRIVER™ Power 2EP130R. Detailed information on the design of gate driver isolated power supply with the 2EP130R for SiC MOSFETs can be found in the user guide of the evaluation board EVAL-2EP130R-PR-SiC. The board is designed such that it is possible to deactivate the on-board power supply and the channels can be supplied externally. Additionally, a linear regulator circuit generates the 3.3 V or 5 V for the input supply voltage of the gate driver. Thus, all the supply voltages required for evaluation of the gate driver are generated on the board.

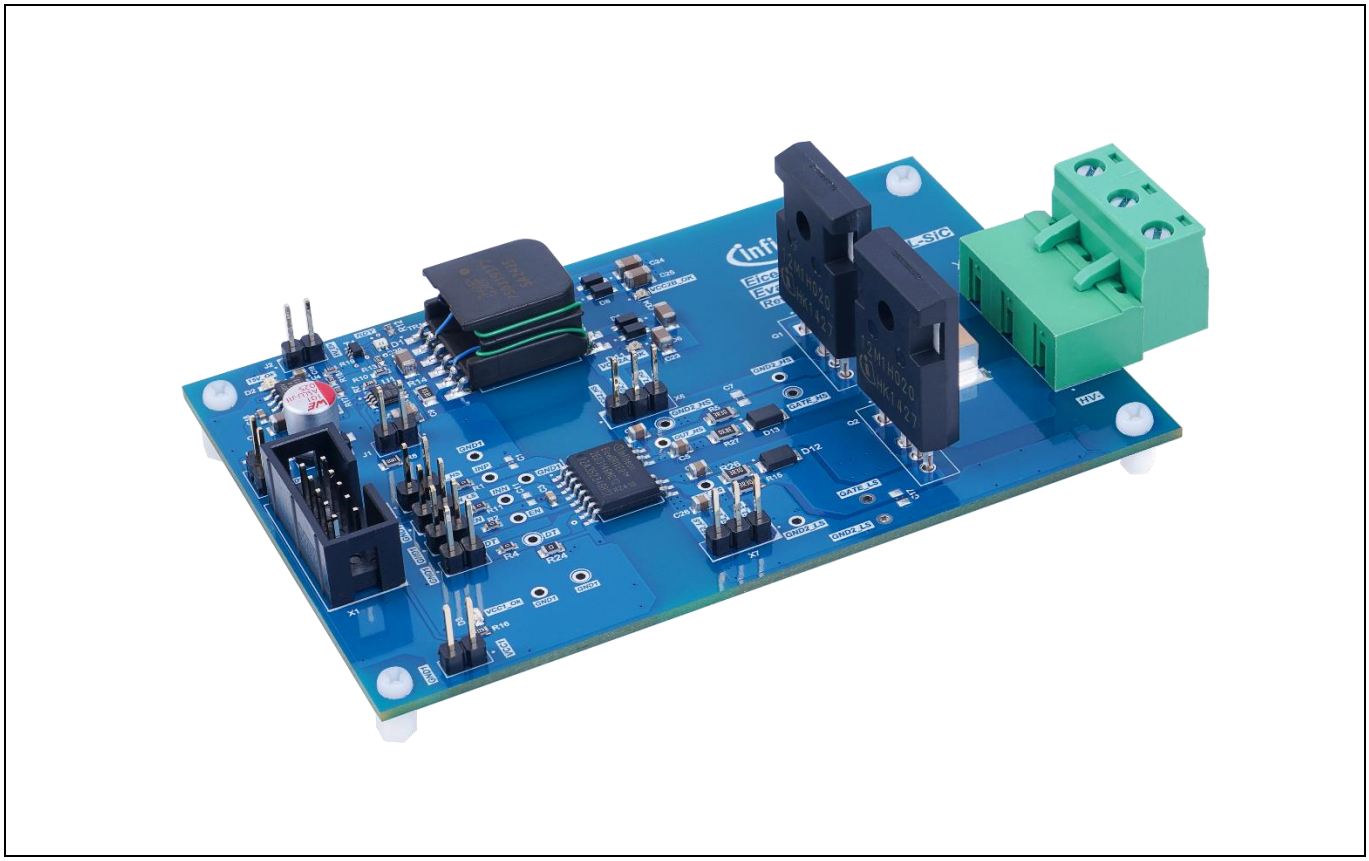

Figure 1 Eval-2ED3146MC12L-SiC evaluation board

1.1 Scope of supply

The delivery contains:

- The evaluation board Eval-2ED3146MC12L-SiC
- One jumper cable to activate the *EN* pin of the gate driver IC, attached to the board
- One screw terminal block plug connector, fitted in the main power connector

1.2 Block diagram

Figure 2 shows the block diagram of the Eval-2ED3146MC12L-SiC evaluation board.

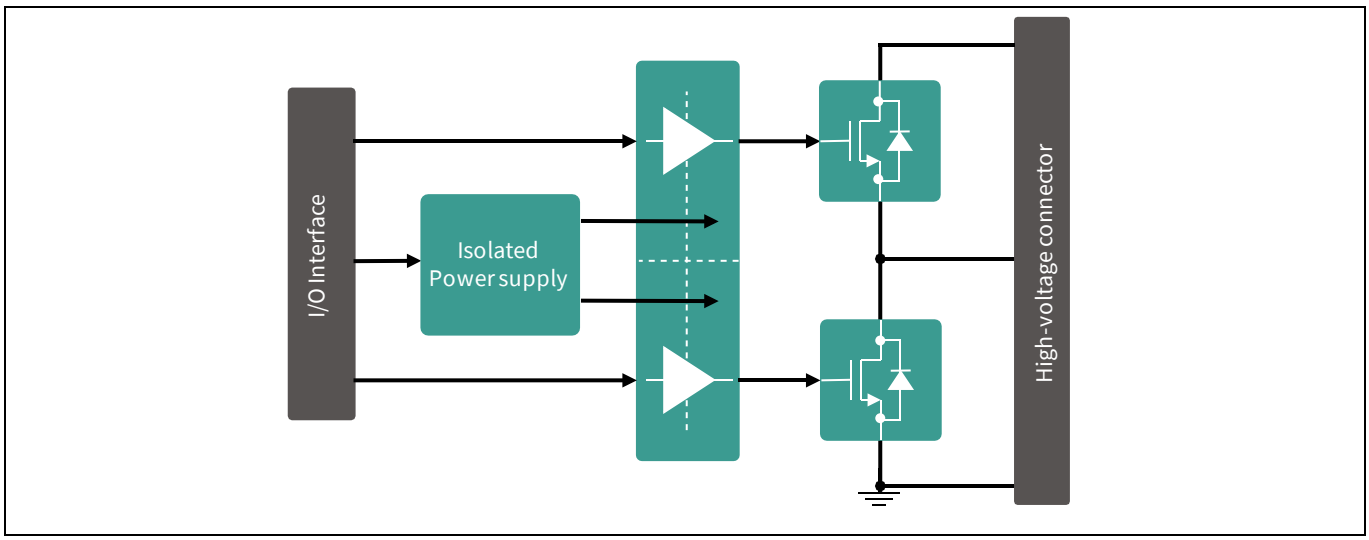

Figure 2 Eval-2ED3146MC12L-SiC evaluation board block diagram

1.3 Main features

The Eval-2ED3146MC12H-SiC is an evaluation board for the 2ED3146MC12L gate driver ICs. It is designed in a half-bridge configuration with a 900 V maximum blocking capability across the power terminals. The board is designed for easy measurement and configuration of the gate driver parameters, and the main features of the board and gate driver include:

- 35 V absolute maximum output supply voltage
- ± 6.5 A typical output current
- Separate source and sink output for optimized gate driving
- Active shutdown
- Very high common-mode transient immunity *CMTI* > 200 kV/µs
- 39 ns typical propagation delay
- 5 ns channel-to-channel propagation delay matching
- 3.3 V and 5 V input supply voltage
- PG-DSO-14 wide body package with > 8 mm creepage
- Gate driver safety certification:
    - UL 1577 recognized with $V_{ISO,test}$ = 6840 V (rms) for 1 s, V_{ISO} = 5700 V (rms) for 60 s
    - Reinforced isolation as per IEC 60747-17 with V_{IORM} = 1767 V (planned)

- Infineon IMZA120R020M1H CoolSiC™ 1200 V SiC Trench MOSFETs in PG-TO247-4

The on-board isolated power supply is designed with the 2EP130R transformer driver IC. The main features of 2EP130R are:

- Wide input voltage range 4.5 V to 20 V
- Wide range of switching frequency from 50 kHz to 695 kHz
- High accuracy duty cycle adjustment from 10% to 50%
- Peak-current controlled soft-start
- Over-current and over-temperature protection
- Ready signal to indicate successful completion of soft-start

1.4 Board parameters and technical data

The absolute maximum ratings are summarized in Table 2.

Table 2 Absolute maximum ratings

Parameter/Pin	Symbol	Type	Conditions/Notes	Value	Unit
Diode protected isolated power supply input voltage	*15V*	IN	Referenced to *GND1*	-0.3 … 18	V
Input side supply voltage	*VCC1*	IN/OUT	Referenced to *GND1*	-0.3 … 17	V
Positive input for low-side channel	*IN_LS*	IN	Referenced to *GND1*	-0.3 … 17	V
Positive input for high-side channel	*IN_HS*	IN	Referenced to *GND1*	-0.3 … 17	V
Ready output for power supply	*RDY*	OUT	Ready state of the on-board power supply circuit	-0.3 … 7	V
Gate driver activation	*EN*	IN	Referenced to *GND1*	-0.3 … 17	V
Deadtime control	*DT*	IN	Referenced to *GND1*	-0.3 … V_{VCC1} + 0.3	V
Clock signal for bypass mode of power supply	*PWM_PSU*	IN	Referenced to *GND1*	-0.3 … 7	V
Reserved	.res		Reserved for future use		
DC-link voltage	*HV+*	IN	Referenced to HV- power terminal. Limited by component ratings and design clearances. For voltages above 42 V, special safety measures should be taken	-0.2 … 900	V
Half-bridge mid-point connection	*PHASE*	IN/OUT	Midpoint connection for the half-bridge	-0.2 … 900	V
High power ground terminal	*HV-*	IN	Ground connection for the high-power connection	-	-
Output side positive supply voltages	*VCC2_HS* / *VCC2_LS*	IN/OUT	Referenced to *VEE2_HS* / *VEE2_LS*. Not to be used with on-board power supply	-0.3 … 35	V

Parameter/Pin	Symbol	Type	Conditions/Notes	Value	Unit
Output side negative supply voltages	*VEE2_HS / VEE2_LS*	IN/OUT	Referenced to *GND2_HS / GND2_LS*. Not to be used with on-board power supply	-35 … 0.3	V
Phase peak current	I_{out}		Pulse current	100	A
Pulse width	t_{pulse}		Maximum ON pulse length for double-pulse tests. Power dissipation should be considered	100	µs
Switching frequency	f_{sw}		Maximum switching frequency for continuous operation. Power dissipation should be considered	100	kHz

The recommended operating conditions are summarized in Table 3.

Table 3 Recommended operating conditions and supply for 3.3 V

Parameter/Pin	Symbol	Conditions/Notes	Value			Unit
			Min.	Typ.	Max	
Isolated power supply input voltage	*15V*	Referenced to *GND1*	14.5	15.3	16	V
Input side supply voltage	*VCC1*	Referenced to *GND1*	3.2	3.3	3.5	V
Positive input for low-side channel	*IN_LS*	Referenced to *GND1*	0	V_{VCC1}	V_{VCC1} + 0.1	V
Positive input for high-side channel	*IN_HS*	Referenced to *GND1*	0	V_{VCC1}	V_{VCC1} + 0.1	V
Gate driver activation	*EN*	Referenced to *GND1*	0	V_{VCC1}	V_{VCC1} + 0.1	V
Deadtime control	*DT*	Referenced to *GND1*	0		1.2	V
DC-link voltage	*HV+*	Referenced to *HV-* power terminal. Limited by component ratings and design clearances. For voltages above 42 V, special safety measures should be taken	25	-	800	V
Output side positive supply voltages	*VCC2_HS/ VCC2_LS*	Referenced to *GND2_HS / GND2_LS*. Not to be used with on-board power supply	15	18	20	V
Output side negative supply voltages	*VEE2_HS/ VEE2_LS*	Referenced to *GND2_HS / GND2_LS*. Not to be used with on-board power supply	-5	-3	0	V

2 System and functional description

2.1 Getting started

The Eval-2ED3146MC12L-SiC is optimized to be used with both 5 V and 3.3 V voltages for the input side supply of the gate driver, *VCC1*. The board also has a linear power supply circuit that generates a 5 V or 3.3 V required for the input side voltage, *VCC1*. By default, the linear power supply generates 3.3V, but if the jumper J2 is shorted, it will generate 5 V at the output.

However, it is important to note that the threshold values for the primary-side input signals are independent of the *VCC1* supply voltage.

It is recommended to use the board with the on-board isolated power supply for the output side supply voltages of the high-side and low-side channels. For a nominal input voltage of +15.3 V, this power supply will provide a bipolar +18 V/-2.6 V supply voltage for the output sides for both the high-side and the low-side channels.

2.1.1 Prerequisites

- Assembled external high-voltage decoupling capacitor (> 100 µF) across the high-voltage power terminals: X10 (*HV* and *HV-*)
- Low voltage power supply for supplying the input-side power supply circuit, capable of supplying > 15 V, 100 mA: X4 (*15V* and *GND1*)
- Suitable function generator for double-pulse signal generation
- High-voltage power supply for supplying the power stage: X10 (*HV+* and *HV-*)
- A suitable inductive load for double-pulse testing

2.1.2 Power-up sequence with the on-board power supply

1. Connect the double-pulse signal generator to the Eval-2ED3146MC12L-SiC input pins. For evaluating the low-side switching capability, connect the signal generator to the connector X9 (*IN_LS* and *GND1*) and short the pins on the connector X3 (*IN_HS* and *GND1*). For evaluation of the high-side switching capability, connect the signal generator to X3 (*IN_HS* and *GND1*) and short X2 (*IN_LS* and *GND1*).
2. Connect one end of the inductive load to terminal X10 (*PHASE*) and the other end, depending on the double-pulse test requirements, to either X10 (*HV+*) for the low-side testing or X10 (*HV-*) for the high-side testing.
3. Supply the isolated power supply input voltage at connector X4 (*15V* and *GND1*) with 15.3 V.
4. The default input side supply voltage for the gate driver is 3.3 V. This can be changed to 5 V by shorting the jumper J2 (*5V_EN*).
5. The default rail-to-rail output voltage of the on-board power supply is 20.6 V. This voltage is split into positive rail voltage of 18 V and negative rail voltage -2.6 V for the driver channels. It is possible to change the ratio of the positive and negative rail voltages by changing the duty cycle resistor R8. Detailed information on splitting the rail voltage can be found in the datasheet of 2EP130R.
6. The rail-to-rail output voltage of the isolated power supply can be increased or decreased by changing the input voltage of the power supply.
7. The green LEDs D2 (*15V*), D3 (*VCC1_OK*), D1 (*RDY*), D11 (*VCC2A_OK*), D4 (*VCC2B_OK*) will turn on indicating that the power supply circuit is ready and all the supply voltages for the gate driver are available.
8. Connect the high voltage power supply to the connector X10 (*HV+*) and X10 (*HV-*)
9. Connect the X2 (*EN*) to X5 (*VCC1*) to enable the driver using the provided jumper (if not already connected).
10. The board is now ready for double-pulse evaluation.

2.1.3 Power-up sequence with external supply voltages

1. Connect the double-pulse signal generator to the Eval-2ED3146MC12L-SiC input pins. For evaluating the low-side switching capability, connect the signal generator to the connector X9 (*IN_LS* and *GND1*) and short the pins on the connector X3 (*IN_HS* and *GND1*). For evaluation of the high-side switching capability, connect the signal generator to X3 (*IN_HS* and *GND1*) and short X9 (*IN_LS* and *GND1*).
2. Connect one end of the inductive load to terminal X10 (*PHASE*) and the other end, depending on the double-pulse test requirements, to either X10 (*HV+*) for the low-side testing or X10 (*HV-*) for the high-side testing.
3. Deactivate the on-board power supply by shorting the solder jumper J1 and connecting pin X1 (*PWM_PSU*) to X1 (*GND1*).
4. Supply the isolated power supply input voltage at connector X4 (*15V*) and X4 (*GND1*) with 15 V. (This is required to generate the input supply voltage for the gate driver).
5. The default input side supply voltage for the gate driver is 3.3 V. This can be changed to 5 V by shorting the jumper J2 (*5V_EN*).
6. Supply the gate driver output supply voltages externally through the connector X6 (*VCC2_HS*, *GND2_HS* and *VEE2_HS*) for the high-side channel and through X7 (*VCC2_LS*, *GND2_LS* and *VEE2_LS*) for the low-side channel. Please note that the supply voltages for the high-side and the low-side channels should be functionally isolated from each other.
7. The green LEDs D2 (*15V*), D3 (*VCC1_OK*), D11 (*VCC2A_OK*), D4 (*VCC2B_OK*) will turn on indicating that all the supply voltages for the gate driver are available. The red LED D1 (*RDY*) will turn on to indicate that the on-board power supply is deactivated.
8. Connect the high-voltage power supply to the connector X10 (*HV+*) and X10 (*HV-*).
9. Connect the X2 (*EN*) to X5 (*VCC1*) to enable the driver using the provided jumper (if not already connected).
10. The board is now ready for double-pulse evaluation.

2.2 Example: Normal operation with on-board power supply

Figure 3 shows the ramp-up of the output supply voltages of the low-side channel at startup. The positive supply voltage and the negative supply voltage reach 18 V and -2.6 V, respectively after the soft-start.

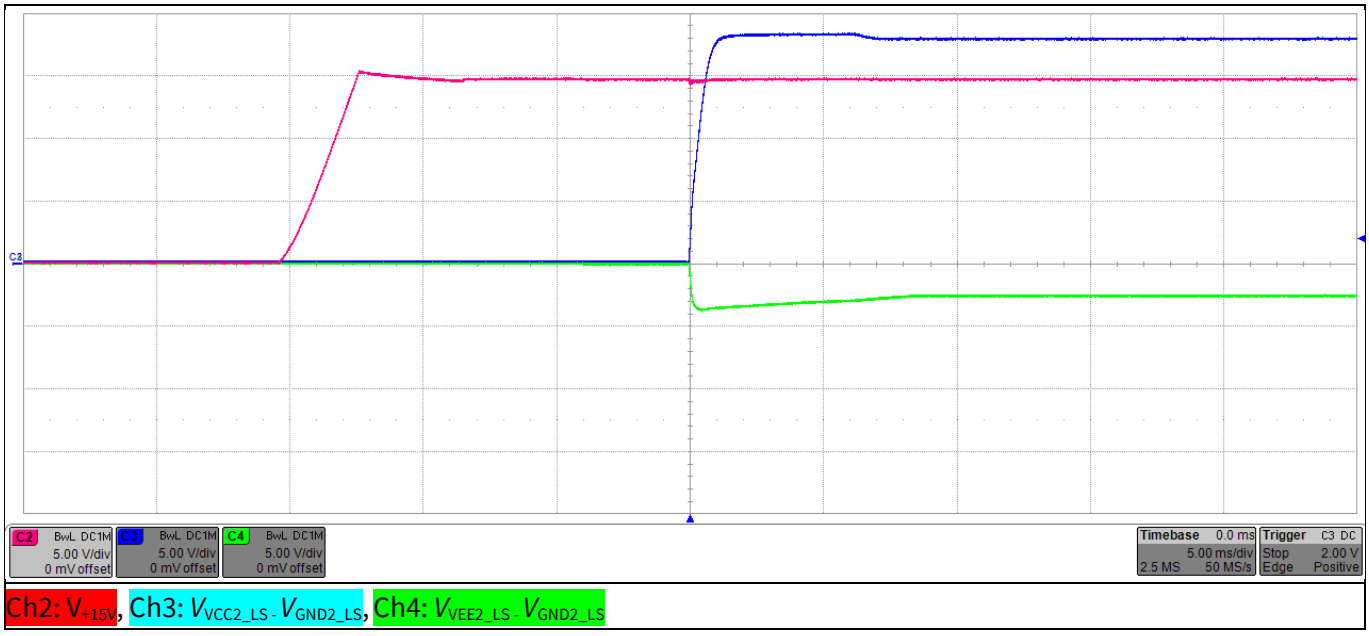

Figure 3 Eval-2ED3146MC12L-SiC – Power supply voltages startup

Figure 4, Figure 5 and Figure 6 show the Eval-2ED3146MC12L-SiC in a typical double-pulse test of the low-side CoolSiC™ MOSFET. The board was supplied with 800 V between terminals X10 (*HV+*) and X10 (*HV-*). A 200 µH load inductor was connected in parallel with the high-side CoolSiC™ MOSFET, between terminals X10 (*HV+*) and X10 (*PHASE*). The drain current I_d, the gate-source voltage V_{GS} and the gate-drain voltage V_{DS} of the low-side CoolSiC™ SiC MOSFET are shown. At the end of first pulse, the drain current, $I_{D,}$ is 60 A.

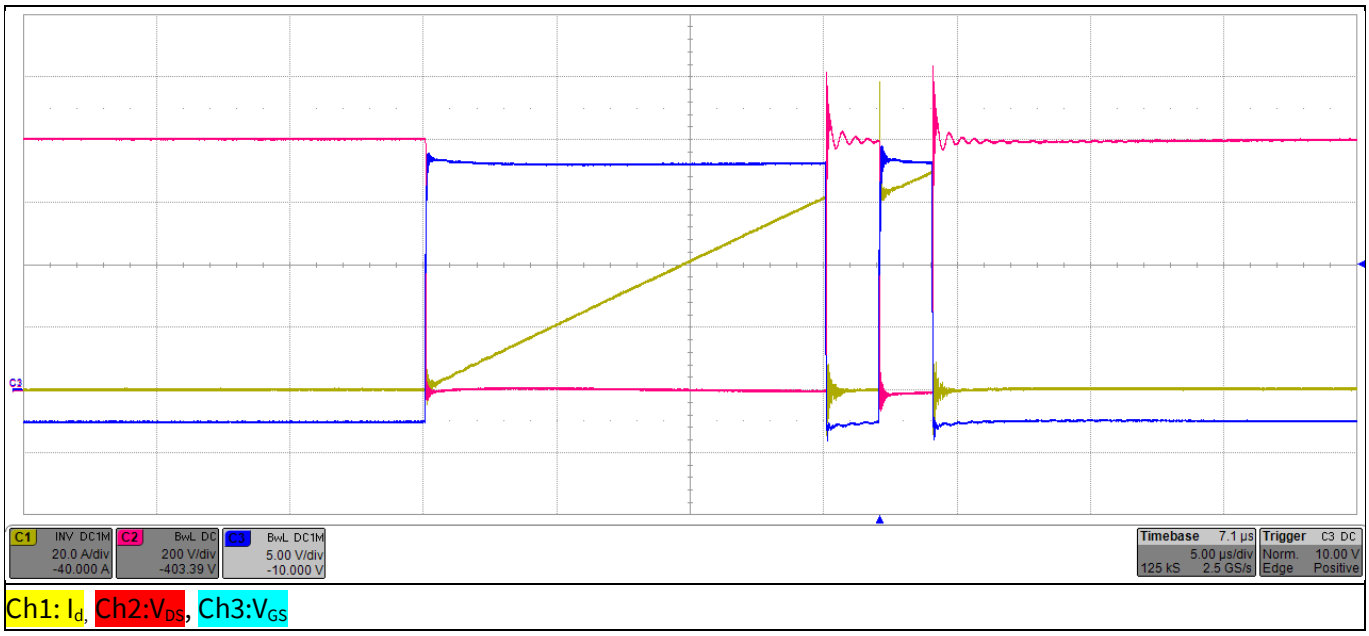

Figure 4 Eval-2ED3146MC12L-SiC – Double-pulse test of the low-side CoolSiC™ MOSFET

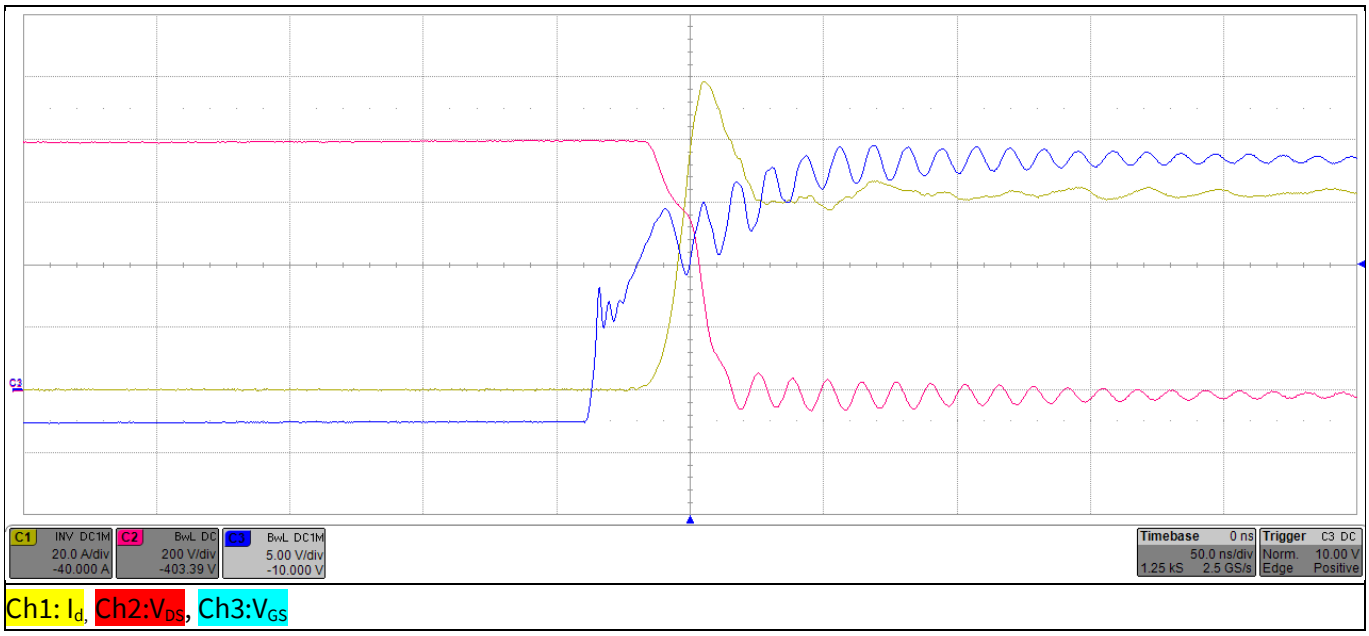

Figure 5 Eval-2ED3146MC12L-SiC – Turn-on of the low-side CoolSiC™ MOSFET

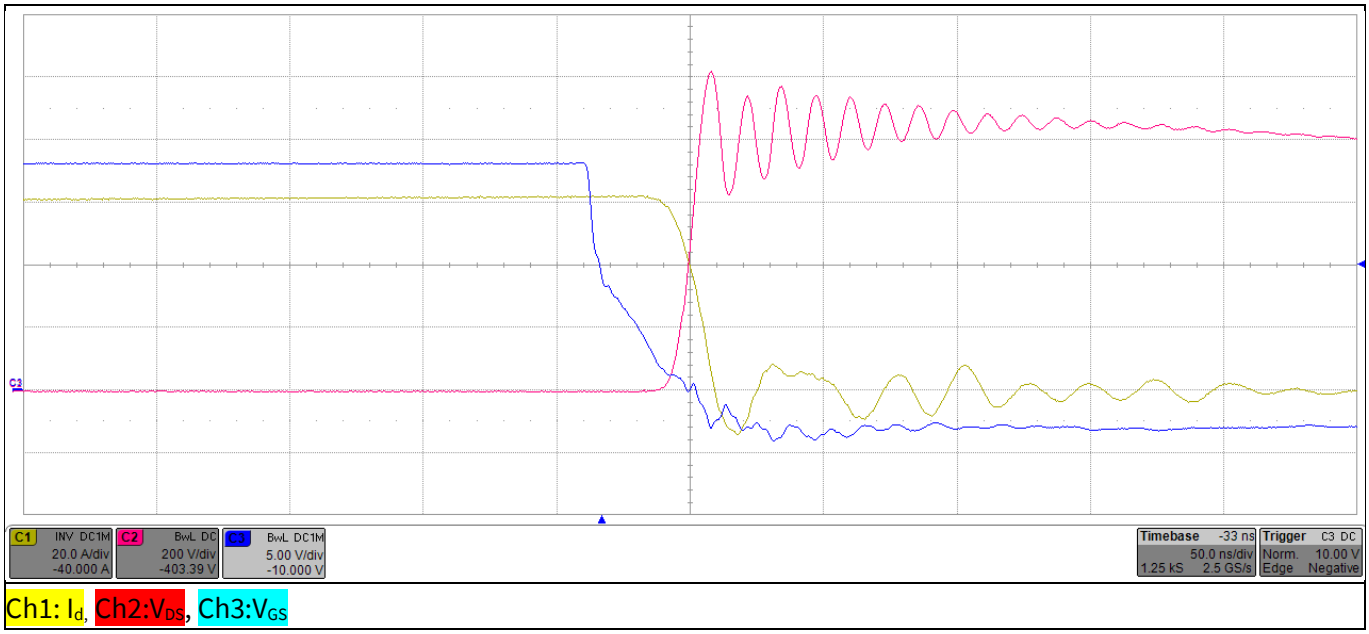

Figure 6 Eval-2ED3146MC12L-SiC – Turn-off of the low-side CoolSiC™ MOSFET

3 System design

The Eval-2ED3146MC12L-SiC evaluation board is designed to evaluate the EiceDRIVER™ 2ED3146MC12L X3-compact family gate driver ICs. To support the customer in getting started with the design, the schematics, Gerber data and Altium project files can be found on the evaluation board homepage.

3.1 Schematics

The schematics of the evaluation board is shown below.

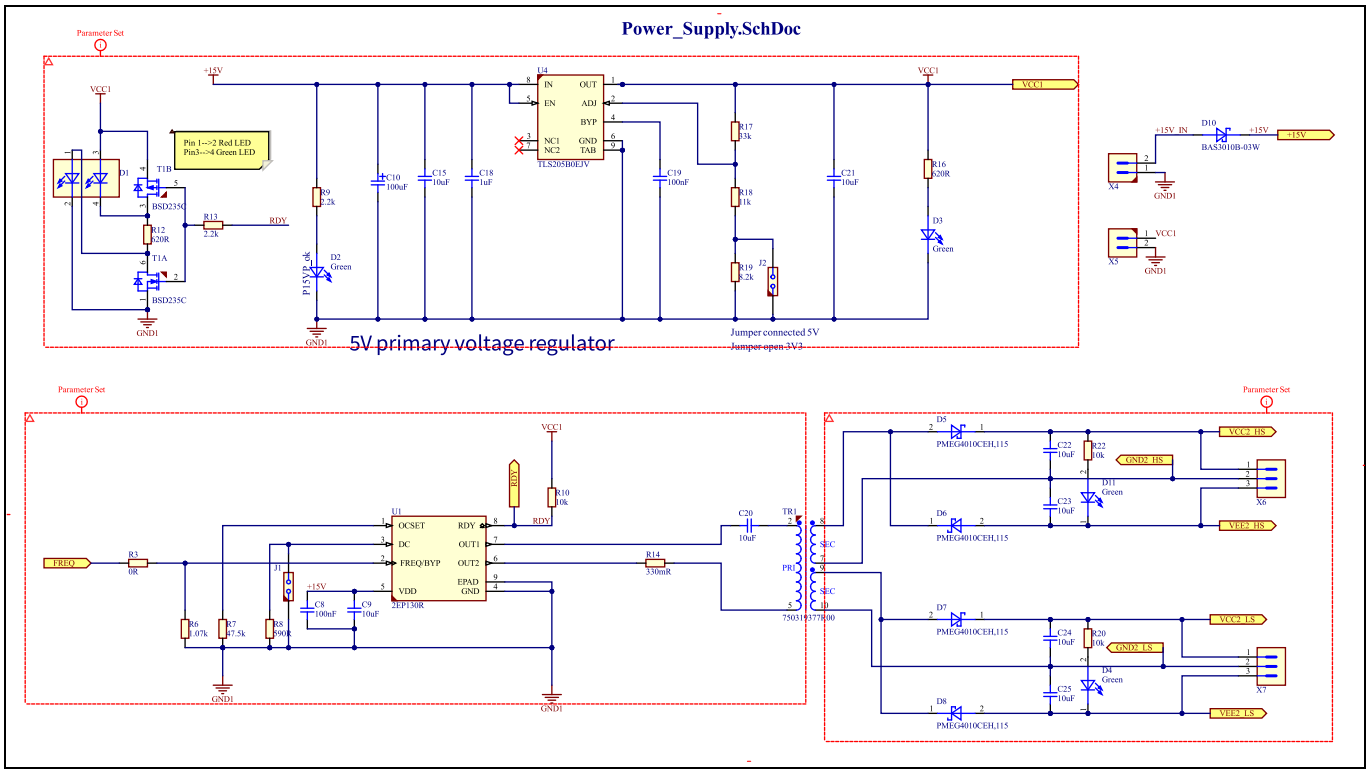

Figure 7 Power supply circuit schematic

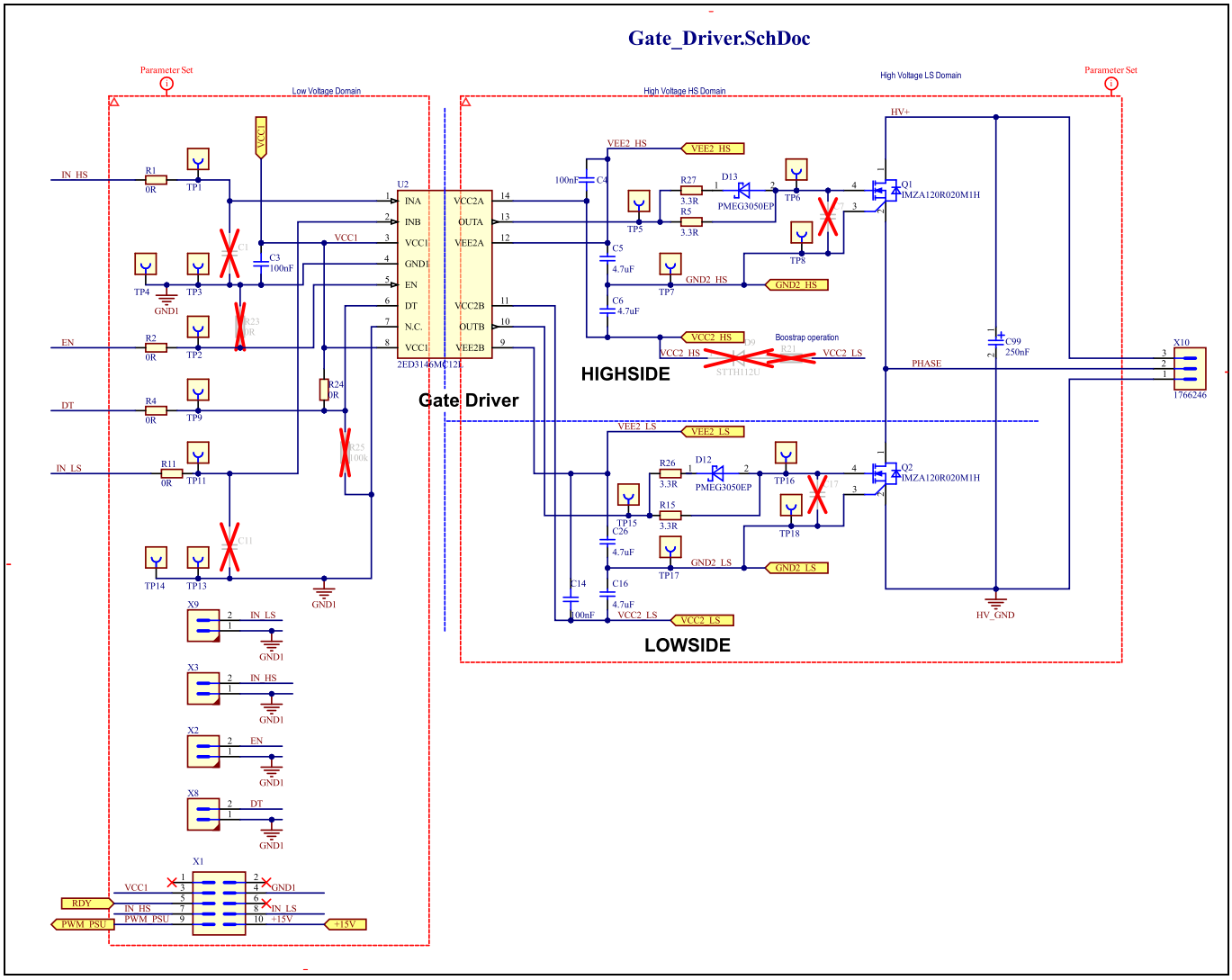

Figure 8 Gate driver circuit schematic (not placed components marked)

3.2 Layout

The evaluation board Eval-2ED3146MC12L-SiC uses a two-layer PCB with 35 µm copper thickness. The top and the bottom view of the PCB layout as well as the copper layers of the PCB are shown in the Figure 9, Figure 10, Figure 11, Figure 12.

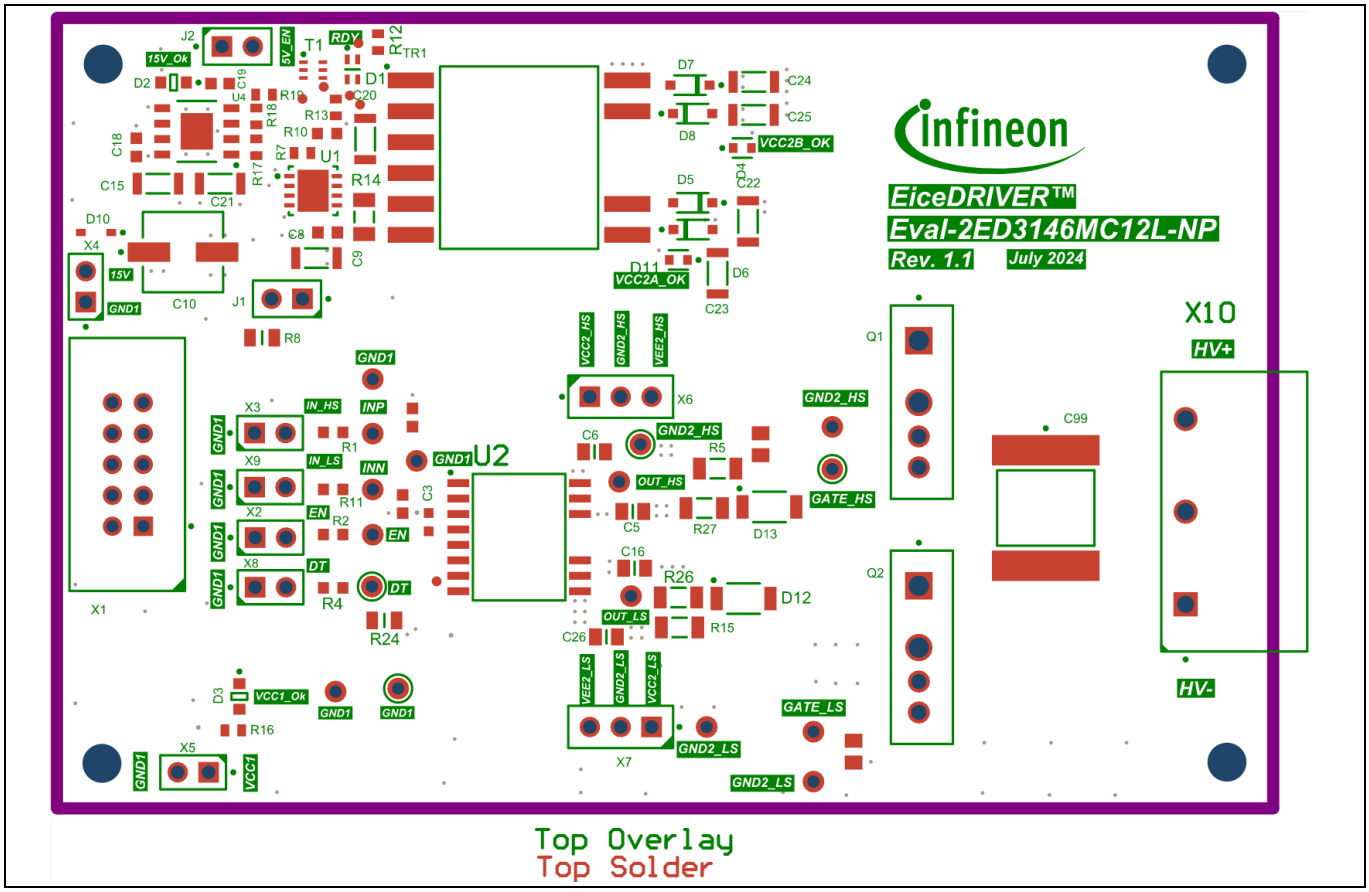

Figure 9 PCB top side

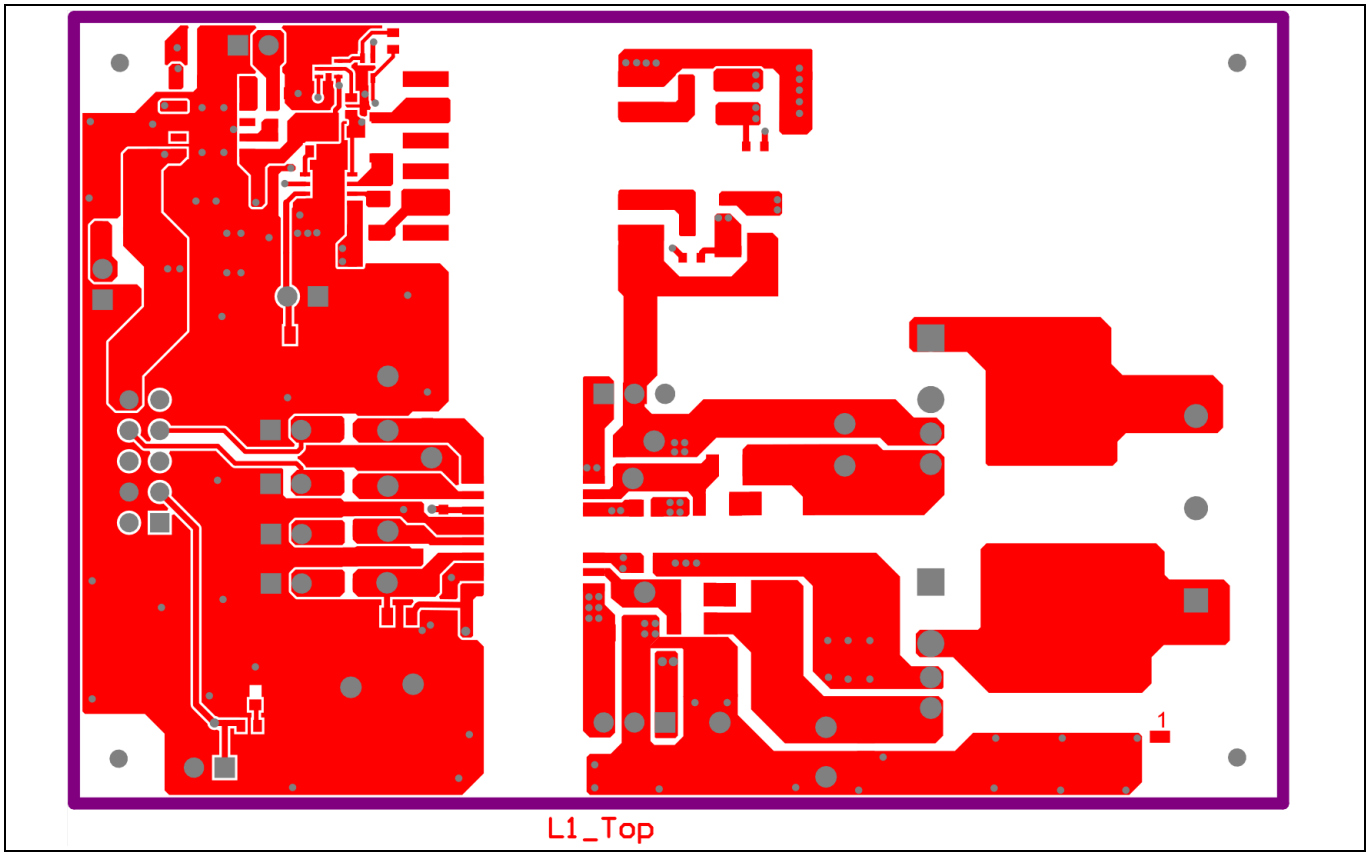

Figure 10 PCB top copper layer

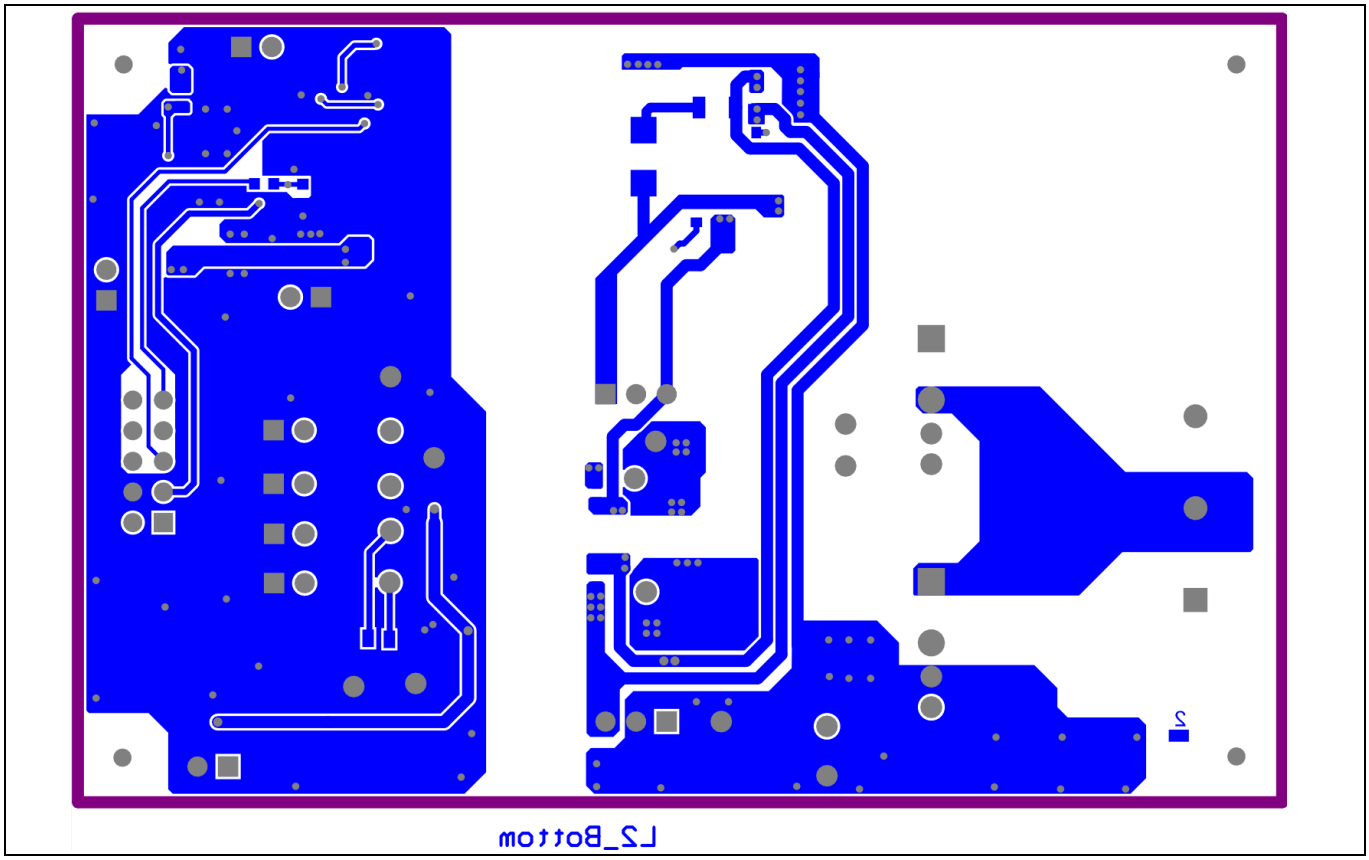

Figure 11 PCB bottom copper layer

Figure 12 PCB bottom side

3.3 Bill of material

The complete bill of material is available on the download section of the evaluation board homepage.

Table 4 Bill of materials

Designator	Quantity	Description	Manufacturer	Manufacturer P/N
C3, C4, C14	3	100nF	Wurth Elektronik	885012206095
C5, C6, C16, C26	4	4.7uF	MuRata	GRM21BR61H475ME51
C8	1	100nF	AVX	06035C104K4Z2A
C9, C20, C22, C23, C24, C25	6	10uF	TDK Corporation	C3216X7R1H106K160AC
C10	1	100uF	Wurth Elektronik	865090445008
C15, C21	2	10uF	Wurth Elektronik	885012208069
C18	1	1uF	Wurth Elektronik	885012106022
C19	1	100nF	Wurth Elektronik	885012206120
C99	1	250nF	TDK Corporation	B58031I9254M062
D1	1	Multiple Color	Kingbright	KPTB-1612LVSURKCGKC
D2, D3	2	Green	Wurth Elektronik	150080VS75000
D4, D11	2	Green	Kingbright	APHD1608LCGCK
D5, D6, D7, D8	4	PMEG4010CEH,115	Nexperia	PMEG4010CEH,115
D10	1	BAS3010B-03W	Infineon Technologies	BAS3010B-03W
D12, D13	2	PMEG3050EP	Nexperia	PMEG3050EP
J1, J2	2	61300211121	Wurth Elektronik	61300211121
MP1, MP2, MP3, MP4	4	05.30.315	ETTINGER	05.30.315
MP5, MP6, MP7, MP8	4	D00688	Duratool	D00688
Q1, Q2	2	IMZA120R020M1H	Infineon Technologies	IMZA120R020M1H
R1, R2, R3, R4, R11	5	0R	Bourns	CR0603-J/-000ELF
R5, R15, R26, R27	4	3.3R	Vishay	CRCW12063R30FK
R6	1	1.07k	ROHM Semiconductors	MCR03EZPFX1071
R7	1	47.5k	Vishay	CRCW060347K5FK
R8	1	590R	Vishay	CRCW0805590RFK
R9	1	2.2k	Vishay	TNPW06032K20BE
R10	1	10k	ROHM Semiconductors	MCR03EZPFX1002
R12, R16	2	620R	Vishay	CRCW0603620RFK
R13	1	2.2k	Vishay	CRCW06032K20FK
R14	1	330mR	Bourns	CRM1206-FX-R330 E LF
R17	1	33k	Vishay	CRCW060333K0FK
R18	1	11k	Vishay	CRCW060311K0FK
R19	1	8.2k	Vishay	CRCW06038K20FK
R20, R22	2	10k	Yageo	RC0603FR-0710KL
R24	1	0R	Vishay	CRCW08050000Z0EA
T1	1	BSD235C	Infineon Technologies	BSD235C
TR1	1	750319377R00	Wurth Elektronik	750319377R00
U1	1	2EP130R	Infineon Technologies	2EP130R
U2	1	2ED3146MC12L	Infineon Technologies	2ED3146MC12L
U4	1	TLS205B0EJV	Infineon Technologies	TLS205B0EJV
X1	1	T821110A1S100CEU	Amphenol	T821110A1S100CEU
X2, X3, X4, X5, X8, X9	6	HTSW-102-07-G-S	Samtec	HTSW-102-07-G-S
X6, X7	2	HTSW-103-07-G-S	Samtec	HTSW-103-07-G-S
X10	1	1766246	Phoenix Contact	1766246

3.4 Connector details

General information about the connectors of the Eval-2ED3146MC12L-SiC evaluation board is provided in this section.

Table 5 shows the connection of the high-voltage connector X10.

Table 5 High-voltage connectors

Connector / Pin	Symbol	Function
X10 (1)	HV-	DC-link ground connection
X10 (2)	PHASE	Half-bridge midpoint connection
X10 (3)	HV+	DC-link high-side connection

Table 6 shows the connections of the low voltage, input side connectors. This includes all the connectors, X1, X2, X3, X4, X5, X8 and X9.

Table 6 Input side connectors pinout

PIN	Symbol	Function
X1 (1)	*N.C.*	Not connected
X1 (2)	*N.C.*	Not connected
X1 (3)	*VCC1*	Supply voltage for the input side of the gate driver
X1 (4)	*GND1*	Ground for the input side of the board
X1 (5)	*RDY*	RDY state of isolated power supply. Active low signal
X1 (6)	*.res*	Not used
X1 (7)	*IN_HS*	Non-inverting input for the high-side channel
X1 (8)	*IN_LS*	Non-inverting input for the low-side channel
X1 (9)	*PWM_PSU*	External PWM signal for bypass mode of isolated power supply
X1 (10)	*+15V*	Supply voltage for the isolated power supply. Not reverse polarity protected
X2 (1)	*GND1*	Ground for the input side of the board
X2 (2)	*EN*	Gate driver activation pin
X3 (1)	*GND1*	Ground for the input side of the board
X3 (2)	*IN_HS*	Non-inverting input for the high-side channel
X4 (1)	*GND1*	Ground for the input side of the board
X4 (2)	*15V*	Reverse polarity protected, supply voltage for the isolated power supply
X5 (1)	*VCC1*	Supply voltage for the input side of the gate driver
X5 (2)	*GND1*	Ground for the input side of the board
X8 (1)	*GND1*	Ground for the input side of the board
X8 (2)	*DT*	Dead-time control
X9 (1)	*GND1*	Ground for the input side of the board
X9 (2)	*IN_LS*	Non-inverting input for the low-side channel

Table 7 shows the connection of the low-side supply connectors X7. This is used to supply the low-side channel. If the on-board isolated power supply board is not used, *VCC2_HS*, *GND2_HS*, and *VEE2_HS* voltage, as well as

VCC2_LS, *GND2_LS*, and *VEE2_LS,* can be supplied here by means of an isolated power supply that allows floating operation of the channel as per application.

Table 7 Low-side gate driver IC -isolated secondary power supply

PIN	Symbol	Function
X7 (1)	*VCC2_LS*	Low-side channel positive output supply connection
X7 (2)	*GND2_LS*	Low-side channel supply ground reference connection
X7 (3)	*VEE2_LS*	Low-side channel negative output supply connection

Table 8 shows the connection of the high-side supply connectors X6. This is used to supply the high-side channel. If the on-board isolated power supply board is not used, VCC2, GND2, and VEE2 voltage can be supplied here by means of an isolated power supply that allows floating operation of the channel driver as per application.

Table 8 High-side gate driver IC -isolated secondary power supply

PIN	Symbol	Function
X6 (1)	*VCC2_HS*	High-side channel positive output supply connection
X6 (2)	*GND2_HS*	High-side channel supply ground reference connection
X6 (3)	*VEE2_HS*	High-side channel negative output supply connection

3.5 Test points

The test points used on the board are summarized in the table below.

Table 9 Test points

Test point	Symbol	Signal measured	Ground reference for test point
TP1	*INP*	High-side non-inverting input	GND1
TP2	*EN*	Gate driver enable	GND1
TP3	*GND1*	Input side ground	-
TP4	*GND1*	Input side ground	-
TP5	*OUT_HS*	High-side output	GND2_HS
TP6	*GATE_HS*	High-side gate voltage	GND2_HS
TP7	*GND2_HS*	High-side ground reference	-
TP8	*GND2_HS*	High-side ground reference	-
TP9	*DT*	Dead-time control	GND1
TP11	*INN*	Low-side non-inverting input	GND1
TP13	*GND1*	Input side ground	-
TP14	*GND1*	Input side ground	-
TP15	*OUT_LS*	Low-side output	GND2_LS
TP16	*GATE_LS*	Low-side gate voltage	GND2_LS
TP17	*GND2_LS*	Low-side ground reference	-
TP18	*GND2_LS*	Low-side ground reference	-

4 References and appendices

4.1 References

[1] Datasheet of Infineon EiceDRIVER™ 2ED3146MC12L

[2] Datasheet of EiceDRIVER™ Power 2EP130R

[3] User guide of EVAL-2EP130R-PR-SiC

[4] Datasheet of Infineon IMZA120R020M1H

4.2 Ordering information

Base Part Number	Package	Standard Pack		Orderable Part Number
		Form	Quantity	
Eval-2ED3146MC12L-SiC	-	Boxed	1	EVAL2ED3146MC12LTOBO1
2ED3146MC12L	PG-LDSO-8	TAPE & REEL	1000	2ED3146MC12LXUMA1
2EP130R	PG-TSSOP-8	TAPE & REEL	1000	2EP130RXTMA1
IMZA120R020M1H	PG-TO247-7	Tube	240	IMZA120R020M1HXKSA1

Revision history

Document version	Date	Description of changes
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V1.01	2024-10-30	Updated part number and header

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