GLF1421
Dual Channel, IQSmartTM Load Switch with Slew Rate Control

DESCRIPTION

The GLF1421 is an ultra-efficient dual channel load switch with slew rate control. The devices feature the ultra-efficient I_QSmart™ technology that supports some of the lowest R_{ON}, quiescent currents (I_Q), and shutdown currents (I_{SD}) in an input voltage range from 1.5 V to 5.5 V.

The GLF1421 features an industry leading true reverse current blocking (TRCB) function at both on and off states. The integrated slew rate control can also enhance system reliability by mitigating bus voltage swings during switching events. Where uncontrolled switches can generate high inrush currents that result in voltage droop and / or bus reset events, the GLF1421 slew rate control specifically limits inrush current during turn-on to minimize voltage droop.

Each channel runs independently controlled by separate EN control pin. Both devices feature an integrated output discharge switch when they are turned off to discharge output capacitors quickly.

FEATURES

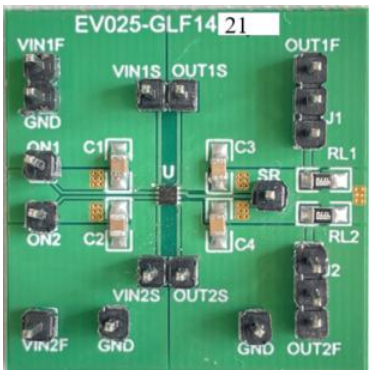
Per Channel

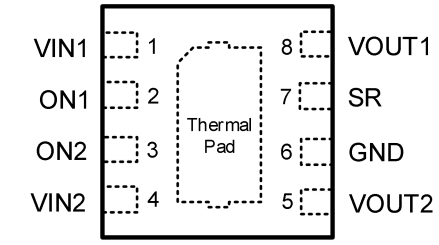
- Supply Voltage Range: 1.5 V to 5.5 V
- Slew Rate Control Pin of Output Rise Time
- True Reverse Current Blocking Protection
- Low R_{ON}:
  - 175 mΩ Typ at 5.5 V_{IN}
  - 220 mΩ Typ at 3.3 V_{IN}
  - 265 mΩ Typ at 2.5 V_{IN}
- I_{OUT} Max: 1 A Continuous Output Current
- Ultra-Low Quiescent Current, I_Q
  - 440 nA Typ. at 5.5 V_{IN}
  - 210 nA Typ. at 3.3 V_{IN}
  - 130 nA Typ. at 2.5 V_{IN}
- Ultra-Low Stand-by Current, I_{SD}
  - 20 nA Typ. at 5.5 V_{IN}
  - 4 nA Typ. at 3.3 V_{IN}
  - 3 nA Typ. at 2.5 V_{IN}
- Output Discharge Switch When Disabled

PRODUCT TABLE

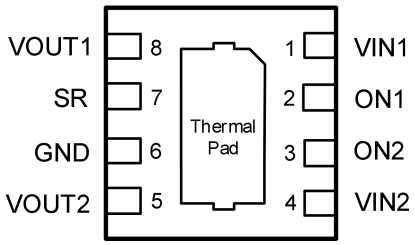
Eval Board Ordering Info	Part Number	Top Mark	R_{ON} (Typ.) @ 5.5 V	Output Discharge	VOUT Rise Time t_R (Typ) at 3.3 V	EN Activity
EV025-GLF1421	GLF1421-D1G7	DS	175 mΩ	95 Ω	465 µs at SR= High 50 µs at SR= GND	High

EVALUATION BOARD & DEVICE PACKAGE





TOP VIEW



BOTTOM VIEW

1	VIN1	Switch 1 input.
2	ON1	Active high signal to enable the switch 1
3	ON2	Active high signal to enable the switch 2
4	VIN2	Switch 2 input.
5	VOUT2	Switch 2 output
6	GND	Ground
7	SR	Slew rate control of V_{OUT1} and V_{OUT2}. SR = High (Slow) SR = GND (Fast)
8	VOUT1	Switch 1 output
	Thermal pad	Tie to GND

QUICK START GUIDE

The evaluation board EV025 is easy to set up to evaluate the performance of GLF1421.

1. Preset the input power supply to the desired voltage between 1.5 V to 5.5 V.

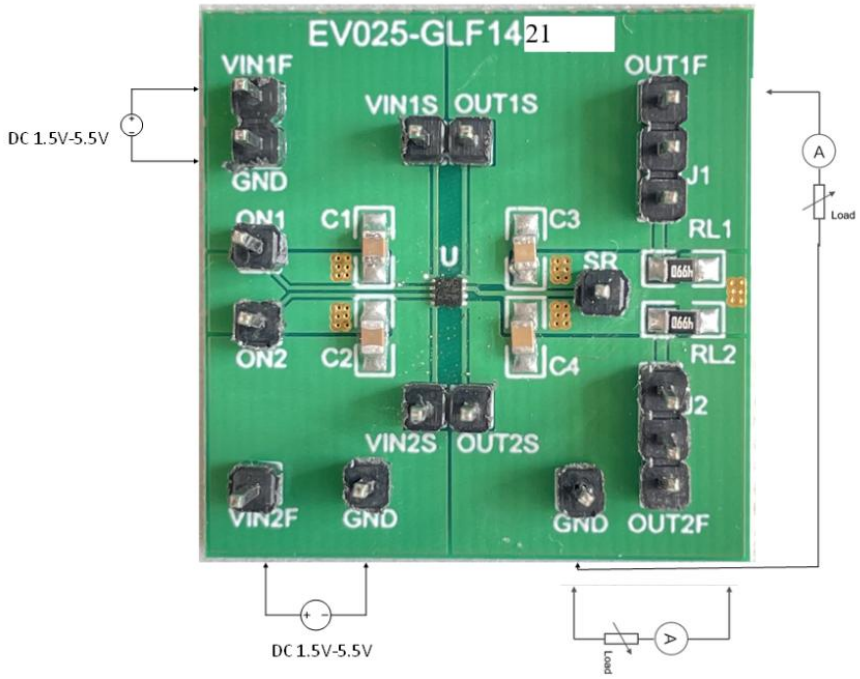
2. The load resistors, RL1= RL2=499 Ω, has been populated on the top of the PC board. Short the J1 to use the RL1=499 Ω and short the J2 to use the RL2=499 Ω. To increase the output current, connect an electronic load to VOUTx and GND. The output current for the GLF1421 is rated for 1 A maximum output continuous current each channel. Please ensure this absolute maximum is not exceeded.

3. Connect the positive and negative terminals of the input power supply to VINx_F and GND terminals respectively. VINx_Sense and VOUTx_Sense can be used for measurement points.

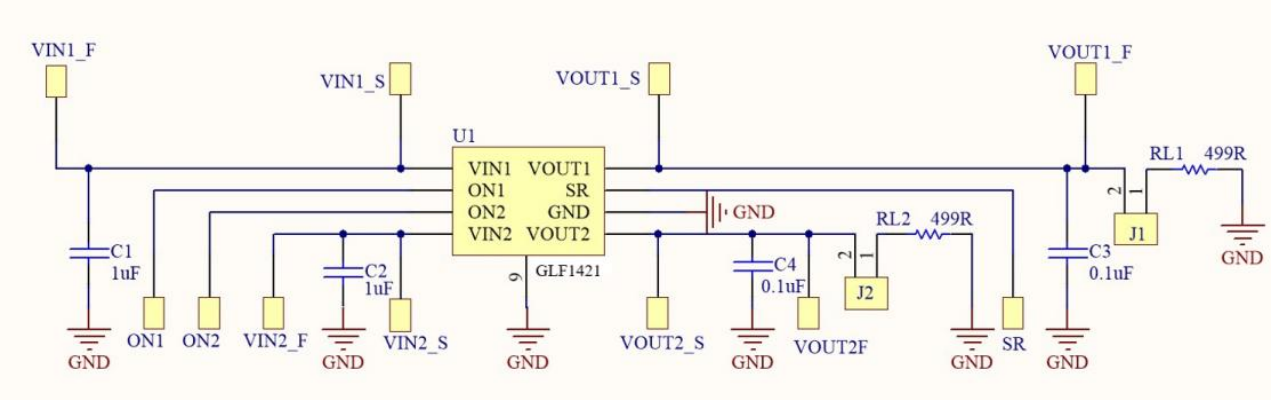
4. Turn on the input power supply.

5. Configure ONx as required. Note- GLF1421 have internal EN pull-down resistors to ensure that the device is in a defined state.

TEST SETUP



SCHEMATIC



BILL OF MATERIALS

Qty	Reference	Value	Part Description	Manufacturer/Part Number
1	U1	GLF1421	GLF1421	GLF Integrated Power
2	C1, C2	1.0 μF	Cap., X7R, 50V, 10% 0805	YAGEO CC0805KKX7R9BB105
2	C3, C4	0.1 μF	Cap., X7R, 50V, 10% 0805	YAGEO CC0805KRX7R9BB104
2	RL1, RL2	499 Ω	Output Resistor	YAGEO RC0805FR-07150RL
2	J1, J2	Jumper	Jumper, 2.54mm	

PRINTED CIRCUIT BOARD LAYOUT

Fig 1. Top Layer

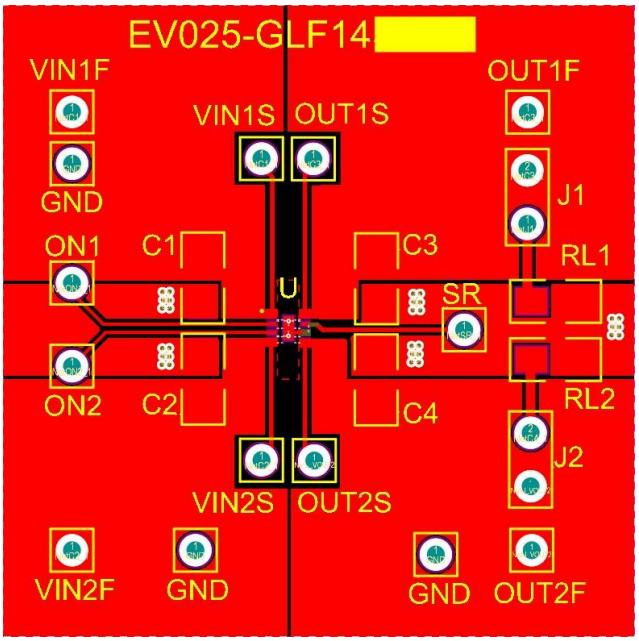
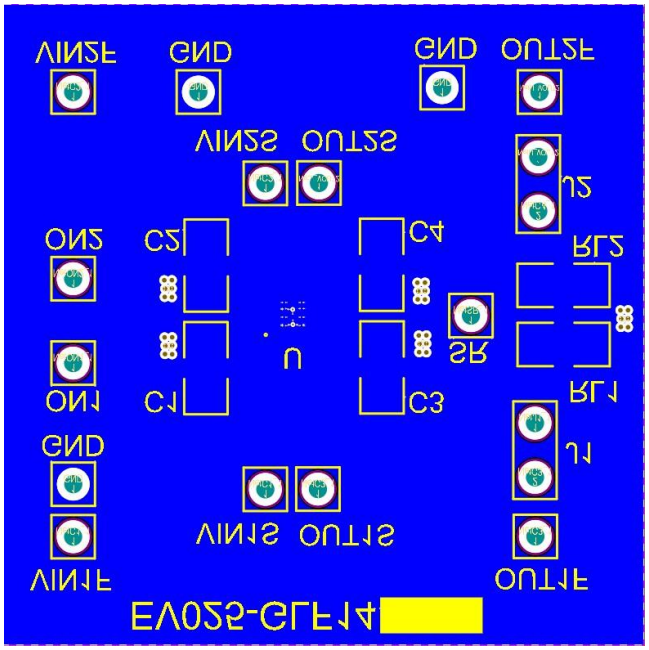


Fig 2. Bottom Layer



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.