EVB81107-A1

Short Description

Revision 002
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Contents

1. Scope

This document is intended to give a brief introduction of the EVB81107-A1 Evaluation Board (EVB). This EVB is designed to work with the MLX81107/09KLW QFN20 5x5 and as software development EVB of the MLX81106/08KDC LIN RGB Controller family.

Samples of the MLX81107/09KLW are not part of the EVB81107-A1 and they needs to be ordered separately.

Beside of this document, several other important documentation papers are necessary for a detailed understanding.

The detailed information regarding our products including all required development tools will be distributed via the Melexis Softdist server (https://softdist.melexis.com).

2. Melexis Softdist Server

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3. MLX81107/09KLW - Overview

3.1. Application Examples

- LIN slave for lighting applications to control up to 4 single color LEDs or one RGB LED plus a white one
- LIN slave for switch applications
- LIN slave for IO-Extension
- LIN to SPI Interface
- LIN Sensor Interface

3.2. Features

- 16-bit MULAN MCU with Math Co-processor
  - MLX81107KLW:
    - 24kB Flash
    - 1024 Byte RAM
    - 512 Byte NVRAM with ECC (380 Byte for customer purpose)
  - MLX81109KLW:
    - 32kB Flash
    - 1024 Byte RAM
    - 512 Byte NVRAM with ECC (380 Byte for customer purpose)
- LIN Protocol Controller according to LIN 2.x and SAE J2602
- LIN Transceiver according to LIN 2.x and SAE J2602
  - Support for LIN auto addressing according bus shunt method
- 4x High voltage I/O pins
  - Constant current sources (up to 48mA)
  - 16-bit PWM outputs
  - 10 bit ADC inputs
  - Diagnostic capability for connected LED
  - Interrupt capability
  - Configurable wake up sources (LIN and IOs)
- 8x Low voltage 5V IO pins
  - Open drain outputs
  - 16-bit PWM outputs
  - Serial Interface (SPI)
  - 10 bit ADC inputs
  - Interrupt capability
  - Wake up sources (LIN and IOs)
- Integrated Voltage Regulator
- Integrated RC-Oscillator
- QFN20 5x5 package
- Designed for automotive applications

4. EVB - General Description

The EVB81107-A1 is equipped with QFN20 5x5 socket for

- MLX81107KLW
- MLX81109KLW

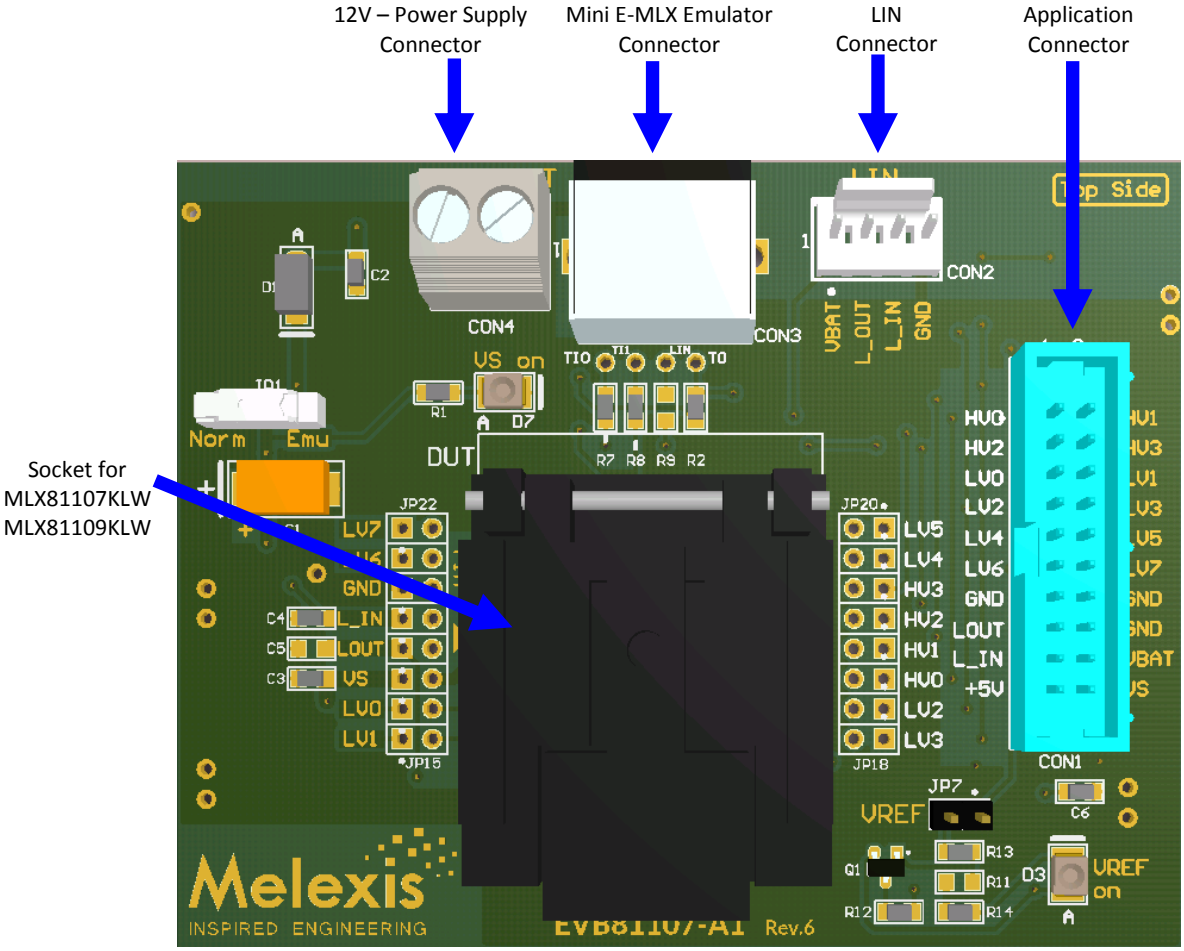
It can be used together with the Melexis Mini E-MLX emulator for:

- In-circuit debugging (without external components on HV0...3)
- Program FLASH and NVRAM (without external components on HV0...3)

After the programming the EVB81107-A1 can be connected to the customer application in order to run the system standalone without the Mini E-MLX emulator.

For software development purposes it's proposed to use the EVB81107-A1 instead of the EVB81112-A1 for the MLX81106/07 and MLX80110 family as well. The EVB81107-A1 is using a the MLX81109 QFN5x5 device, which offers the possibility to connect the application components (e.g. LEDs) on the HVx pins and at the same time to connect the Mini E-MLX emulator at LVx pins.

5. EVB - Hardware overview



5.1. EVB - Application Connector CON1

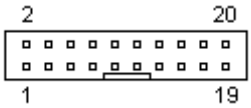
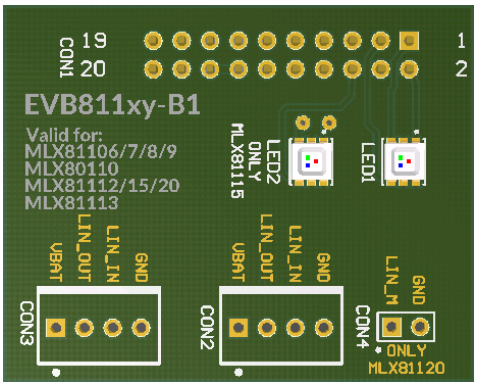


Figure 1 Application Connector - IDC MALE (Top view)

Pin	Name	Description
1	HV0	Configurable: High Voltage Input, Output, PWM, ADC
2	HV1	Configurable: High Voltage Input, Output, PWM, ADC
3	HV2	Configurable: High Voltage Input, Output, PWM, ADC
4	HV3	Configurable: High Voltage Input, Output, PWM, ADC
5	LV0	Configurable: Low Voltage Input, Output, PWM, ADC
6	LV1	Configurable: Low Voltage Input, Output, PWM, ADC
7	LV2	Configurable: Low Voltage Input, Output, PWM, ADC
8	LV3	Configurable: Low Voltage Input, Output, PWM, ADC
9	LV4	Configurable: Low Voltage Input, Output, PWM, ADC
10	LV5	Configurable: Low Voltage Input, Output, PWM, ADC
11	LV6	Configurable: Low Voltage Input, Output, PWM, ADC
12	LV7	Configurable: Low Voltage Input, Output, PWM, ADC
13	GND	System ground
14	GND	System ground
15	LOUT	Connection to LIN Bus (LIN OUT)
16	GND	System ground
17	L_IN	Connection to LIN Bus (LIN IN)
18	VBAT	12V Power Supply (Not Reverse Polarity Protected)
19	5V+	5V Output generated from LV6 UREF (JP7 has to be set)
20	VS	Voltage behind Polarity Protection Diode / Chip Supply Voltage

Table 1 EVB Application Connector

5.2. EVB – Available Add-on boards

Part	Picture
EVB811xy-B1 *(Add-on for:* *EVB81107-A1* *EVB81112-A1* *EVB81115-A1* *EVB81115-A2* *EVB81120-A1* *EVB81113-A1* *EVB81113-A2* *equipped with two RGB LEDs*)	

6. Revision History

Version	Changes	Remark	Date
002	Added chapter “5.2. EVB – Available Add-on boards”		02.08.18
001		Initial release	25.07.18

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