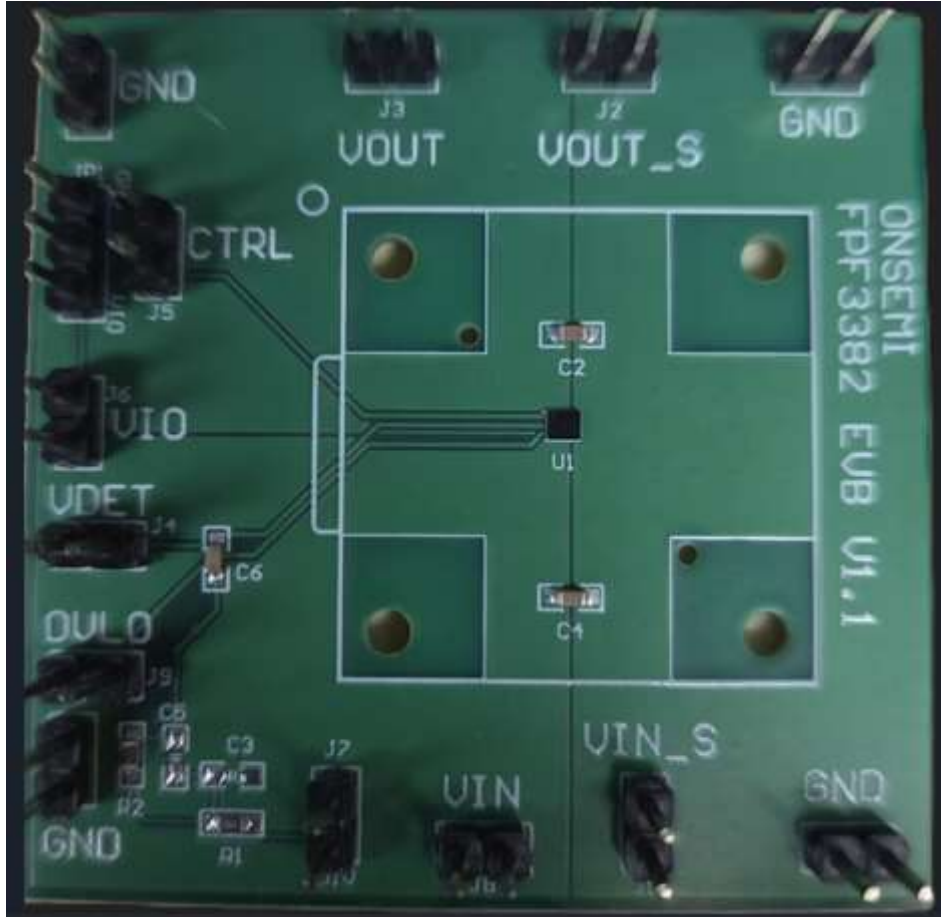




FPF3382 EvB user guide



FPF3382 EvB user guide



Overview

The FPF3382 Evaluation Board is designed to demonstrate and validate the performance of the FPF3382 hot-swap power switch. It supports input voltages up to 25 V and includes features for over-voltage lockout (OVLO), controlled turn-on, and fault detection.

Key Features

- Input voltage range: up to 25 V
- Integrated OVLO and VDET functionality
- External control via CTRL pin
- Sense outputs for VIN and VOUT
- Test points for all major signals
- Compact layout with standard 0603/1206 components

FPF3382 EvB user guide (Setup Instructions)

Power Supply

- Connect up to **25 V** to **J8 (VIN)**.
- Connect **GND** to the corresponding ground terminals.

Logic Supply

- Apply **VIO** (typically 3.3 V or 5 V) to **J6** for logic-level control.

Control and Monitoring

- Use **J5 (CTRL)** to enable or disable the switch by using **JP1** to jumper **CTRL** to either **GND** (enabled) or **VIO** (disabled).
- Monitor **VOUT** at **J3**, and **VIN** at **J8**.
- Use **J1/J2** for precision sensing of VIN and VOUT.
- OVLO threshold can be adjusted via **R1/R2**.
 - Default resistors of **R1=500k Ω** and **R2=26.3k Ω** provide OVLO of ≈ 24 V if **J7** has jumper.
 - OVLO can be adjusted by changing **R1/R2** values according to datasheet. **J7** jumper must be present.
 - OVLO will default to ≈ 12.4 V when **J7** jumper is not present.

FPF3382 EvB user guide (Testing)

Functional Testing

- **Power On** the board with **VIN** and **VIO** connected.
- **Toggle CTRL** to observe switching behavior through **JP1**.
- **Monitor VDET** and **OVLO** signals to verify fault detection.
- **Measure VOUT** to confirm proper regulation and switching.
- **Test under load** to evaluate current handling and protection features.

Notes

- Capacitors **C1**, **C3**, **C5**, **C7** are marked NC (Not Connected) and can be populated for custom filtering.
- Ensure proper grounding across all test points.

General Tips

- Use an oscilloscope to monitor VIN, VOUT, CTRL, and VDET for dynamic behavior.
- If using external logic signals, confirm they are referenced to the same ground as the board.
- Always power down the board before making component changes or jumper adjustments.

FPF3382 EvB (Trouble Shooting)

Troubleshooting Tips

If the FPF3382 Evaluation Board is not functioning as expected, use the following checklist to diagnose and resolve common issues:

Power Issues

- **No output voltage (VOUT):**
 - Verify that **VIN** is properly connected and within the 2.8 V to 25 V range.
 - Ensure **CTRL** is pulled low (enabled) or left floating.
 - Confirm that the **FPF3382 IC (U1)** is properly soldered and powered.
- **Board not powering up:**
 - Check for shorts between VIN and GND.
 - Measure voltage at **J7 (VIN)** and **J6 (VIO)** to confirm supply presence.
 - Inspect for damaged components, especially capacitors and resistors.

Signal and Control Issues

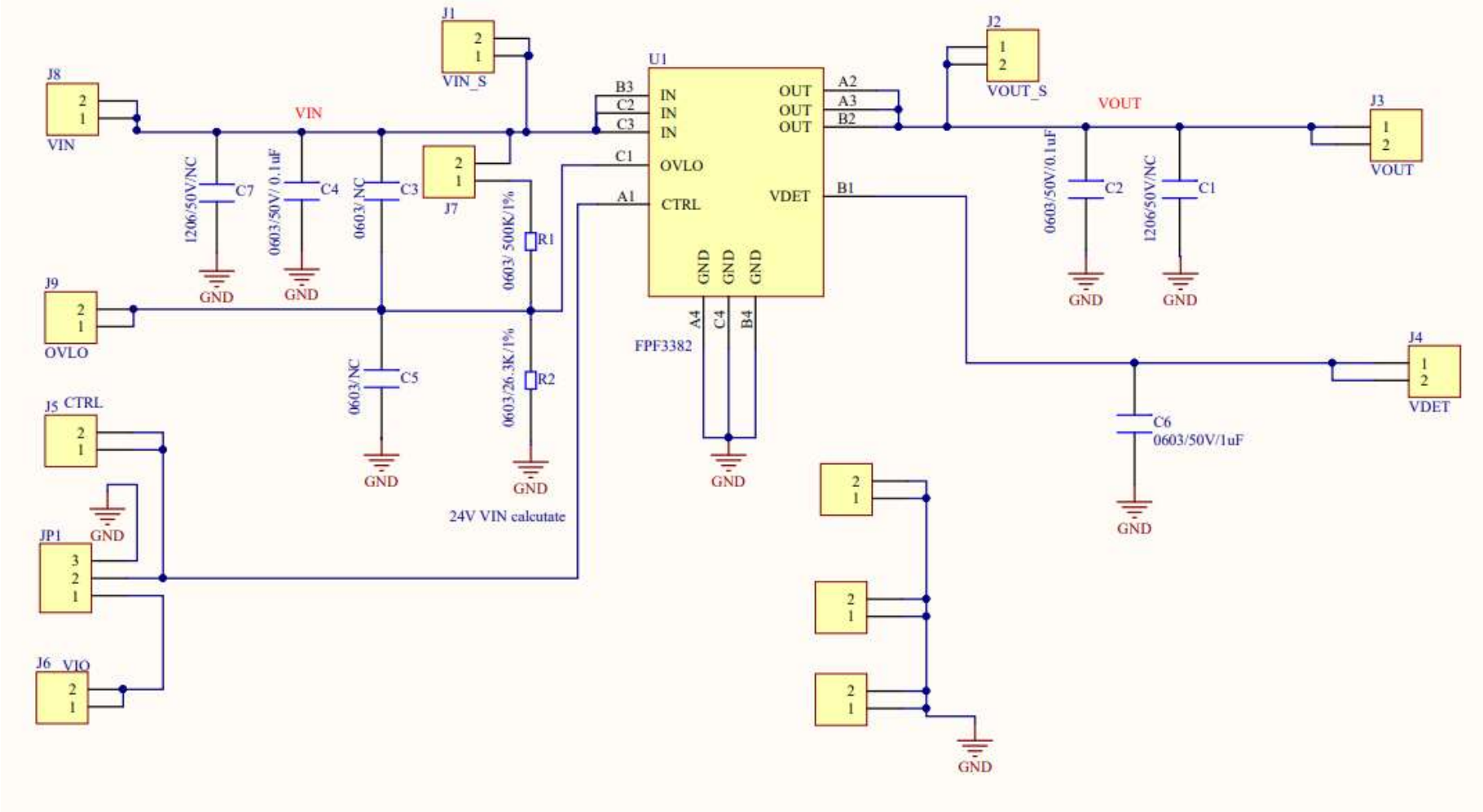
- **CTRL not responding:**
 - Ensure the signal at **J5 (CTRL)** is within valid logic levels.
 - If using **JP1** jumper, verify it is securely placed and not floating.
 - Check continuity between **CTRL** pin and **U1**.
- **OVLO triggering unexpectedly:**
 - Measure the voltage at **J9 (OVLO)**.
 - Verify resistor values **R1 (500k Ω)** and **R2 (26.3k Ω)** are correct and properly soldered.
 - Adjust OVLO threshold if needed using the formula from the datasheet.

FPF3382 EvB (Trouble Shooting continued)

Output Problems

- **VOUT is unstable or noisy:**
 - Check decoupling capacitors **C2, C4, C6** for proper placement and values.
 - Ensure load is within the current rating of the FPF3382.
 - Use a clean ground reference when probing VOUT.
- **VOUT stuck low:**
 - Confirm that the switch is enabled via CTRL (active low).
 - Check for excessive load or short circuit at the output.

FPF3382 EvB Schematic



FPF3382 EvB (Bill of Materials)

Name	Description	Designator	Quanti... ⬆
1206/50V/NC	cap	C1, C7	2
0603/50V/0.1uF	cap	C2	1
0603/ NC	cap	C3	1
0603/50V/ 0.1uF	cap	C4	1
0603/NC	cap	C5	1
0603/50V/1uF	cap	C6	1
Header 2H	Header, 2-Pin, Right Angle	GND 1, GND 2, GND 3, J7	4
VIN_S	Header, 2-Pin, Right Angle	J1	1
VOUT_S	Header, 2-Pin, Right Angle	J2	1
VOUT	Header, 2-Pin, Right Angle	J3	1
VDET	Header, 2-Pin, Right Angle	J4	1
CTRL	Header, 2-Pin, Right Angle	J5	1
VIO	Header, 2-Pin, Right Angle	J6	1
VIN	Header, 2-Pin, Right Angle	J8	1
OVLO	Header, 2-Pin, Right Angle	J9	1
Header 3H	Header, 3-Pin, Right Angle	JP1	1
0603/ 500K/1%	RES	R1	1
0603/26.3K/1%	RES	R2	1
FPF3382	IC	U1	1