GLF1800
1 A Ideal Diode with Low Forward Voltage Drop

DESCRIPTION

The GLF1800 is an ideal diode switch featuring a low forward voltage drop. It is characterized by low quiescent current (I_Q), ultra-low shutdown current (I_{SD}), and a low forward voltage drop, making it a suitable replacement for conventional and Schottky diodes. These attributes help reduce power consumption and enhance overall system efficiency.

The ideal diode GLF1800 supports an input voltage range of 1.8 V to 5.5 V and delivers 1.0 A maximum continuous current. The device adopts a standard SOT23-5L package, which is well-suited for various low-voltage electronic applications.

FEATURES

- Input Voltage Range: 1.8 V to 5.5 V, 6.0 V_{ABS}
- Maximum Continuous Current: 1.0 A
- Low Forward Voltage Drop:
  - 14 mV (Typ.) at I_{OUT} = 1 mA
  - 19 mV (Typ.) at I_{OUT} = 100 mA
  - 117 mV (Typ.) at I_{OUT} = 1.0 A
- Low Quiescent Current, I_Q:
  - 1.0 μA (Typ.) at V_{IN} = 1.8 V
  - 1.1 μA (Typ.) at V_{IN} = 3.6 V
  - 1.2 μA (Typ.) at V_{IN} = 5.5 V
- Low Shutdown Current, I_{SD}:
  - 1 nA (Typ.) at V_{IN} = 1.8 V
  - 2 nA (Typ.) at V_{IN} = 3.6 V
  - 16 nA (Typ.) at V_{IN} = 5.5 V
- Low Reverse Current Regardless of ON & OFF:
  - 2 nA (Typ.) at V_{OUT} = 5.5 V
- Reverse Bias Turn-off Response: 12 μs (Typ.)
- Short Circuit Protection
  - Auto-Retry by Thermal Shutdown Protection

PIN CONFIGURATION AND DEFINITION

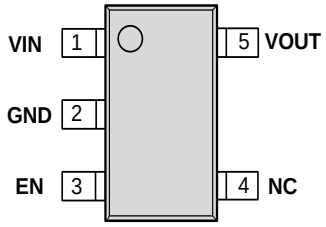

Figure 1. Package: SOT23-5L

Pin #	Name	Description
1	VIN	Power input, diode anode
2	GND	Ground
3	EN	Control pin, active high
4	NC	No connection, keep this Pin floating or connect it with Ground
5	VOUT	Power output, diode cathode

Copyright © 2025 GLF Integrated Power. All Rights Reserved.

APPLICATION DIAGRAM

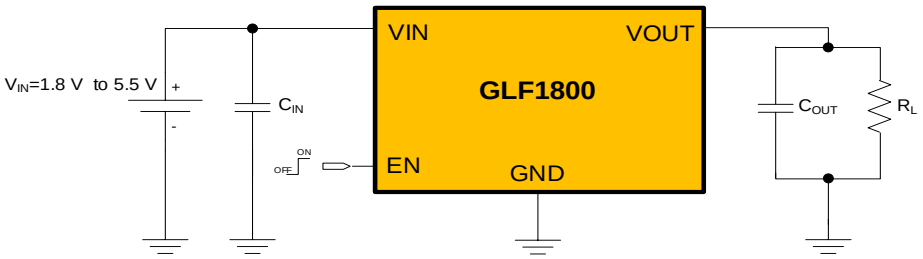

Figure 2. Typical Application

TEST SETUP

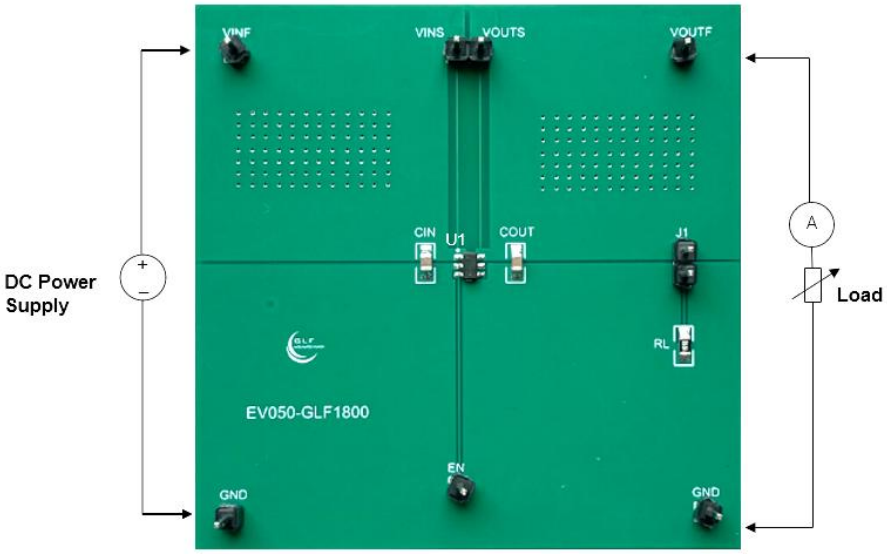

Figure 3. EVB Setup

QUICK START GUIDE

1. Set the VINF DC supply between 1.8 V to 5.5 V.
2. The load resistor RL=499 Ω has been populated on the top of the PCB board. Short the J1 to use RL. To increase the output current, connect an electronic load to VOUTF and GND. The output current of the GLF1800 is rated for 1 A maximum output continuous current. Please ensure that its absolute maximum is not exceeded.
3. When the EN (Enable) voltage is below 0.3V (logic low), the ideal diode output maintains in the off state. When the EN voltage exceeds 1.1V (logic high), the ideal diode output maintains in the on state.
4. VINS and VOUTS can be used for measurement point.
5. The GLF1800 does not have an internal pull-up or pull-down resistor on the EN pin. Please ensure that the voltage on the EN pin is kept high or low, and do not leave it floating.

Copyright © 2025 GLF Integrated Power. All Rights Reserved.

SCHEMATIC

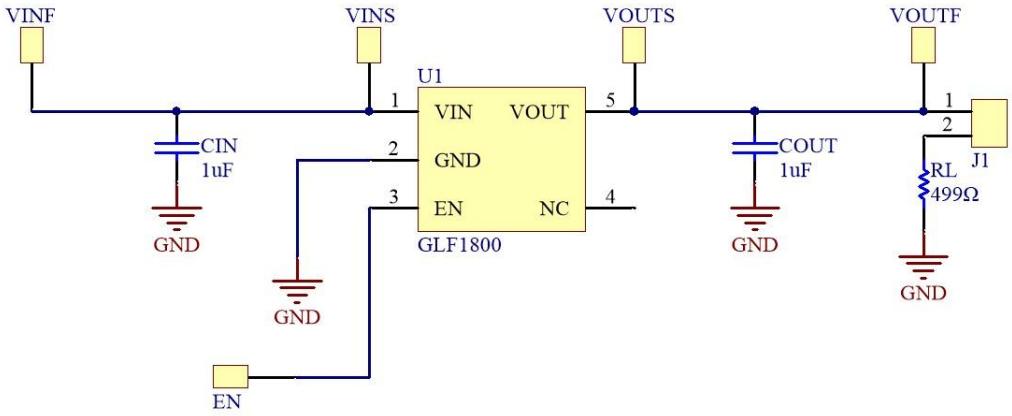

Figure 4. EVB Schematic

BILL OF MATERIALS

Designator	Value	QTY	Description	Manufacturer/Part Number
U1	GLF1800	1	Ideal diode switch	GLF Integrated Power
Cin, Cout	1.0 μF	2	Cap., X7R, 50V, 10% 0805	YAGEO, CC0805KKX7R9BB105
RL	499 Ω	1	Res. 1% 0805	YAGEO, RC0805FR-07499RL
J1	Jumper	1	Jumper	

Table 1. Bill of Materials

PRINTED CIRCUIT BOARD LAYOUT

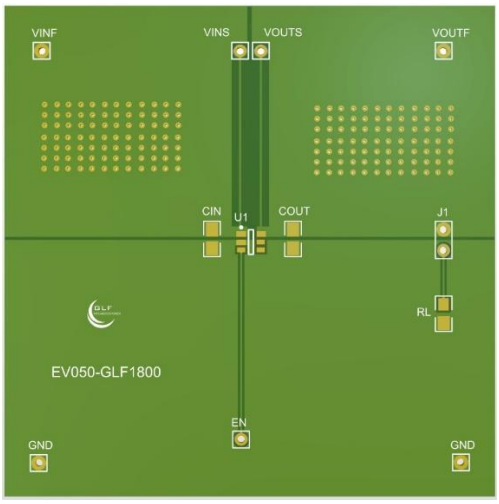

Figure 5. Top Layer

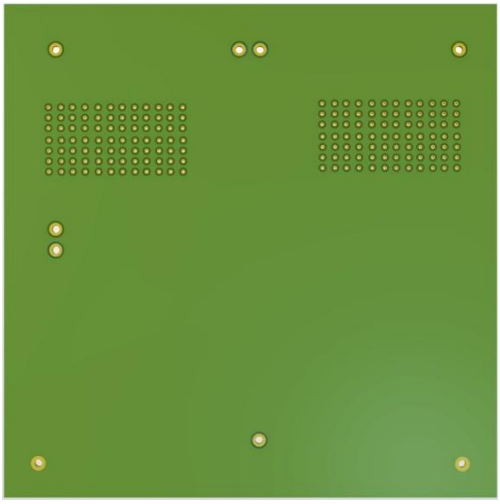

Figure 6. Bottom Layer

NOTICE: The evaluation board provided by GLF Integrated Power is intended for use for ENGINEERING DEVELOPMENT, OR EVALUATION PURPOSES ONLY and is not for any commercial use. The user assumes all responsibility and liability for proper and safe handling of the goods.

Copyright © 2025 GLF Integrated Power. All Rights Reserved.