

GLF71430 / GLF71431 VariRise™ Programmable Slew Rate

DESCRIPTION

The GLF71430 / GLF71431 is an ultra-efficient, 7 A rated, integrated load switch with the VariRise™ technology which provides the programmable slew rate of variable output voltage rising times.

The GLF71430 / GLF71431 features the ultra-efficient I_Q Smart™ technology that supports some of the lowest R_{ON} , quiescent currents (I_Q) and shutdown currents (I_{SD}) in the industry. Low R_{ON} reduces conduction losses, while low I_Q and I_{SD} solutions help designers to reduce parasitic leakage currents, improve system efficiency, and increase battery lifetimes.

The PGM input pin allows the user to add an external resistor to set the slew rate of the switch output voltage to a specific value for a given output capacitance. It limits inrush currents during turn-on, helping to minimize voltage droop.

The GLF71430 / GLF71431 offers best in class size and on-resistance (R_{ON}) performance. It uses chip scale packaging which utilizes 12 bumps, in a 1.27 mm x 1.67 mm die size with 0.4 mm pitch.

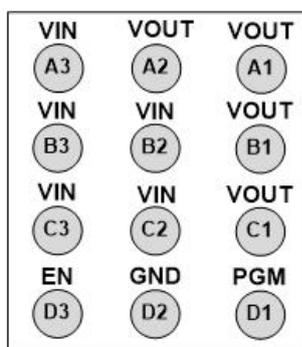
FEATURES

- Supply Voltage Range: 1.5 V to 5.5 V
- Low R_{ON} : 10 m Ω Typ. at 5.5 V_{IN}
- VariRise™ Programmable V_{OUT} Rising Time
- 7 A Continuous Output Current
- Ultra-Low Quiescent Current
 - I_Q : 10 nA Typ. at 5.5 V_{IN}
- Ultra-Low Stand-by Current
 - I_{SD} : GLF71430, 10 nA Typ. at 5.5 V_{IN}
 - I_{SD} : GLF71431, 55 nA Typ. at 5.5 V_{IN}
- Output Discharge Switch: GLF71431
- Wide Operating Temperature Range: -40 °C to 105 °C
- 1.27 mm x 1.67 mm x 0.55 mm Wafer Level Chip Scale Packaging (WLCSP)

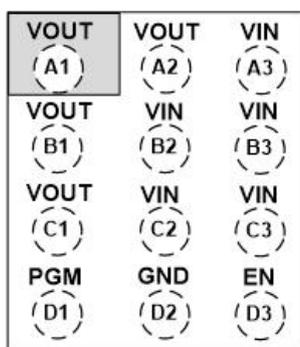
PRODUCT TABLE

Eval Board Ordering Info	Part Number	R_{ON} (Typ.) at 5.5V _{IN}	Output Discharge	EN Activity
EV004-GLF7143x	GLF71431	10 m Ω	85 Ω	High
EV004-GLF7143x	GLF71430	10 m Ω	NA	High

EVALUATION BOARD & DEVICE PACKAGE



BOTTOM VIEW



TOP VIEW

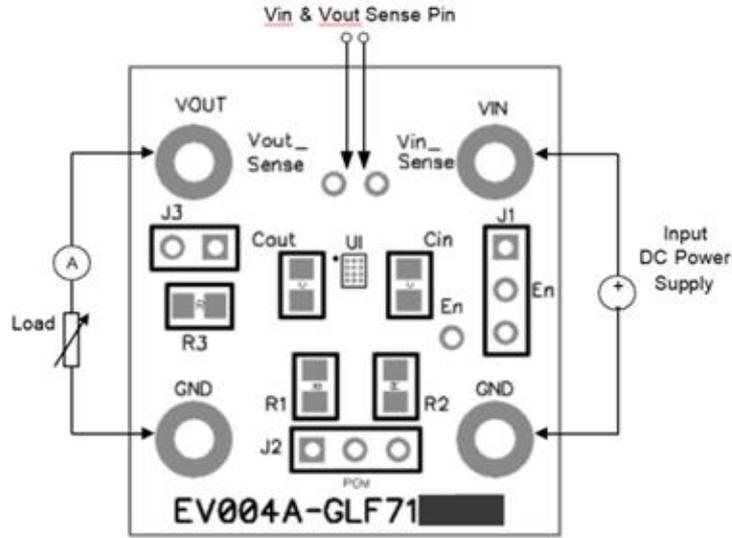
Pin #	Name	Description
A1, A2 B1, C1	VOUT	Switch Output
A3, B2, B3 C2, C3	VIN	Switch Input. Supply Voltage for IC
D1	PGM	Program pin to set the VOUT rising time with an external resistor.
D3	EN	Active high signal to enable the switch
D2	GND	Ground

QUICK START GUIDE

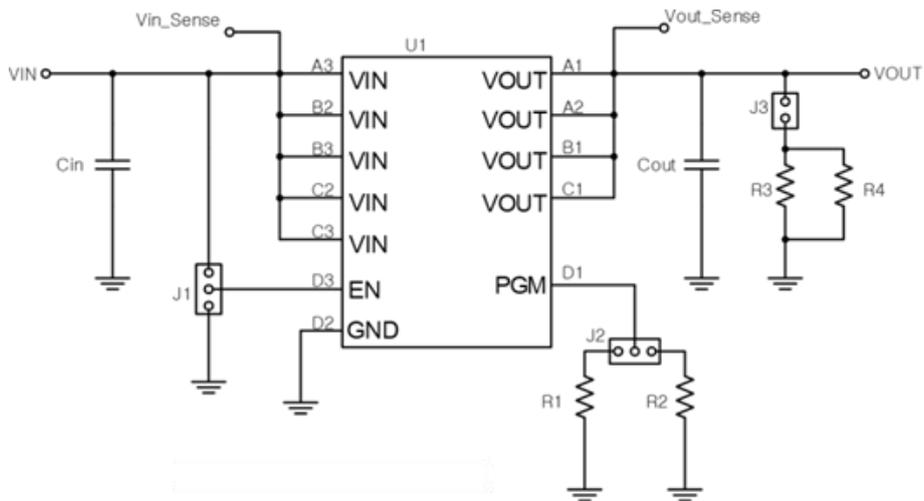
The evaluation board EV004 is easy to set up to evaluate the performance of GLF71430 / GLF71431.

1. Preset the input power supply to the desired voltage between 1.5 V to 5.5 V.
2. The load resistor, R3 = 150 Ω, has been populated. Short the J3 to use the 150 Ω or R4 which is not populated on the bottom side. To increase the output current, connect an electronic load to VOUT and GND. The output current is rated for 7 A maximum output continuous current. Please ensure this absolute maximum is not exceeded.
3. Connect the positive and negative terminals of the input power supply to VIN and GND respectively. VIN_Sense and VOUT_Sense can be used for measurement point.
4. The slew rate of the output voltage is set by J2. R1 and R2 represent a relatively fast and slow slew rate respectively. To change the slew rate, replace another resistor value in R1 or R2 and then set J2.
5. Turn on the input power supply.
6. Configure the EN jumper, J2, as required. Note - GLF71430 / GLF71431 have an internal EN pull-down resistor to ensure the part is in a defined state.

TEST SETUP



SCHEMATIC



BILL OF MATERIALS

Qty	Reference	Value	Part Description	Manufacturer/Part Number
1	U1	GLF71430 GLF71431	GLF71430 / GLF71431	GLF71431/ GLF71430
1	Cin	0.1 μ F	Cap., X7R, 50V, 10% 0805	YAGEO CC0805KRX7R9BB104
1	Cout	1 μ F	Cap., X7R, 50V, 10% 0805	YAGEO CC0805KKX7R9BB105
1	R1	20 k Ω	Res., 1/8W,1% 0805	YAGEO RC0805FR-0720KL
1	R2	680 k Ω	Res., 1/8W,1% 0805	YAGEO RC0805FR-07680KL
1	R3	150 Ω	Res., 1/8W,1% 0805	YAGEO RC0805FR-07150RL
	R4	-	Load Resistor	Not populated on the bottom
3	JP1-3	Jumper	Jumper	

PRINTED CIRCUIT BOARD LAYOUT

Fig 1. Top Layer

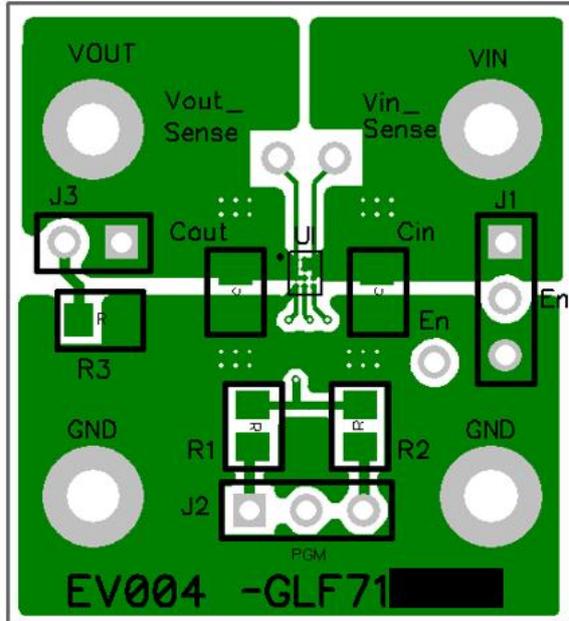
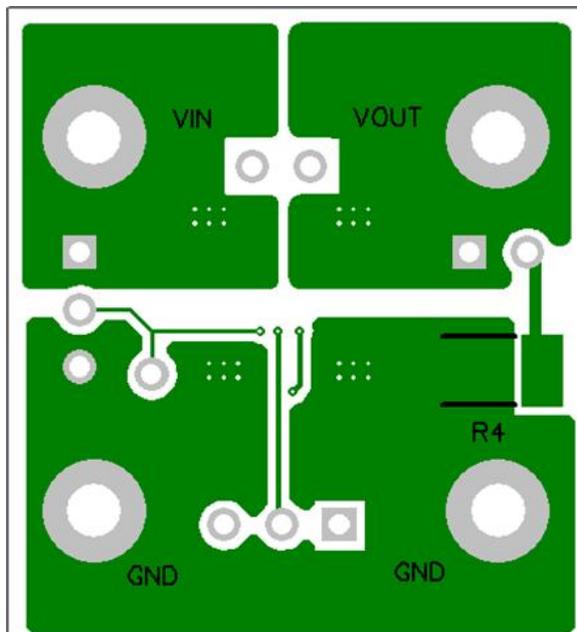


Fig 2. Bottom Layer



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.