

DALI PHY for XMC™ Boot Kits Board User Manual

XMC1000

About this document

Scope and purpose

This document describes the features and hardware details of the DALI PHY for XMC™ Boot Kits card, designed to provide an evaluation platform for DALI communication with Infineon's XMC1000 family of ARM® Cortex™-M microcontrollers via the XMC1000 Boot Kits.

Intended audience

This document is intended for engineers who are using the DALI PHY for XMC™ Boot Kits card for evaluation or development.

Applicable products

- XMC1200 Boot Kit
- XMC1300 Boot Kit
- XMC1400 Boot Kit
- XMC™ LED Current Control Explorer Kit
- DAVE™

References

- XMC1200 Boot Kit Board User Manual
- XMC1300 Boot Kit Board User Manual
- XMC1400 Boot Kit Board User Manual
- XMC™ LED Current Control Explorer Card Board User Manual

Table of Contents

About this document.....	1
Table of Contents	1
1 Overview.....	2
1.1 Key features	2
1.2 Block diagram	2
2 Hardware Description.....	3
2.1 SAMTEC Connector	3
2.2 Isolated DALI interface circuit.....	4
3 Production Data.....	5
3.1 Schematics	5
3.2 Component Placement.....	6
3.3 Bill of Materials (BOM).....	7
Revision history.....	8

1 Overview

The DALI PHY for XMC™ Boot Kits card is a component of the XMC™ LED Current Control Explorer Kit, which is an evaluation kit that introduces the user to continuous conduction mode (CCM) buck LED driving solution with Infineon’s XMC1000 family of ARM® Cortex™-M microcontrollers.

The XMC™ LED Current Control Explorer Kit offers a single output channel for flicker-free control of LED light engines. The kit is pre-programmed with software that allows the adoption of different LED light engines and different input voltages to enable fast prototyping and inexpensive evaluation. The DALI PHY for XMC™ Boot Kits card allows the brightness of the LED light engine to be controlled via DALI communication protocol.

The DALI PHY for XMC™ Boot Kits card can be used with the XMC1200, XMC1300 or XMC1400 Boot Kit for a quick and easy evaluation of DALI communication. Infineon provides a free DALI software stack via DAVE™, a free-of-charge development platform for XMC™ microcontrollers.

1.1 Key features

The DALI PHY for XMC™ Boot Kits card features the following:

- 2x30 pins SAMTEC HSEC8 connector to XMC1000 Boot Kits
- Isolated DALI interface circuit

1.2 Block diagram

Figure 1 shows the functional block diagram of the DALI PHY for XMC™ Boot Kits card.

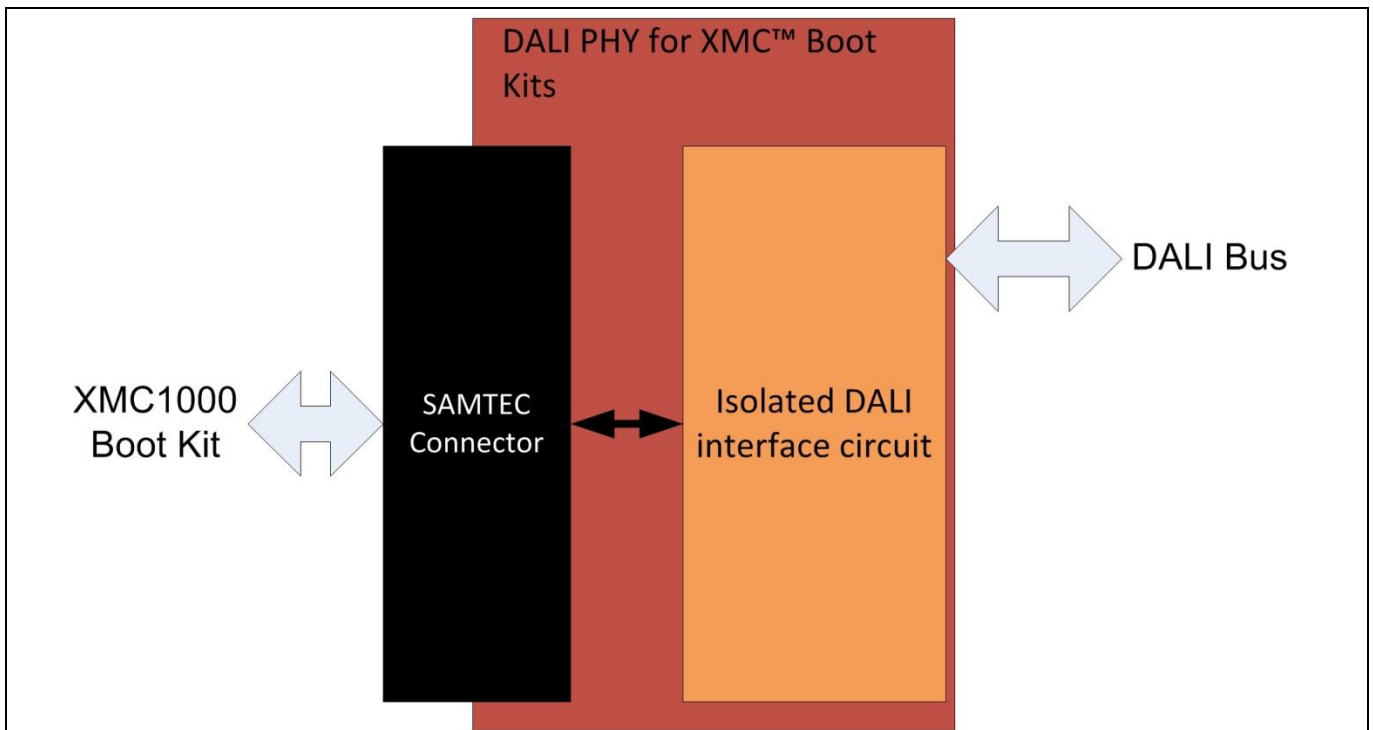


Figure 1 Block diagram of DALI PHY for XMC™ Boot Kits card

2 Hardware Description

The following section provides a detailed description of the hardware. Figure 1 provides an overview of the hardware.

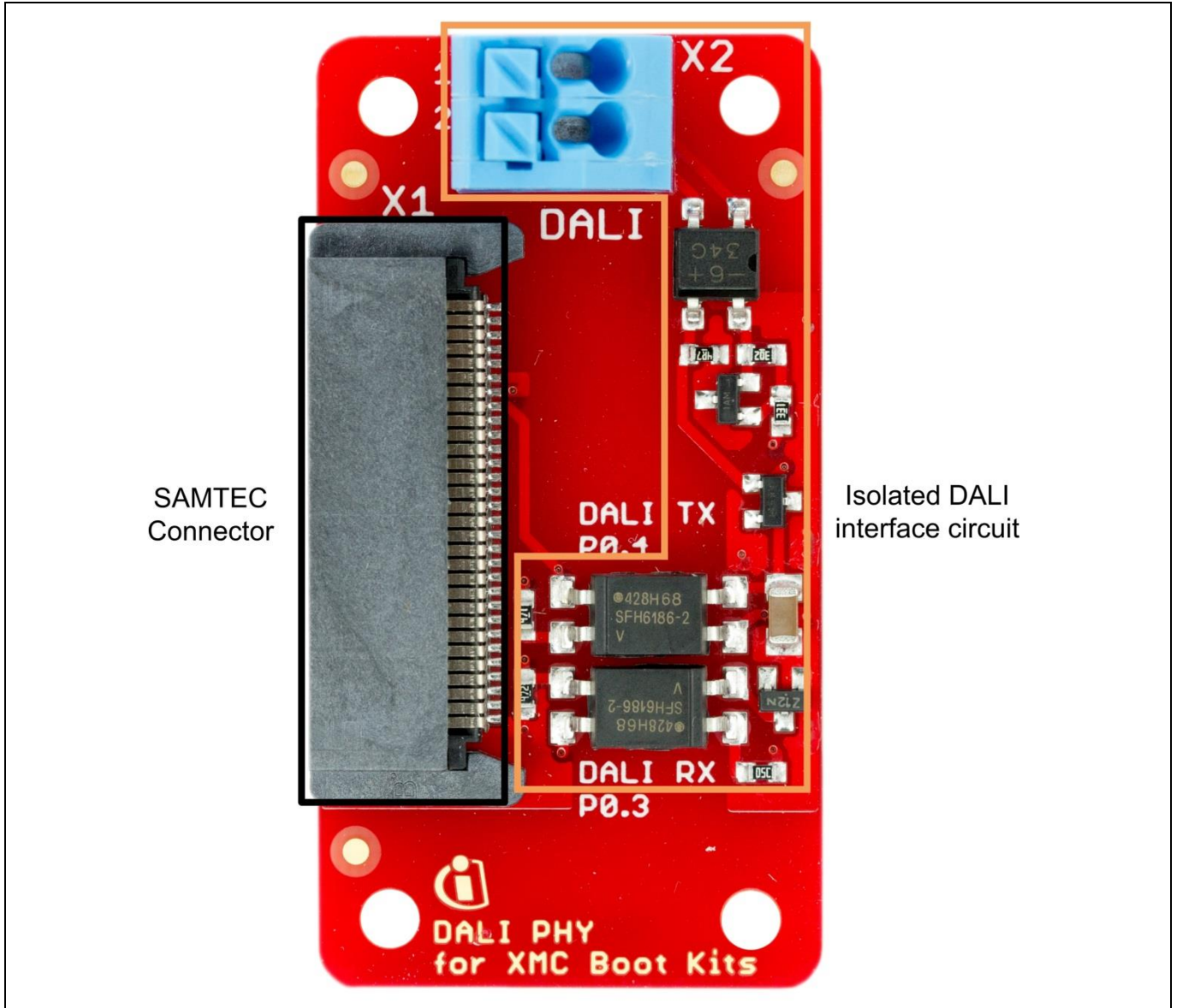


Figure 2 DALI PHY for XMC™ Boot Kits card hardware overview

2.1 SAMTEC Connector

The SAMTEC connector provides an easy connection to any of the XMC1000 Boot Kits (Figure 3). P0.3 and P0.4 of the XMC1000 microcontrollers are used for processing the received DALI command and transmitting the response signal respectively. P2.6 is tied to ground to provide an indication to the microcontroller that the DALI PHY for XMC™ Boot Kits card is connected.

Hardware Description

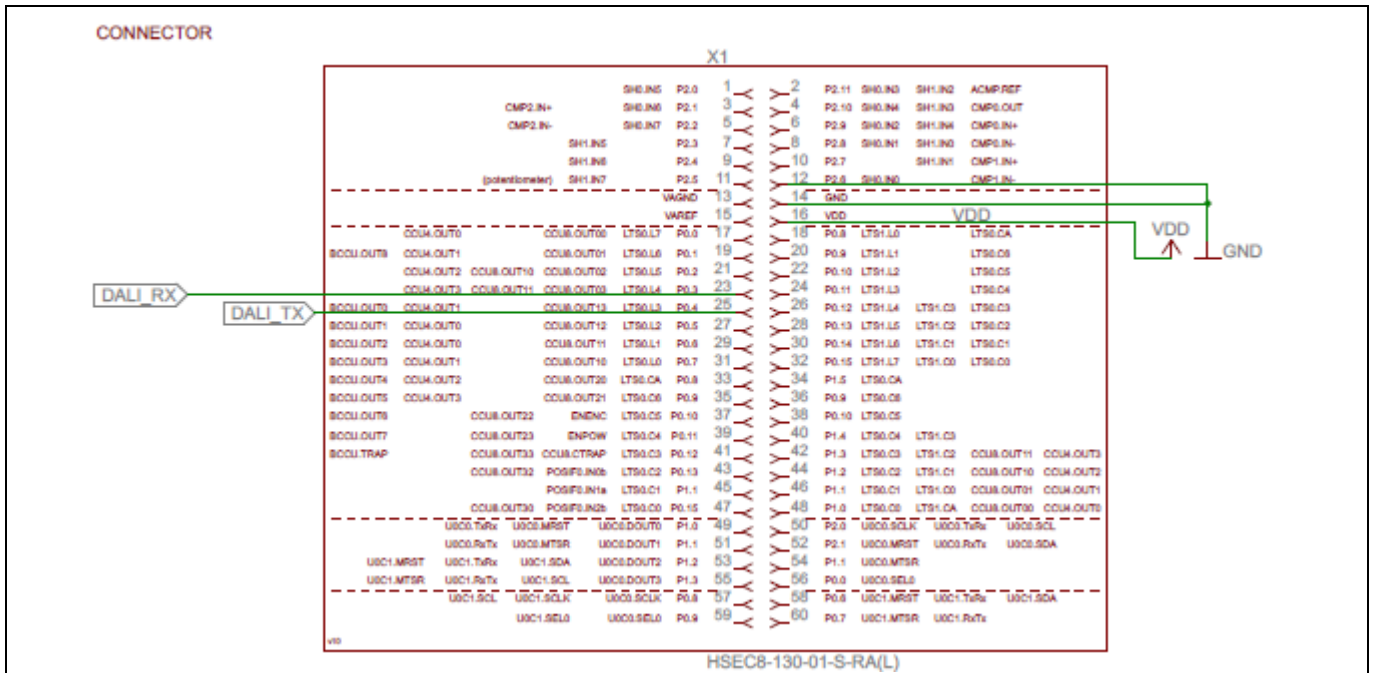


Figure 3 SAMTEC Connector

2.2 Isolated DALI interface circuit

Isolation in the DALI interface circuit (Figure 4) is implemented using two optocouplers, SFH6186-2. A WAGO 250 connector provides convenient connection to a powered DALI bus.

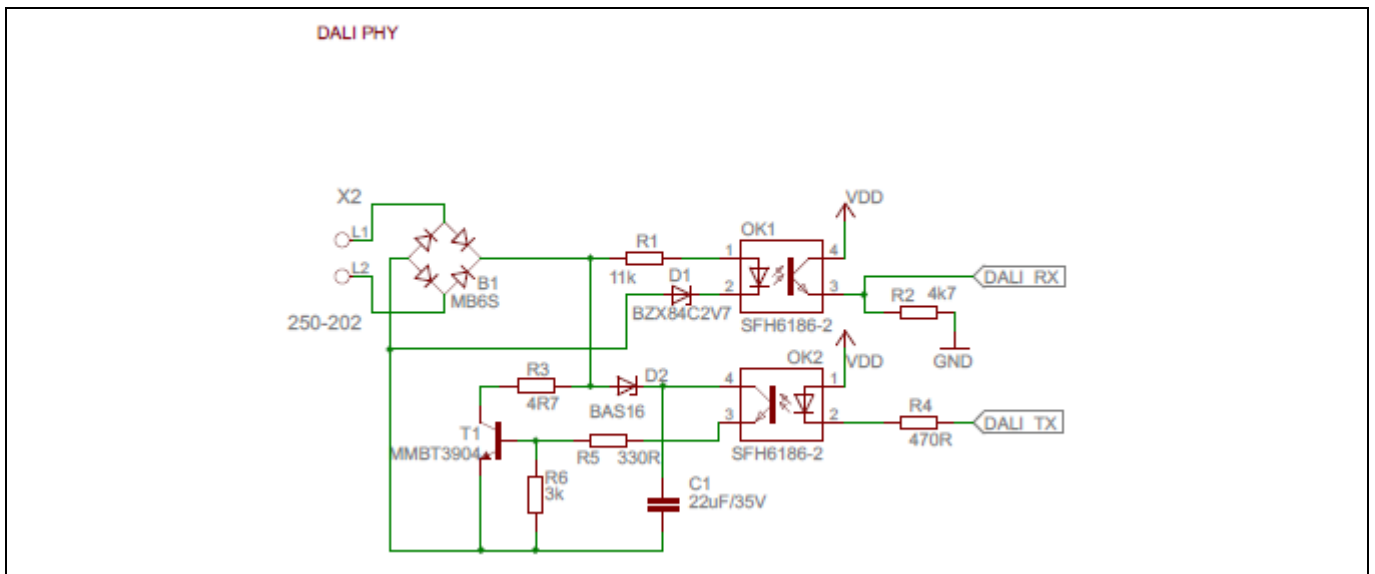


Figure 4 Isolated DALI interface

3 Production Data

In this section, production data such as the schematics (Section 3.1), component placement (Section 3.2) and bill of materials (Section 3.3) are provided.

3.1 Schematics

The full PCB design data of this board can also be downloaded from www.infineon.com/xmc-dev.

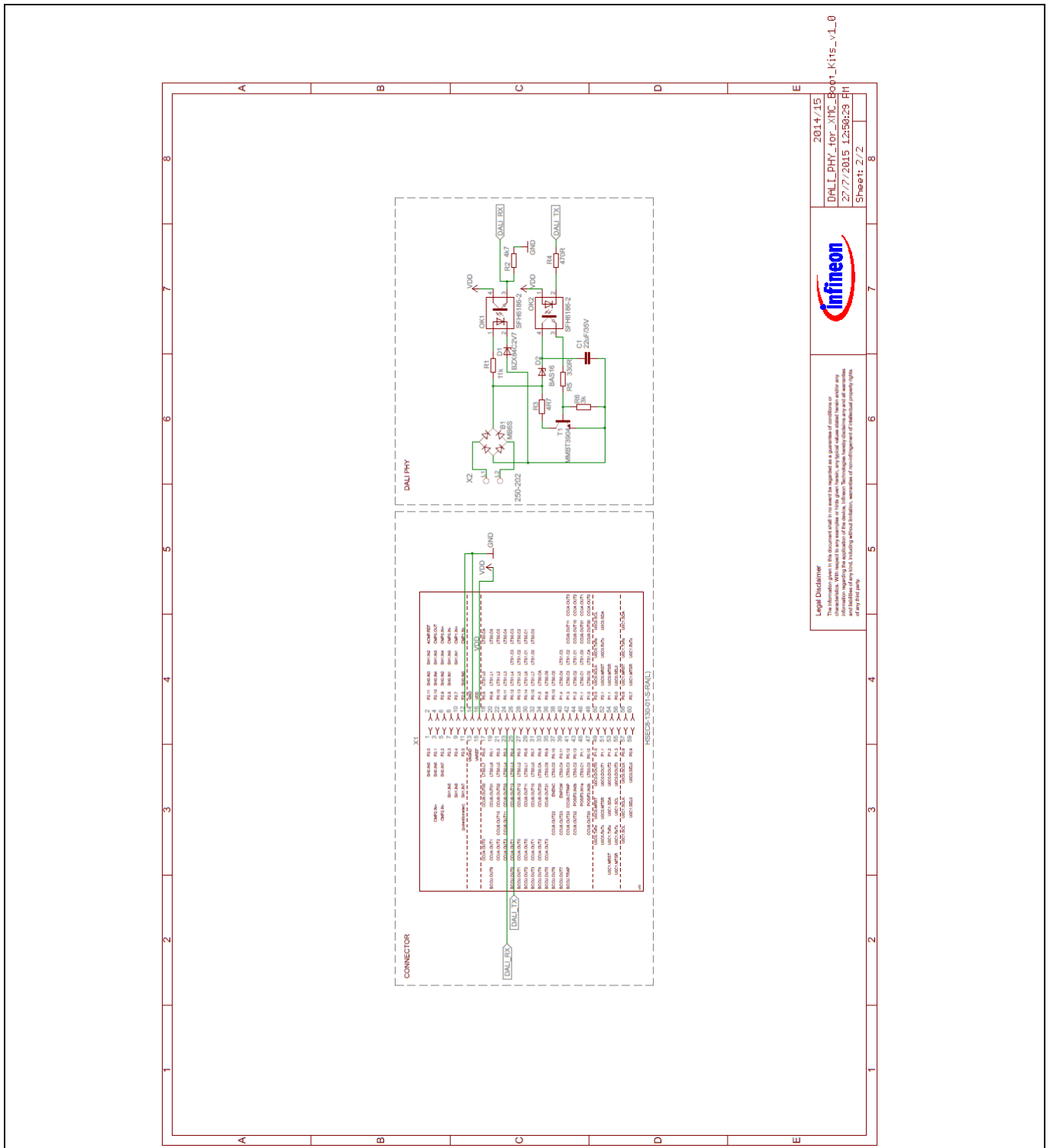


Figure 5 Schematic of DALI PHY for XMC™ Boot Kits card

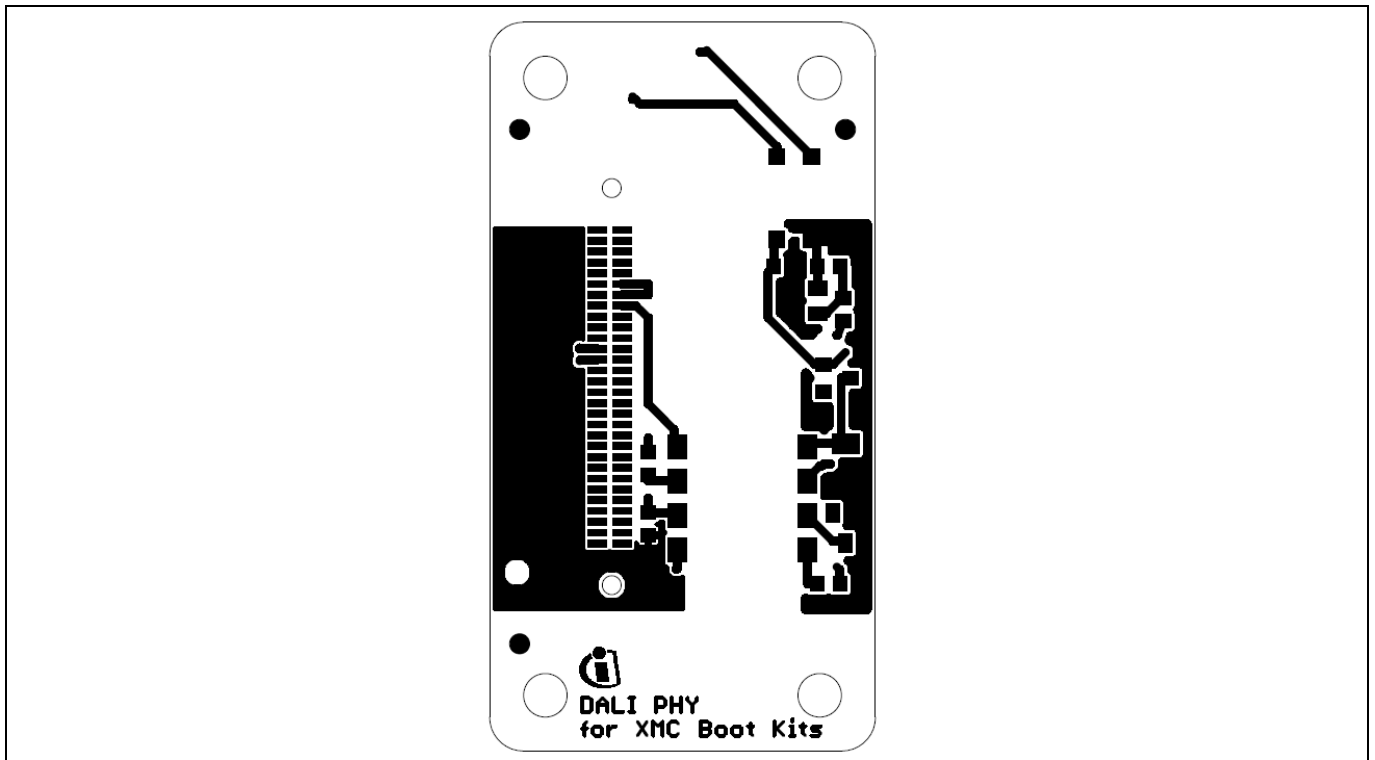


Figure 6 Layout top view of DALI PHY for XMC™ Boot Kits card

3.2 Component Placement

In Figure 7, the placement of components is shown in a layout view of the top layer of DALI PHY for XMC™ Boot Kits card.

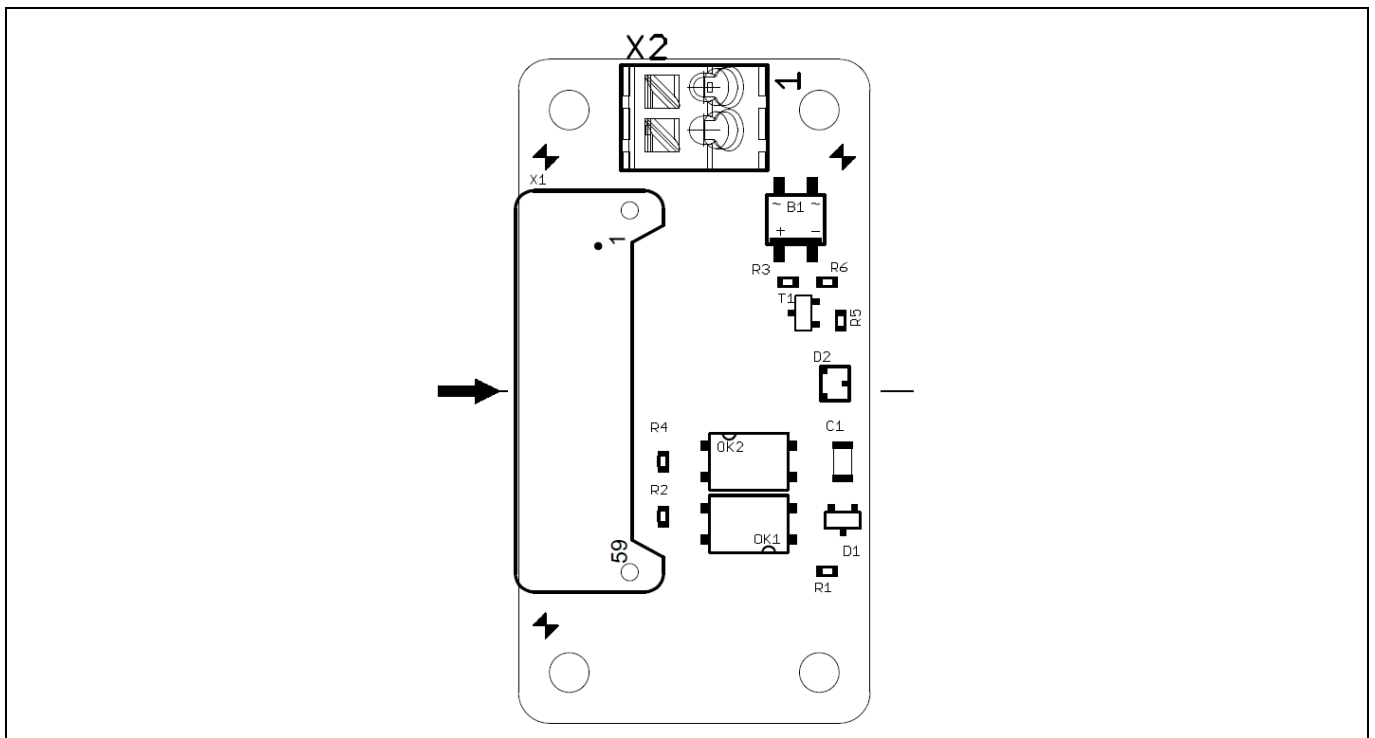


Figure 7 Component layout top level view of DALI PHY for XMC™ Boot Kits card

Production Data

3.3 Bill of Materials (BOM)

Table 1 provides a complete bill of material for the DALI PHY for XMC™ Boot Kits card.

Table 1 Bill of Materials

No.	Device/Description	Quantity	Position
1	Rectifier MB65	1	B1
2	C-22uF-35V-1206	1	C1
2	Diode BZX84C2V7	1	D1
3	Optocoupler SFH6186-2	2	OK1, OK2
4	11k-0603	1	R1
5	4k7-0603	1	R2
6	4R7-0603	1	R3
7	470R-0603	1	R4
8	330R	1	R5
9	3k	1	R6
10	Transistor MMBT3904	1	T1
11	SAMTEC Connector HSEC8-130-01-S-RA(L)	1	X1
12	WAGO Connector 250-202-000-006	1	X2

Revision history

Revision history

Major changes since the last revision

Page or Reference	Description of change

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