

Quick Start Guide

GreenPAK In-System Programming Board

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1 Terms and Definitions

FET	Field-Effect Transistor
GND	Ground
ISP	In-System Programming
LDO	Low Dropout Voltage Regulator
LED	Light Emitting Diode
OCP	Over Current Protection
OTP	Over Temperature Protection
OVP	Over Voltage Protection
PCB	Printed Circuit Board
SCL	I ² C Clock Input
SCP	Short Circuit Protection
SDA	I ² C Data Input/Output
USB	Universal Serial Bus
V _{DD}	Power Supply

2 Description

The In-System Programming (ISP) Board is a small PCB that allows to emulate and program the SLG46826/4 chip without using the Universal Development Board. The chip is programmed/emulated through the I²C protocol via four SLG46826/4 pins: V_{DD}, SCL, SDA, and GND.

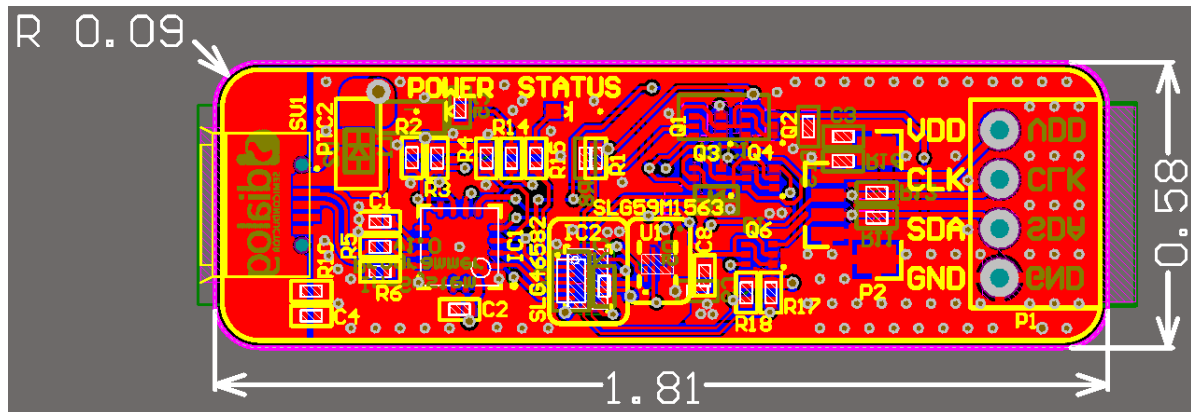


Figure 1: PCB

Note 1 All sizes in inches.

The ISP board can be used with GreenPAK Designer version 6.xx and above. Select "ISP" in the "Development Platform Selector" window and click on the "Program" or "Emulate" button.

When the ISP board is connected to USB port, "Power" LED turns on. The ISP Programmer connector (P1 or P2) pins should be connected to the external board in order to the SLG46826/4 (programmed) chip could be powered from the ISP or from external power supply. The ISP board detects external power and switches off its V_{DD} line (in this case, I²C pull-up resistors are connected to the external power).

There are two options for the user to make a connection between the ISP board and their target board:

- 1) The P1 connector has four signals for SDA, SCL, power, and ground. This connector can be used to make physical and electrical connection to the target board. To enable this, the User should place a duplicate of this connector on the target board. The part number of this connector is Molex Connector Corporation 0022152046. This connector was chosen for its small physical size.
- 2) The P2 connector also has the same four signals for SDA, SCL, power, and ground. This connector has 0.1" spacing, which will support a variety of industry standard cabling options. Additionally Target Board Cable is included with the ISP Board. If the User prefers to use this option, the cabling mating connector on the target board must be chosen. The part number for this connector is BM04B-SRSS-TB(LF)(SN).

Table 1: ISP States Board

ISP State	Power LED	Status LED
Standby mode	On	Off
Emulation mode	On	Blink
Program mode	On	Blink
Over voltage protection at V _{DD} line	Blink	Off
Over temperature protection	Off	Off

Table 2: Board Protections

Protection	Description
Over current protection (OCP)	PTC limits maximum V_{DD} current equals 100 mA
Short circuit protection (SCP)	PTC limits maximum V_{DD} current equals 100 mA
Over voltage protection (OVP)	When the external power supply voltage exceeded 5.6 V, FET U1 and power supply LDO IC2 are turned off and Power LED starts to blink.
Over temperature protection (OTP)	When the IC2 temperature exceeds 75 °C, FET U1 and power supply LDO IC2 are turned off and Power and Status LEDs are also turned off.

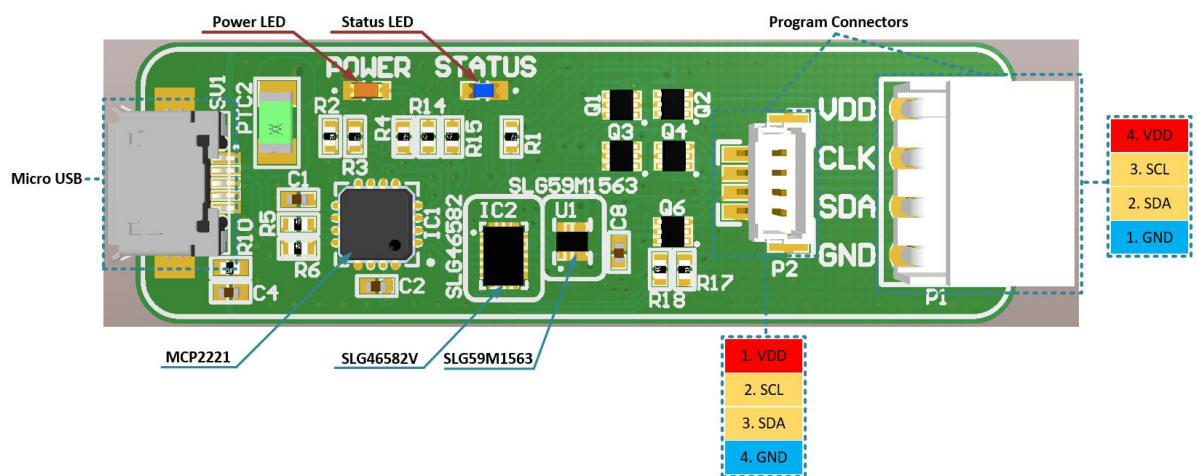
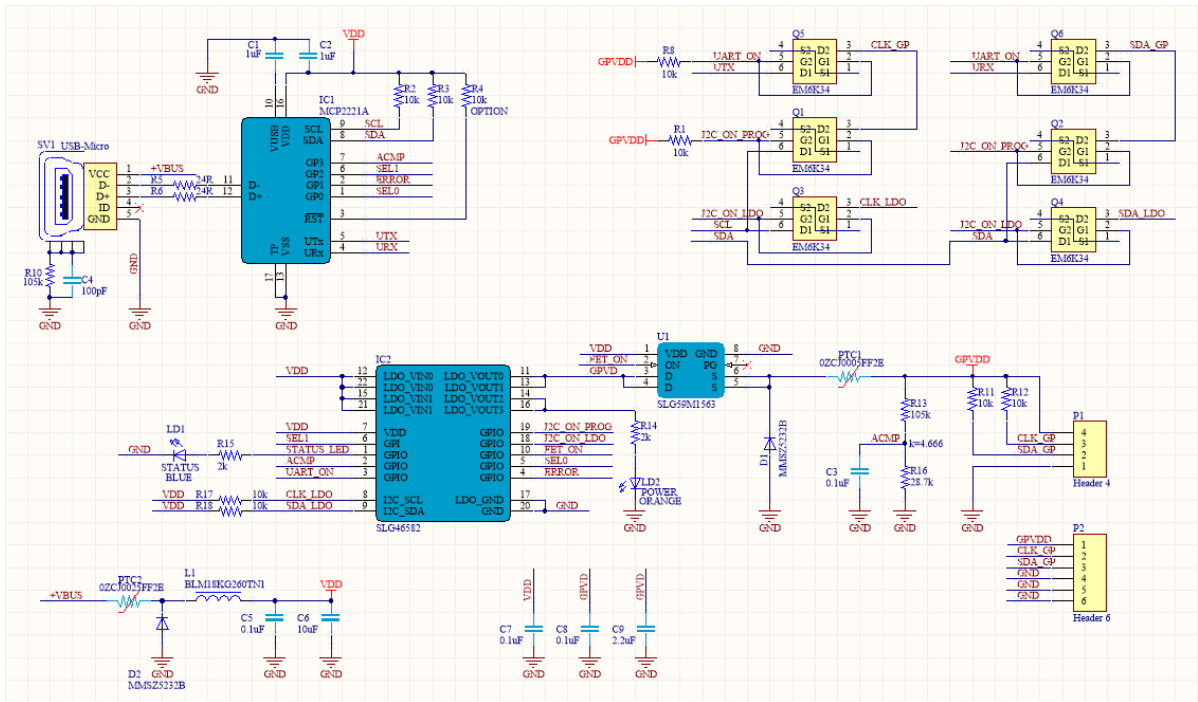


Figure 2: PCB Top View

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GreenPAK In-System Programming Board

Appendix A Board Schematic Diagram



GreenPAK In-System Programming Board

Appendix B BOM

#	Designator	Description	Footprint	Quantity
1	C1, C2	CAP CER 1 μ F 10V Y5V 0402	C0402	2
2	C3, C4	CAP CER 100 pF 10V X7R 0402	C0402	2
3	C5, C7, C8	CAP CER 0.1 μ F 10V X5R 0402	C0402	3
4	C6	CAP CER 10 μ F 10V X5R 0805	C0805	1
5	C9	CAP CER 2.2 μ F 10V X5R 0402	C0402	1
6	D1, D2	TVS DIODE 5VWM 9.2VC SOD123W	SOD123	2
7	IC1	IC USB TO I2C BRIDGE DEVICE 16QF	QFN16-4.0x4.0	1
8	IC2		STQFN-20L-2.0x3.0	1
9	L1	FERRITE BEAD 26 Ω 0603 1LN	F0603	1
10	LD1	LED BLUE CLEAR 0603 SMD	LED0603_BLUE	1
11	LD2	Orange 605nm LED Indication - Discrete 2.2V 0603 (1608 Metric)	LED0603_ORANGE	1
12	P1	Molex Connector Corporation 0022152046	MOLEX_4pin	1
13	PTC1	PTC RESET FUSE 60V 50MA 1206	R_1206	1
14	PTC2	PTC RESET FUSE 16V 250MA 1206	R_1206	1
15	Q1, Q2, Q3, Q4, Q5, Q6	MOSFET 2N-CH 50V 0.2A EMT6	SOT-563	6
16	R1, R2, R3, R8, R11, R12, R17, R18	RES SMD 24 Ω 5% 1/16W 0402	RES 0402L (1005)	8
17	R5, R6	RES SMD 100 k Ω 1% 1/16W 040	RES 0402L (1005)	2
18	R10, R13	RES SMD 100 k Ω 1% 1/16W 0402	RES 0402L (1005)	2
19	R14, R15	RES SMD 2 k Ω 1% 1/16W 0402	RES 0402L (1005)	2
20	R16	RES SMD 21.5 Ω 1% 1/16W 0402	RES 0402L (1005)	1
21	SV1	CONN USB MICRO B RECPT SMT R/A	Micro USB	1
22	U1		WLCSP_0.8X0.8_4L	1
23	P2	BM04B-SRSS-TB(LF)(SN)	BM04B_WHITE	1

Revision History

Revision	Date	Description
1.1	14-Sep-2020	Updated according to Dialog's Writing Guideline

GreenPAK In-System Programming Board

Status Definitions

Status	Definition
DRAFT	The content of this document is under review and subject to formal approval, which may result in modifications or additions.
APPROVED or unmarked	The content of this document has been approved for publication.

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