GLF76311
Nano Current Consumption Power On/Off Switch

DESCRIPTION

The EV046-GLF76311 evaluation board features the GLF76311 that is an ultra-thin, ultra-efficient I_QSmart™ load switch with an integrated ON/OFF delay timer for Smart bracelet and Mobile handheld device.

When the VBAT pin is connected to the battery, the main switch of GLF76311 is turned on, that is the default state. When the internal integrated P-MOSFET is turned on, by pulling the SW pin to a low level for 6 s, the internal integrated P-MOSFET will be turned off, and the entire system enters the ultra-deep sleep energy-saving mode. The typical I_{SD} of GLF76311 is 7 nA. When the internal integrated P-MOSFET is turned off, by pulling the SW pin to a low level for 3 s, the internal integrated P-MOSFET will be turned on, and the entire system enters the normal working mode. The I_Q of GLF76311 is 6 nA.

The GLF76311 integrated 1ms slew rate control can also enhance system reliability by mitigating bus voltage swings during switching events.

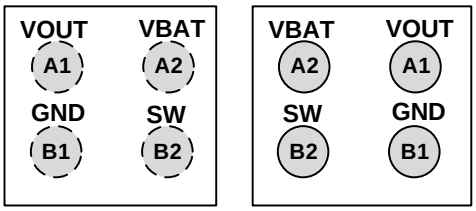
FEATURES

- Ultra-Low I_{SD}: 7 nA Typ at 3.6 V_{BAT}
- Ultra-Low I_Q: 6 nA Typ at 3.6 V_{BAT}
- Low R_{ON}: 34 mΩ Typ at 3.6 V_{BAT}
- I_{OUT} Max: 2 A
- Wide Input Range: 2.5 V to 5.5 V
- Turn-On Delay Time, 3 s Typ.
- Turn-Off Delay Time, 6 s Typ.
- Controlled Output Rise Time: 1 ms at 3.6 V_{BAT}
- Integrated Output Discharge Switch When Disabled
- Operating Temperature Range: -40 to 85 °C
- HBM: 6 kV, CDM: 2 kV
- Ultra-Small: 0.97 mm x 0.97 mm x 0.55 mm WLCSP

PRODUCT TABLE

Eval Board Ordering Info	Part Number	Top Mark	Turn On Delay Time	Turn Off Delay Time	Output Discharge	Package
EV046-GLF76311	GLF76311	CT	3 s	6 s	85 Ω	0.97 mm x 0.97 mm x 0.55 mm WLCSP

PIN CONFIGURATION AND DEFINITION

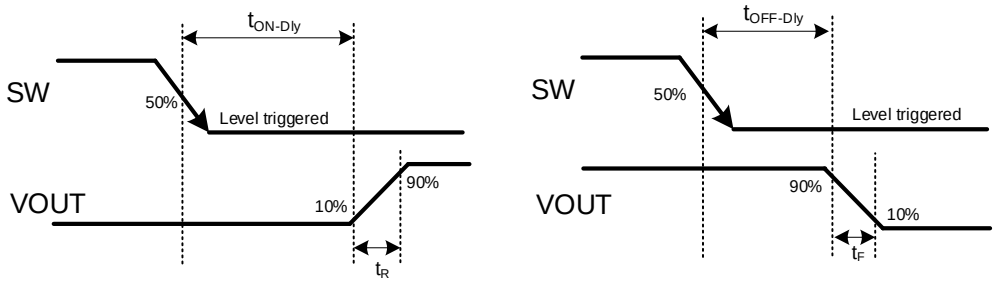


TOP VIEW **BOTTOM VIEW**

0.97 mm x 0.97 mm x 0.55 mm WLCSP

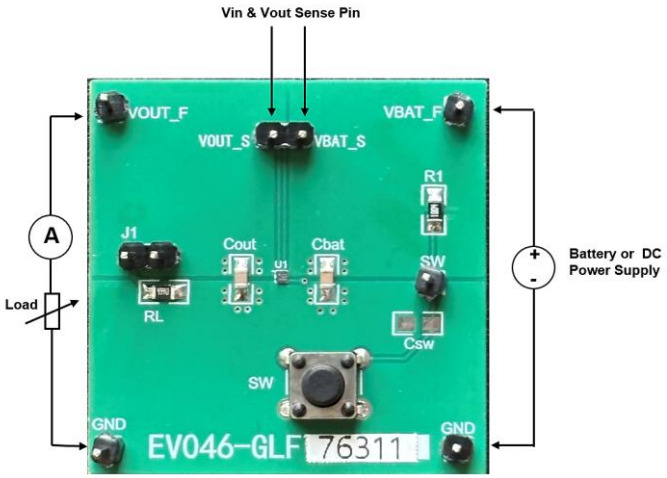
Pin #	Name	Description
A1	VOUT	Switch Output.
A2	VBAT	Switch Input. VBAT pin is connected to the positive input of an external battery.
B1	GND	Ground
B2	SW	Load switch SW control pin. Pulling the SW pin to a low level for 6 second, the internal integrated P-MOSFET will be turned off. Pulling the SW pin to a low level for 3 s, the internal integrated P-MOSFET will be turned on.

TIMING DIAGRAMS AND INPUT CONDITION



Function	VBAT	SW	Delay Time	VOUT Action
Power-On	First Connect battery	Doesn't matter	NA	VOUT=VBAT
	Connect battery	High to Low & Hold for 3 s	t_{ON-Dly} = 3 s	VOUT=VBAT
Power-Off into Deep Sleep	Connect battery	High to Low & Hold for 6 s	$t_{OFF-Dly}$= 6 s	VOUT to GND

TEST SETUP

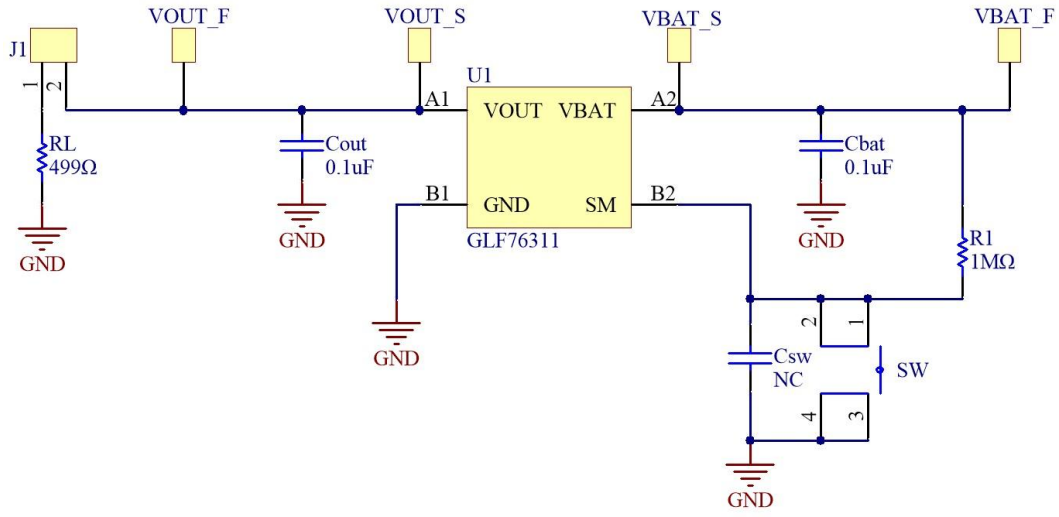


QUICK START GUIDE

The evaluation board EV046 is easy to set up to evaluate the performance of GLF76311.

1. Connect the positive and negative terminals of the input power supply or a Li-battery pack to VBAT_F and GND respectively. The VBAT_S and Vout_S can be used for measurement points. Make sure there is no high peak voltage generated when a VBAT_F input source is hot-plugged in.
2. When the VBAT_F is connected to the battery, the main switch of GLF76311 is turned on, that is the default state. The load resistor, RL=499 Ω, has been populated on the PCB board. Short the J1 to use the RL. To increase the output current, connect an electronic load to VOUT_F and GND. The output current for the GLF76311 is rated for 2 A maximum output continuous current. Please ensure this absolute maximum is not exceeded.
3. Press the SW switch and hold for 6s, GLF76311 will be turned off, and the entire system enters the ultra-deep sleep energy-saving mode, the I_{SD} is about 7 nA.
4. Press the SW switch and hold for 3s, GLF76311 will be turned on, and the entire system enters the normal working mode. The IQ of GLF76311 is about 6 nA.

SCHEMATIC



BILL OF MATERIALS

Qty	Reference	Value	Part Description	Manufacturer/Part Number
1	U1	GLF76311	Power Deep Sleep IC	GLF Integrated Power
2	Cbat, Cout	0.1 µF	Cap., X7R, 16 V, 5 % 0805	Kemet # C0805C104J4RACTU
1	RL	499 Ω	Load Resistor, 1 % 0805	YAGEO RC0805FR-07499RL
1	R1	1 MΩ	Resistor, 1 % 0805	YAGEO RC0805FR-071ML
1	J1	Jumper	Jumper	
1	C_{SW}	-	-	Do Not Place

PRINTED CIRCUIT BOARD LAYOUT

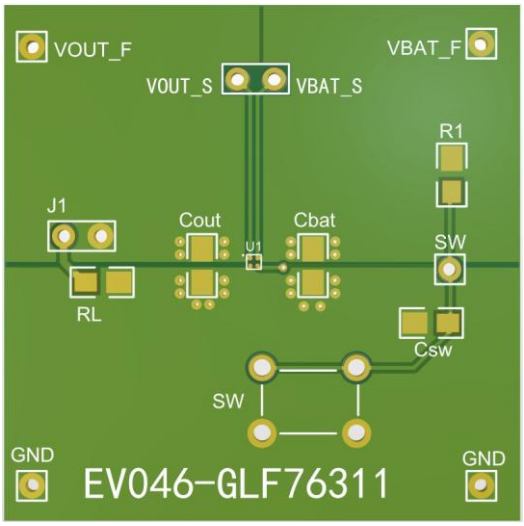


Fig 1. Top Layer

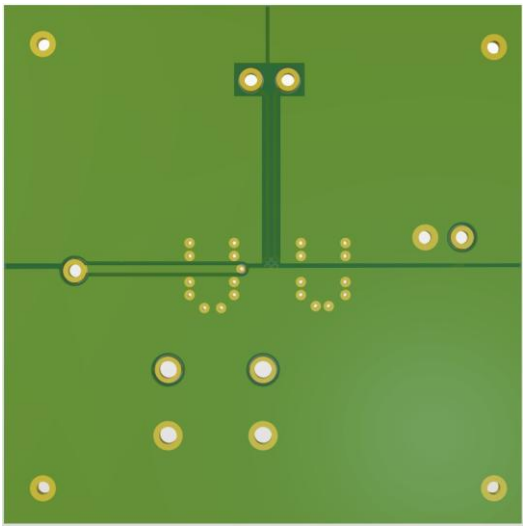


Fig 2. Bottom Layer

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.