PTC04-DB-HALL05

Daughter Board for Melexis PTC devices

Features and Benefits

PTC04 interface board for testing devices:

- MLX91208
- MLX91209

Applications

Experimental tool for Lab and Prototyping
Production Equipment for Serial Programming

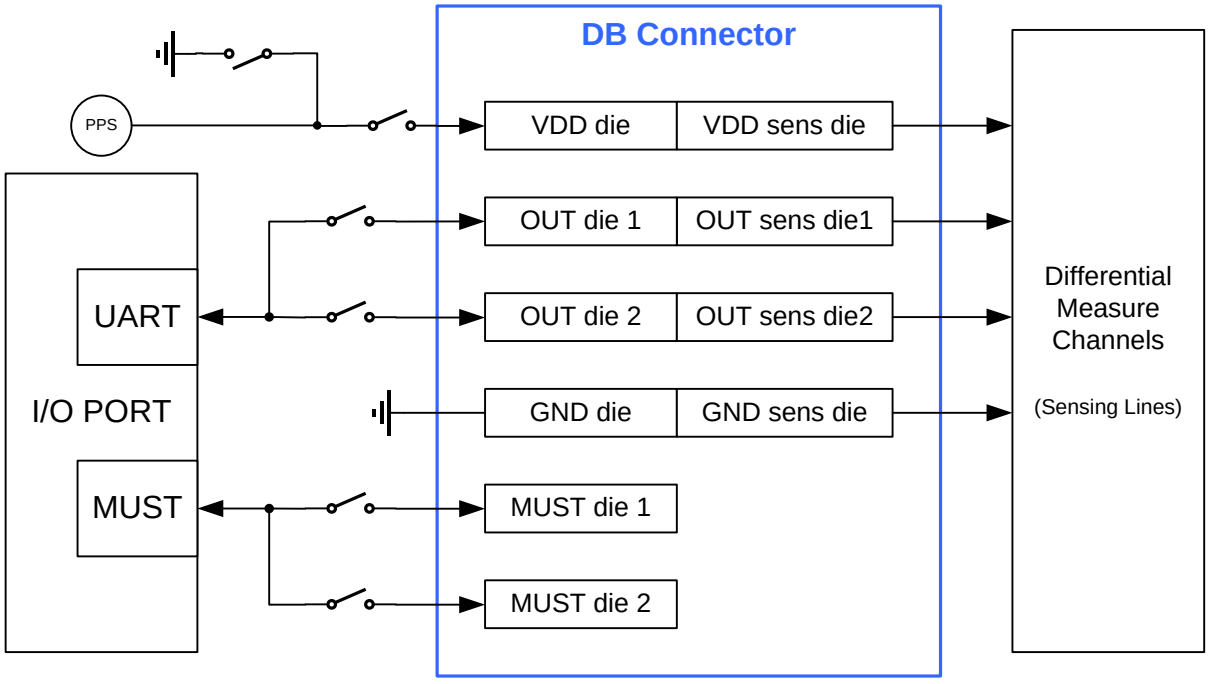
Ordering Information

Part No.	***Description***
PTC04-DBHall-05 V1.1	Daughter Board (PCB + rear panel PTC04)

Accessories

Part No.	***Description***
DLL's for all supported products	
User Inter Faces for supported products	
Firmware for supported products	

1. Functional Diagram



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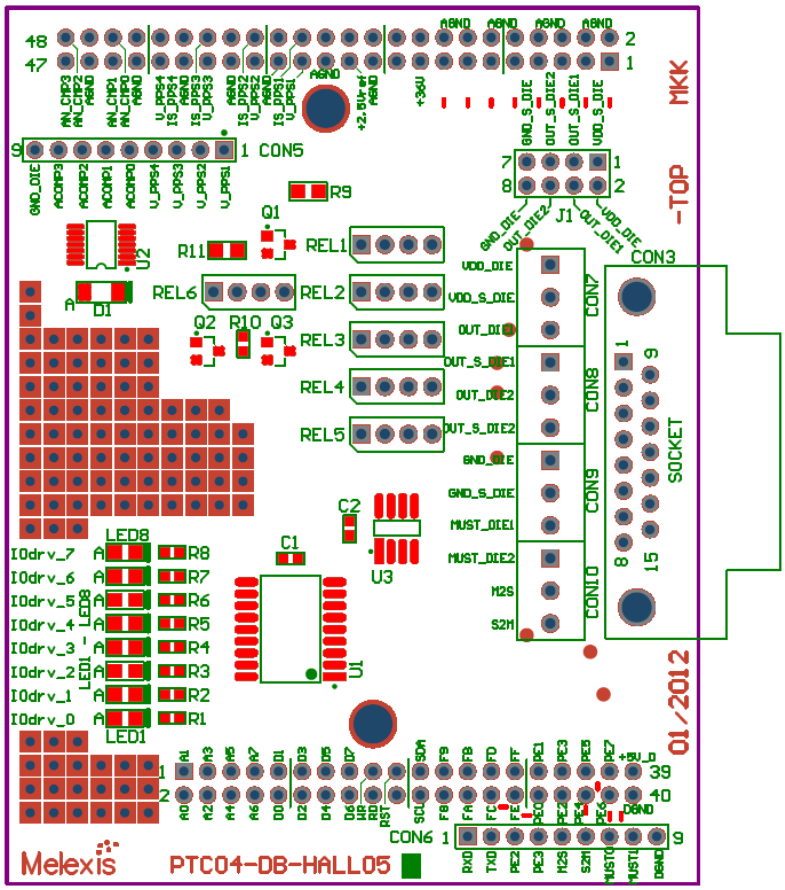
2. Board description

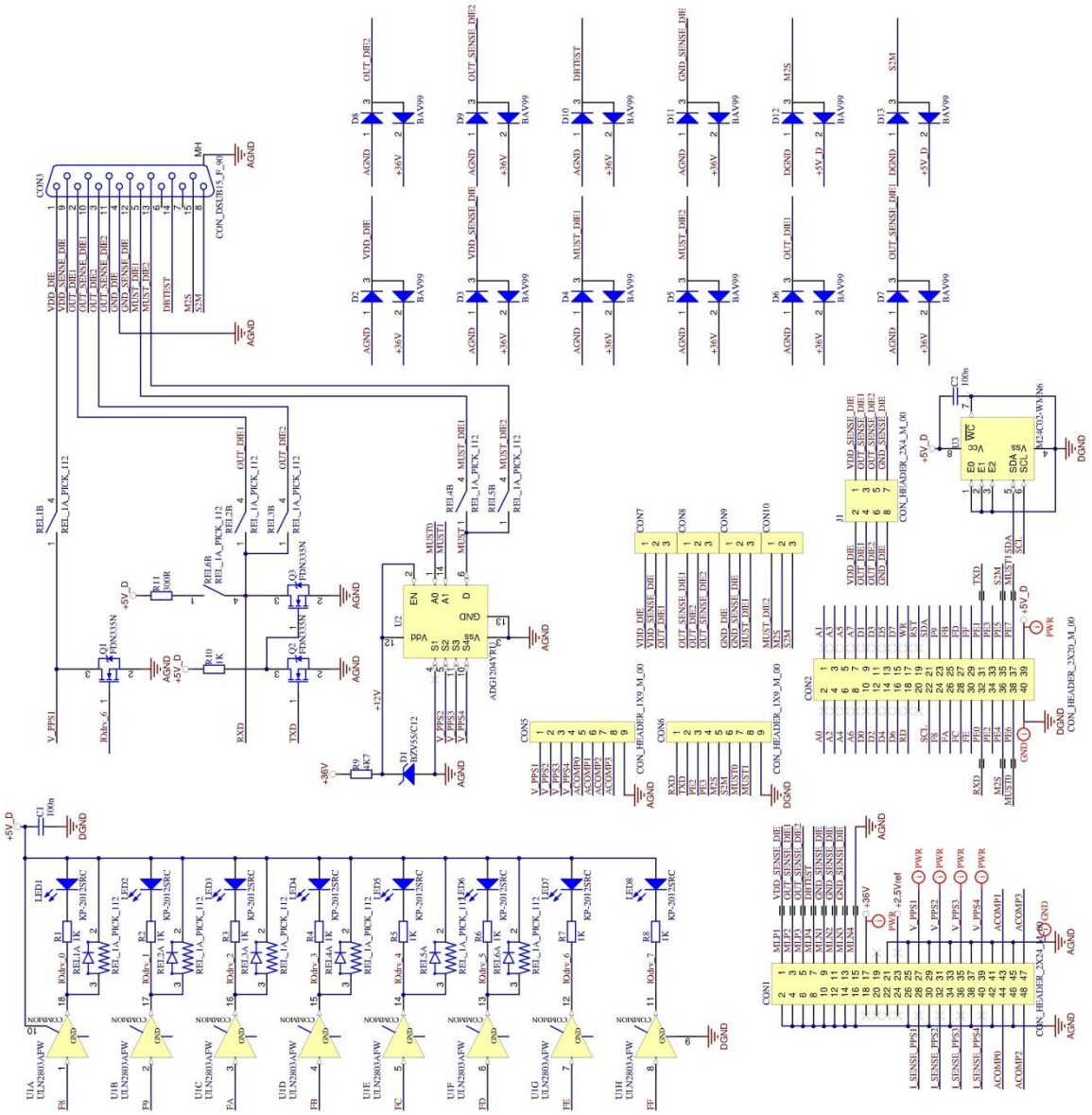
2.1. Board Layout



- J1: Force & Sens: Jumpers to connect the measurement sensing lines immediately to the force lines. These jumpers are needed when no force and sens is used.
- U3: DB-ID: This ID keeps a few initial variables in mind. It allows for example to detect what DB is connected to the programmer and if the DB is not expired.
- CON1 – CON2 : Analogue and Digital connector: See below for a detailed description.
- CON3: Application Connector: Dsub15 way connector to the application. See below for details.
- LED Indicators: 8 LED Indicators for the DB_IOdrv lines.
- CON7 – 10: 12 pins Screw Terminal. It provides the same signals as the application connector.

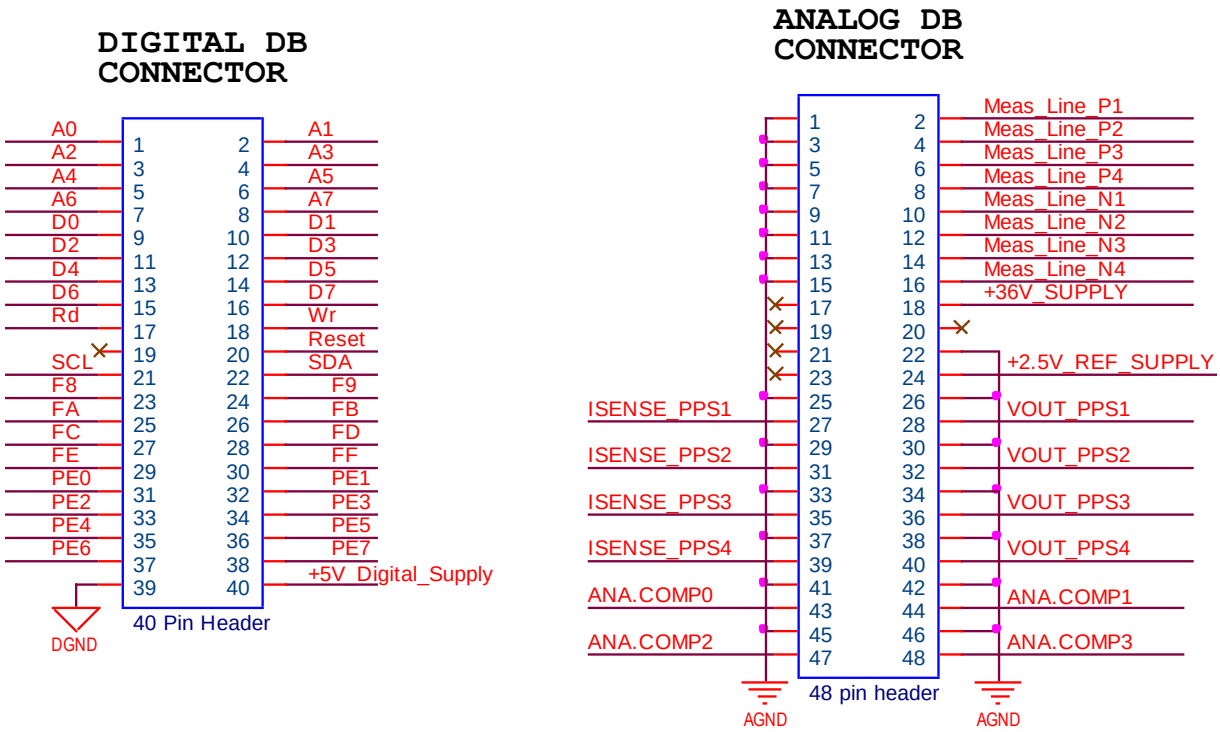
2.2. Board Schematics

Below you can find the complete schematics of the DB:



2.3. Daughter board Connectors

The PTC04 main board has two connectors to the interface with the application. The PTC allows adding a full PCB in between (Daughter Board). This daughter board can be mounted on the two connectors. In some exceptional cases, a daughter board contains only a few wires from the Analogue connector to the application connector. The pins on of the connectors are described below.



2.3.1. Digital DB Connector (40 Pins)

Mainly, the digital connector is meant to expand the programmer to extra needs. Address lines A0-A7 together with the Map Select Lines F8-FF allows to direct access an area of 2 K. Examples would be adding a simple addressed I/O register by using the selection lines. If more complexity is needed, a full FPGA can be mounted on the DB board

Pins	Names	Description
1 – 8	A0 – A7	Address lines
9 – 16	D0 – D7	Data Lines active during Rd or Wr signals
17	Rd	Read: A negative pulse will indicate a sampling of the data on the Data Bus
18	Wr	Write: A Negative pulse will indicate when data is available on the Data Bus
20	Reset	This signal goes low by powering the PTC or by pressing the reset button. This line can be pulled low by application. Check firmware documentation for resetting by software.
21-22	SCL / SDA	I^2C Bus
23-30	F8,F9,…,FF	CS lines when the address areas are accessed
31-38	Port E	Note: These pins are limited to 5 Volt input/output!!! The full Port E of the Atmega core is mounted to these pins. This allows us to use advanced features like PWM, UARTS, Time Measurements, etc…. By using firmware that supports these, functions, application specific requirements can be fulfilled.
39	DGND	Digital Ground
40	+5V Digital	5 Volt Digital Supply. Maximum current to get out of this supply : 250mA

Note: All the pins are limited to 5 Volt input/output!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

2.3.2. Analog DB Connector (48 Pins)

Mainly, the analog connector provides all the analog signals and measure possibilities.

Pins	Names	Description
28,32,36	PPS 1-3	Output of the high current Programmable Supplies
40	PPS 4	Output of the Fast DAC Programmable Power Supply
27,31,35,39	Isense_PP1-4	Outputs (Driver outputs before Rsens) for current evaluations. These outputs could be used to connect to the analog comparators in order to create fast digital signals based on current.
2,4,6,8	ExtMeas1-4Pos	There are 4 differential inputs for making measurements, these are the positive inputs.
10,12,14,16	ExtMeas1-4Neg	The negative inputs of ExtMeas1- 4Pos
43,44,47,48	AnaComp0-3	Input (limited to +5V) See *Note. Fast Level comparators in order to remove time consuming measurement
18	+35V_Supply	Supply to extend the daughter board with some extra drivers
24	+2.5V_Ref	Output of internal reference
All other	AGND	Analogue Ground

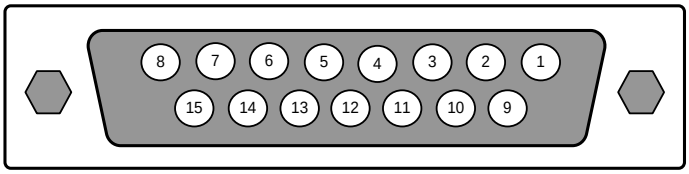
Note: All the pins are limited to 35 Volt input/output!!! However, there are protections, please take precautions in order to avoid damage of the main board.
* Note: Some pins are protected and limited to 5 Volt!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

2.4. Application Connector

There are two ways to connect the application to PTC04:

2.4.1. The DB15_Female connector (application connector)

DB15 Female Connector



Pins	Names	Description	Package Pin #	
			91208 SOIC	**91209 VA**
1	VDD_DIE	Device Supply both dies	5	1
2	OUT_DIE1	Device Output Die 1	6	2
3	OUT_DIE2	Device Output Die 2	n/a	n/a
4	GND_DIE	Analogue Ground both dies	3	4
5	TEST_MUST_DIE1	Digital test pin – MUST	4	3
6	NC	Not Connected	NC	NC
7	NC	Not Connected	NC	NC
8	S2M	Master-Slave approach	n/a	n/a
9	VDD_SENS_DIE	Sensing Device Supply	5	1
10	OUT_SENS_DIE1	Sensing Device Output Die 1	6	2
11	OUT_SENS_DIE2	Sensing Device Output Die 2	n/a	n/a
12	GND_SENS_DIE	Sensing Analogue Ground Device	3	4
13	TEST_MUST_DIE2	Digital test pin – MUST	n/a	n/a
14	NC	Not Connected	NC	NC
15	M2S	Master-Slave approach	n/a	n/a

2.4.2. The screw terminal

Pins	Names	Description	Package Pin #	
			91208 SOIC	**91209 VA**
1	VDD_DIE	Device Supply	5	1
2	VDD_SENSE_DIE	Sensing Device Supply	5	1
3	OUT_ DIE1	Device Output Die 1	6	2
4	OUT_SENS_DIE1	Sensing Device Output Die 1	6	2
5	OUT_ DIE2	Device Output Die 2	n/a	n/a
6	OUT_SENS_DIE2	Sensing Device Output Die 2	n/a	n/a
7	GND_DIE	Analogue Ground Device	3	4
8	GND_SENSE_DIE	Sensing Analogue Ground Device	3	4
9	TEST_MUST_DIE1	Digital test pin – MUST	4	3
10	TEST_MUST_DIE2	Digital test pin – MUST	n/a	n/a
11	M2S	Master-Slave approach	n/a	n/a
12	S2M	Master-Slave approach	n/a	n/a

2.4.3. Force / Sense jumpers – J1

Force Pin	Names	Sense Pin #	Description
1	VDD_DIE	2	VDD_SENSE_DIE
3	OUT_ DIE1	4	OUT_SENS_DIE1
5	OUT_ DIE2	6	OUT_SENS_DIE2
7	GND_DIE	8	GND_SENSE_DIE

3. Contact

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