

SLG59H1132V-EVB

High Voltage GreenFET Evaluation Board #10 R1.1

This evaluation board provides full range of evaluation features for SLG59H1132V load switch.

Specifications

The High Voltage GreenFET Evaluation Board #10 is working with the following operating conditions:

- V_{IN} Voltage – 4.5 V...22 V
- Load Current – up to 6 A

Features

- Screw Terminals for VIN, VOUT, GND
- Internal VLOGIC regulator
- External VLOGIC terminal
- 6 hooks + pin header for probe connection
- DIP switches for RSET and CSLEW arrays
- 2-pos pin headers for ON/SEL configuration
- LEDs for PG and FAULT indication

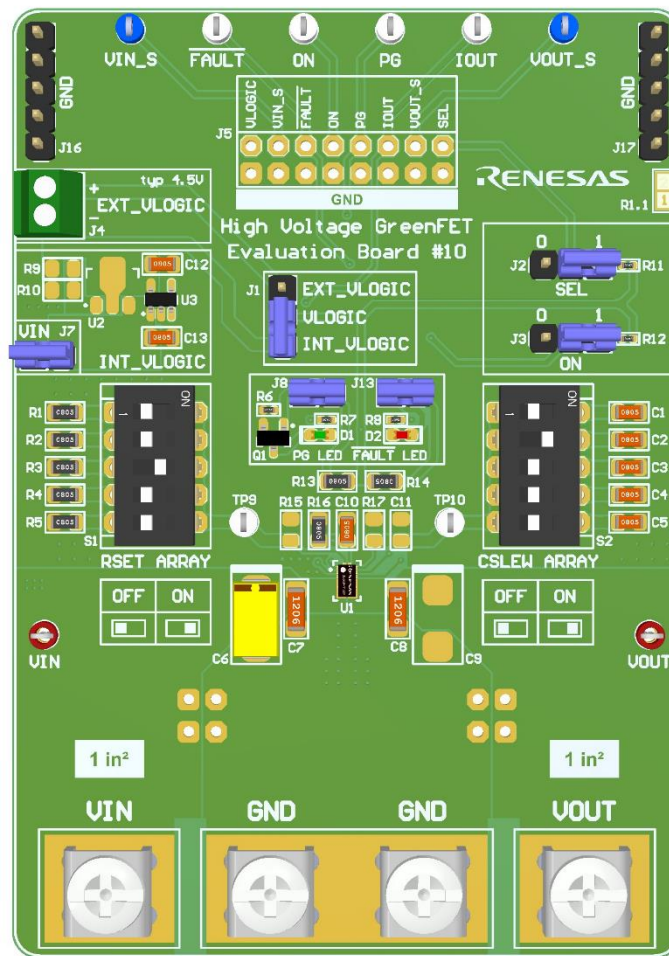


Figure 1. High Voltage GreenFET Evaluation Board #10

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1. Functional Description

This Evaluation Board provides full evaluation capabilities for the SLG59H1132V load switch. It has all the necessary screw terminals to connect input voltage, output load, connectors to measure main parameters and configure input signals.

The main components and their basic functions are shown in Figure 2.

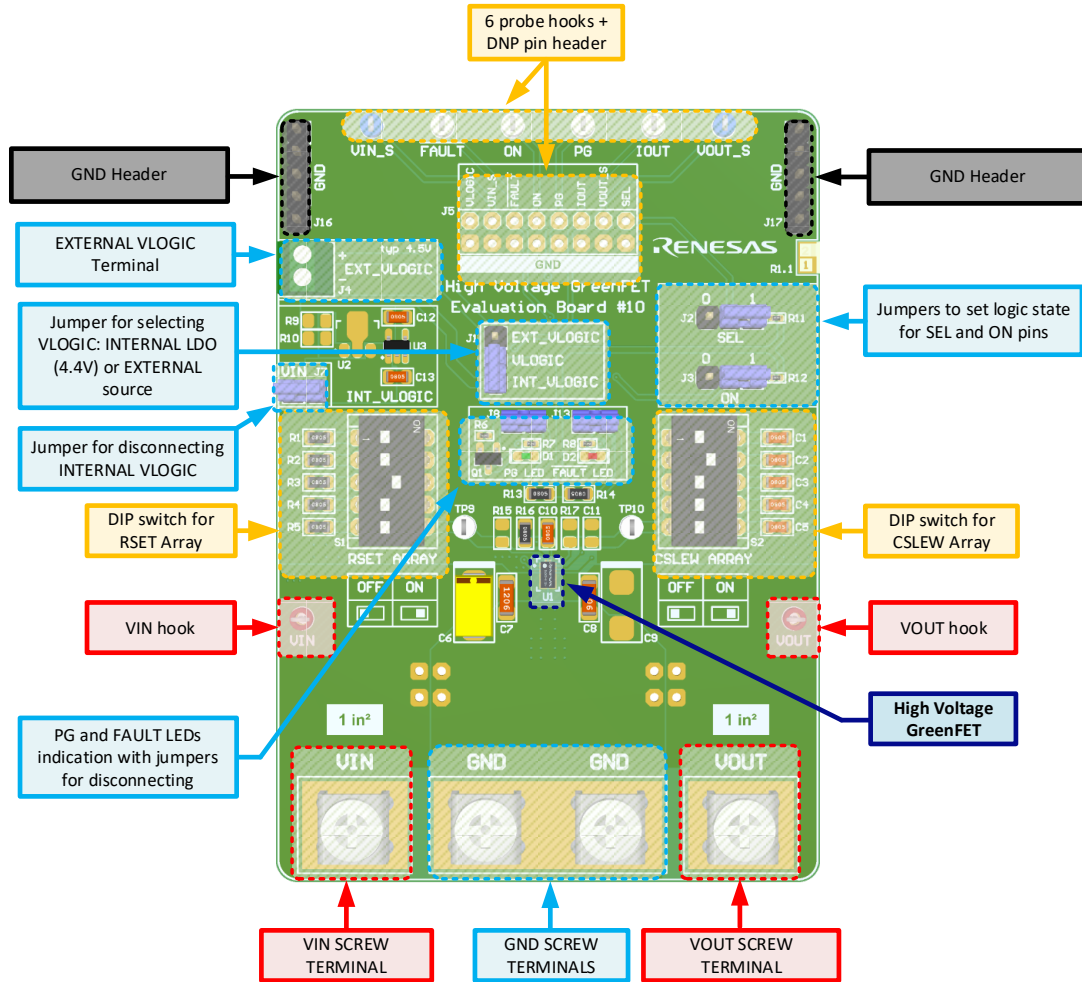


Figure 2. High Voltage GreenFET Evaluation Board #10 Main Blocks Description

2. Evaluation Board Features

2.1 Screw Terminals

Screw Terminals are used for connecting VIN, GND and VOUT to power supply and load:

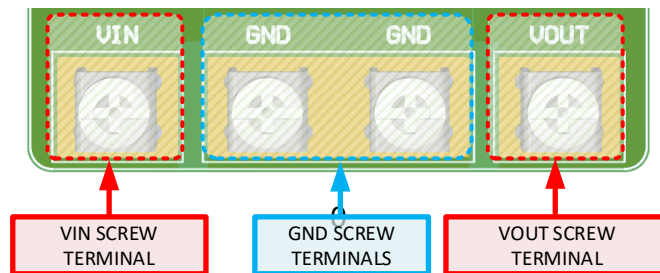


Figure 3. Screw Terminals

Screw terminal dimensions are shown in figure below:

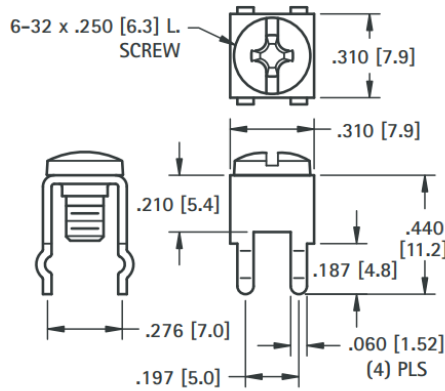


Figure 4. Screw Terminal Dimensions

2.2 Setting Output Current Limit with R_{SET}

HV GreenFET Evaluation Board #10 has DIP switch for setting 5 different R_{SET} values.

The R_{SET} resistors can be chosen by using DIP switch S1:

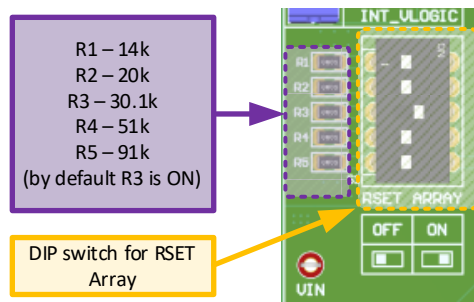


Figure 5. DIP Switch for RSET Array

2.3 Setting V_{OUT} Ramping with C_{SLEW}

In general, under light loading on V_{OUT} , V_{OUT} ramping can be controlled with C_{SLEW} value.

The value of C_{SLEW} could be chosen by using DIP switch S2:

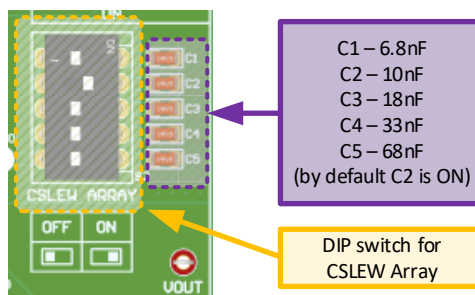


Figure 6. DIP Switch for CSLEW Array

2.4 Internal/External VLOGIC

VLOGIC bus can be powered from internal or external source. This voltage could be applied as ON and SEL signals.

Internal VLOGIC is around 4.4 V LDO regulator and input voltage comes from V_{IN} power rail.

External VLOGIC (**max 4.5 V**) can be supplied from EXTERNAL VLOGIC Terminal J4.

Internal or External logic level voltage can be selected by changing the position of the Jumper on J1 header:

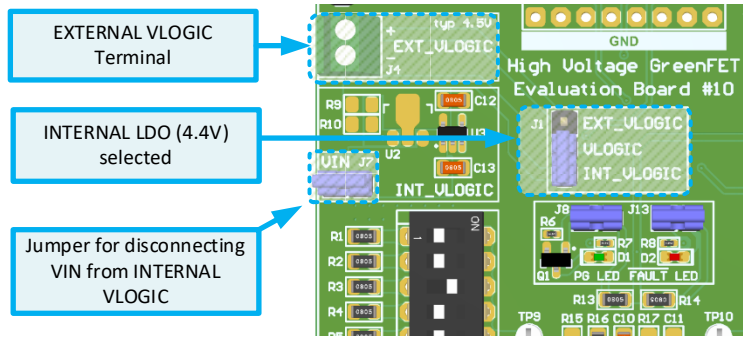


Figure 7. Internal VLOGIC Selection

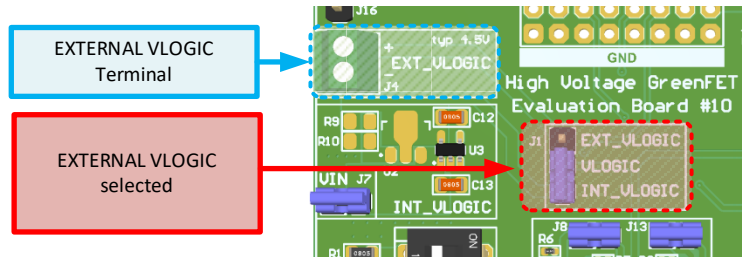


Figure 8. External VLOGIC Selection

A logic state for SEL and ON pins can be selected by changing the jumper position on the 3-pin headers J2 and J3 respectively:

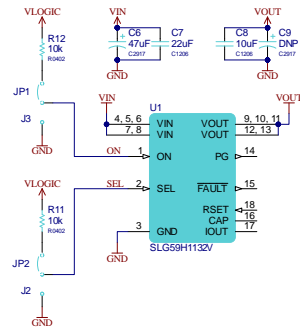


Figure 9. Connecting SEL and ON Pins to Pin Headers J2 and J3



Figure 10. SEL/ON Logic State Selection

2.5 4-Wire (Kelvin) Connection for $R_{DS(ON)}$ Measurements

Board supports $R_{DS(ON)}$ measurements by using 4-wire Kelvin connection. The connection scheme and Test Points (TP) location on PCB are shown below.

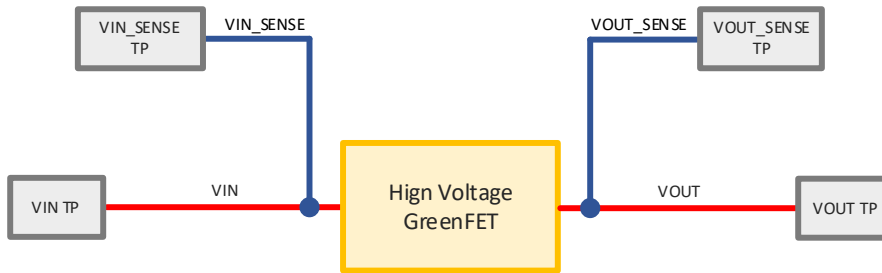


Figure 11. Block Diagram for 4-Wire Kelvin RDS_{ON} Measurements

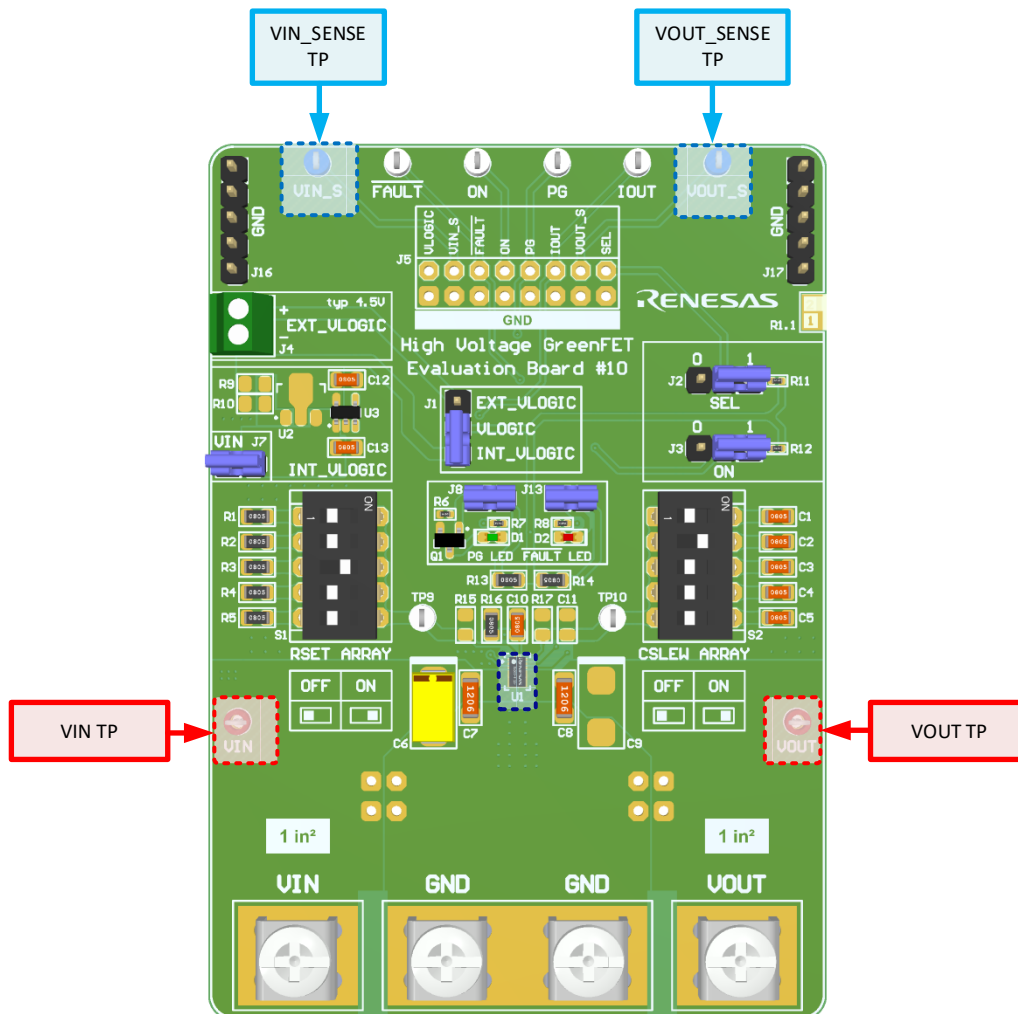


Figure 12. Location of 4-Wire Kelvin Sense TPs

2.6 LED Indication

The board has two LEDs for indicating $\overline{\text{FAULT}}$ and PG signals. The green D1 LED indicates the High state on the PG pin while the red D2 LED indicates the Low state on the $\overline{\text{FAULT}}$ pin. Schematic connections of D1 and D2 LEDs are shown below:

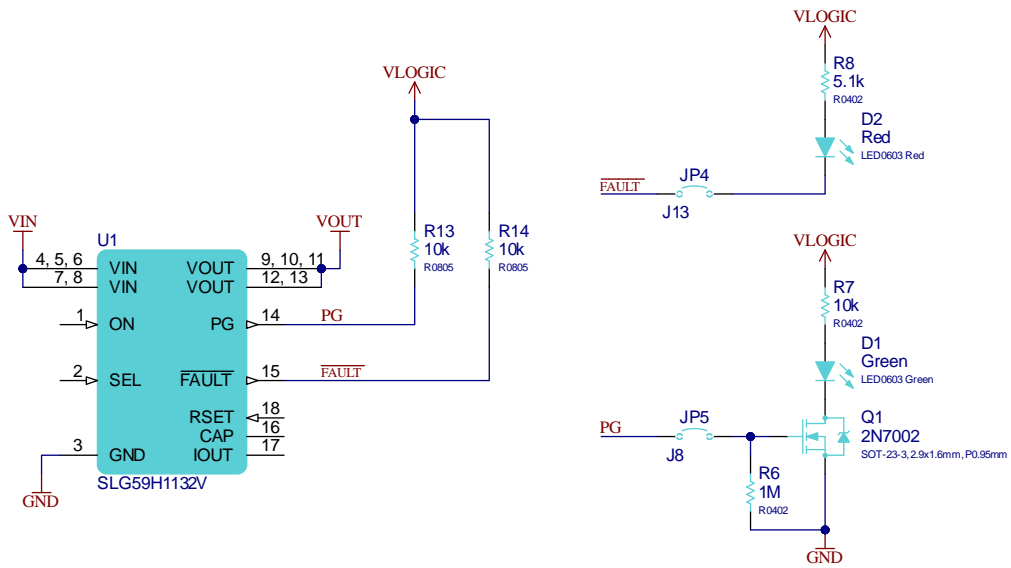


Figure 13. Schematic Connection of D1 and D2 LEDs.

To minimize the leakage current and disable indication function of PG and $\overline{\text{FAULT}}$ signals, the circuit can be disabled by removing jumpers J8 and J13.

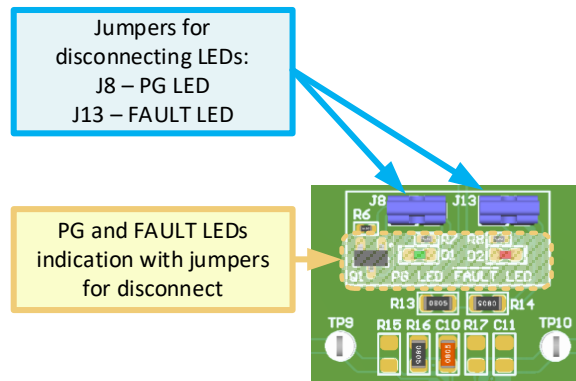
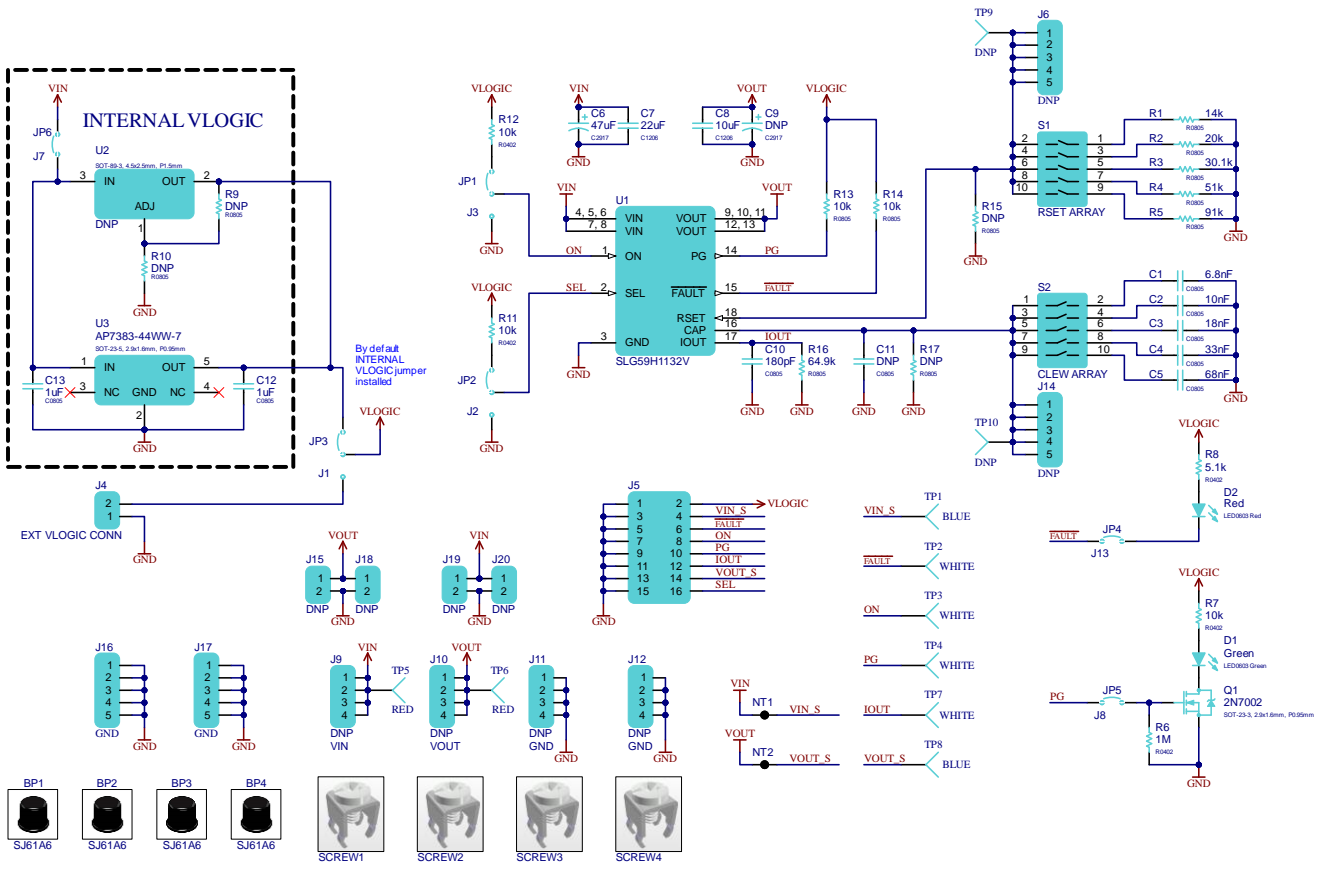


Figure 14. Jumpers for Disconnecting LEDs

3. Schematic



4. BOM

#	Designator	Manufacturer Part Number	Manufacturer	Quantity
1	BP1, BP2, BP3, BP4	SJ61A6	3M	4
2	C1	CC0805KRX7R9BB682	YAGEO	1
3	C2	CC0805KRX7R9BB103	YAGEO	1
4	C3	CC0805JRX7R9BB183	YAGEO	1
5	C4	CC0805KPX7R9BB333	YAGEO	1
6	C5	CC0805KKX7R0BB683	YAGEO	1
7	C6	T495X476M035ATE300	KEMET	1
8	C7	C3216X5R1V226M160AC	TDK Corporation	1
9	C8	C3216X5R1V106M160AB	TDK Corporation	1
10	C9	-	-	1
11	C10	GRM21A5C2D181JW01D	Murata Electronics	1
12	C11	-	-	1
13	C12, C13	CC0805KKX7R9BB105	YAGEO	2
14	D1	150060GS75000	Würth Elektronik	1
15	D2	150060RS75000	Würth Elektronik	1
16	J1, J2, J3	61300311121	Würth Elektronik	3
17	J4	OSTVN02A150	On Shore Technology Inc.	1
18	J5	-	-	1
19	J6, J14	-	-	2
20	J7, J8, J13	61300211121	Würth Elektronik	3
21	J9, J10, J11, J12	-	-	4
22	J15, J18, J19, J20	-	-	4
23	J16, J17	61300511121	Würth Elektronik	2
24	JP1, JP2, JP3, JP4, JP5, JP6	609002115121	Würth Elektronik	6
25	Q1	2N7002-7-F	Diodes Incorporated	1
26	R1	RC0805FR-0714KL	YAGEO	1
27	R2	RC0805FR-0720KL	YAGEO	1
28	R3	RC0805FR-0730K1L	YAGEO	1
29	R4	RC0805FR-0751KL	YAGEO	1
30	R5	RC0805FR-0791KL	YAGEO	1
31	R6	RC0402FR-071ML	YAGEO	1
32	R7, R11, R12	RC0402FR-0710KL	YAGEO	3
33	R8	RC0402FR-075K1L	YAGEO	1
34	R9, R10, R15, R17	-	-	4
35	R13, R14	RC0805FR-0710KL	YAGEO	2
36	R16	RC0805FR-0764K9L	YAGEO	1
37	S1	1825057-4	TE Connectivity ALCOSWITCH Switches	1
38	S2	1825057-4	TE Connectivity ALCOSWITCH Switches	1
39	SCREW1, SCREW2, SCREW3, SCREW4	7693	Keystone Electronics	4
40	TP1, TP8	5117	Keystone Electronics	2
41	TP2, TP3, TP4, TP7	5002	Keystone Electronics	4
42	TP5, TP6	5000	Keystone Electronics	2
43	TP9, TP10	-	-	2
44	U1	SLG59H1132V	Renesas Electronics America Inc	1
45	U2	-	-	1
46	U3	AP7383-44WW-7	Diodes Incorporated	1

5. Ordering Information

Part Number	Description
SLG59H1132V-EVB	High Voltage GreenFET Evaluation Board #10 R1.1

6. Revision History

Revision	Date	Description
1.01	Sep 16, 2024	Added n channel MOSFET for driving PG LED. Changed R1, R2, R4 resistor values for current limit settings and C3 value for Slew rate settings.
1.00	Mar 3, 2024	Initial release.

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