GLF8114

4 A, 1.25 MHz Synchronous Step-Down DC/DC converter

DESCRIPTION

The GLF8114 is a low quiescent current, peak current mode PWM synchronous step-down DC/DC converter. The device integrates switches capable of delivering an output current up to 4 A.

The GLF8114 operates over a wide input voltage range from 2.5 V to 5.5 V and runs in 1.25 MHz switching frequency to minimize the PCB and external components' size. The GLF8114 can automatically switches between PWM in heavy load operation and PFM for light-load operation to minimize the switch loss.

FEATURES

- Supply Voltage Range: 2.5 V to 5.5 V
- 4 A Output Current
- Low I_Q: 23 μA Typ at 5 V_{IN}
- Low I_{SD}: 10 nA at 5 V_{IN}
- Efficiency up to 94 %
- 1.25 MHZ switching frequency
- Peak current mode control
  - Power Save Mode for light-load
  - Internal compensation
- Cycle by cycle Over Current Protection
- Thermal Shutdown Protection
- Adjustable Soft-Start Time
- Power Good Window Comparator

PRODUCT TABLE

EVB Version	Part Number	Output Voltage	Output Voltage Range	Output Current	Package Type
EV033-GLF8114	GLF8114-Q3G13	1.8 V	0.6 - 3.3 V (selectable)	4 A	3 mm x 3 mm QFN-16L

Note: Adjust Vout by changing the ratio of R1 and R2 through the formula V_{OUT}=0.6*(1+R1/R2)

Performance Specification

SPECIFICATION	MIN	TYP	MAX	UNIT
Input voltage	2.5 V	5 V	6 V	V
Output voltage	0.6 - 3.3 V (selectable)			V
Output current	4			A

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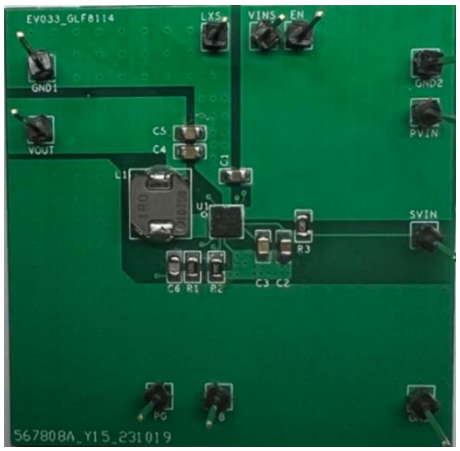
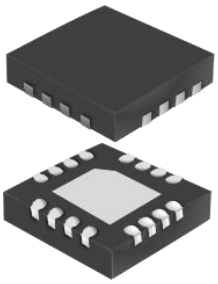
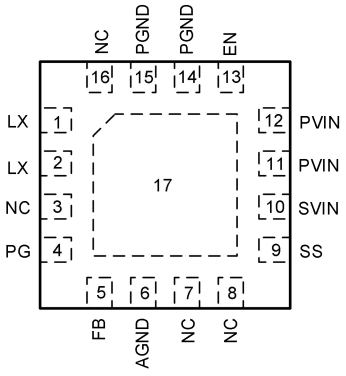
EVALUATION BOARD & DEVICE PACKAGE



PIN CONFIGURATION AND DEFINITION





TOP VIEW

Pin No.	Name	Description
1,2	LX	Switch node of the power stage
3,7,8,16	NC	No Connection.
4	PG	Power Good open-drain output pin, connect a pull-up resistor to the input.
5	FB	Voltage feedback pin.
6	AGND	Analog ground
9	SS	Soft-start pin. Connect a capacitor from this pin to ground to program the soft-start time. Don't leave it floating.
10	SVIN	Signal Input Supply
11,12	PVIN	Power Input Supply
13	EN	Enable pin. A 10 MΩ pull-down resistor is integrated
14,15	PGND	Power ground
17	Thermal Pad	Connect this pad to signal ground.

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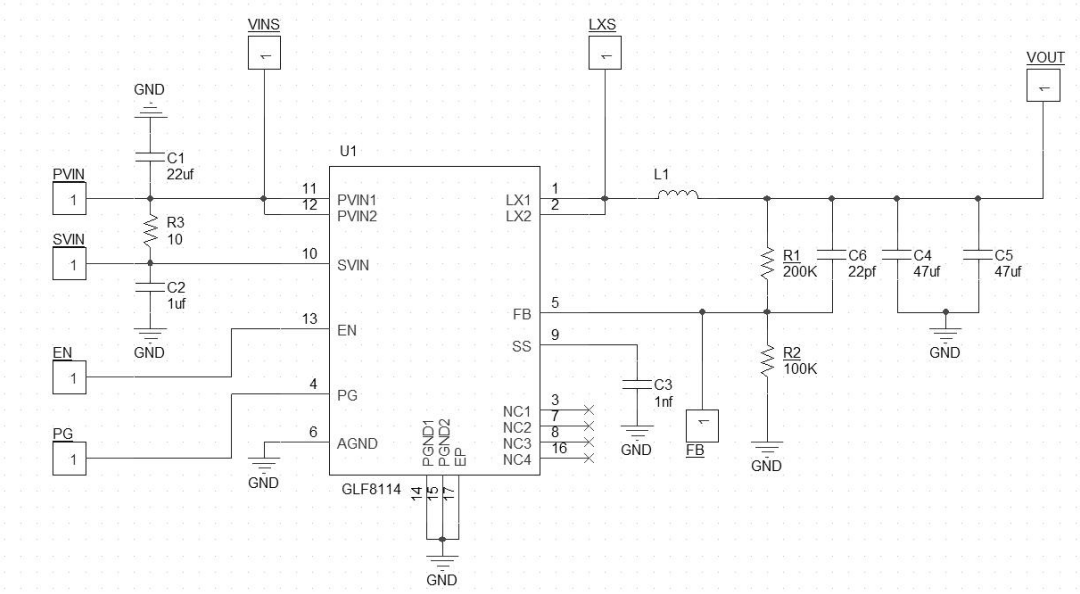
QUICK START GUIDE

The evaluation board EV033 is easy to set up to evaluate the performance of GLF8114.

1. Preset the input power supply to the desired voltage between 2.5 V to 5.5 V.
2. The maximum output continuous current of the GLF8114 is 4 A, please make sure that the absolute maximum current is not exceeded.
3. Connect the positive and negative terminals of the input power supply to VIN+ and GND respectively. VIN_S and LX_S can be used for measurement point.
4. Turn on the input power supply.

SCHEMATIC



BILL OF MATERIALS

Qty	Reference	Value	Part Description	Manufacturer/Part Number
1	U1	GLF8114	GLF8114	GLF Integrated Power
1	L1	1 μH	Inductor	TDK SPM6530T-1R0M120
1	C1	22 μF	Cap., X5R, 25 V, 10% 0805	YAGEO CC0805KKX5R5BB226
1	C2	1 μF	Cap., X5R, 25 V, 10% 0805	YAGEO CC0805KKX5R8BB105
1	C3	1 nF	Cap., NPO, 25 V, 10% 0805	YAGEO CC0805KRX7R9BB102
2	C4, C5	47 μF	Cap., X5R, 6.3 V, 20% 0805	YAGEO CC0805MKX5R5BB476
1	C6	22 pF	Cap., NPO, 25 V, 10% 0805	YAGEO CC0805KRNPO9BN220
1	R1	200 KΩ	Res.	YAGEO RC0805FR-07200KL
1	R2	100 KΩ	Res.	YAGEO RC0805FR-07100KL
1	R3	10 Ω	Res.	YAGEO RC0805FR-0710RL

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PRINTED CIRCUIT BOARD LAYOUT

Fig 1. Top Layer

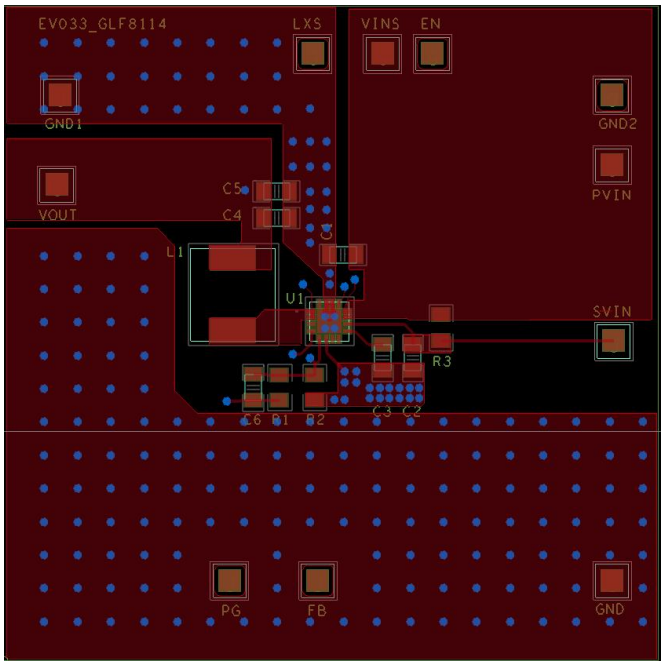
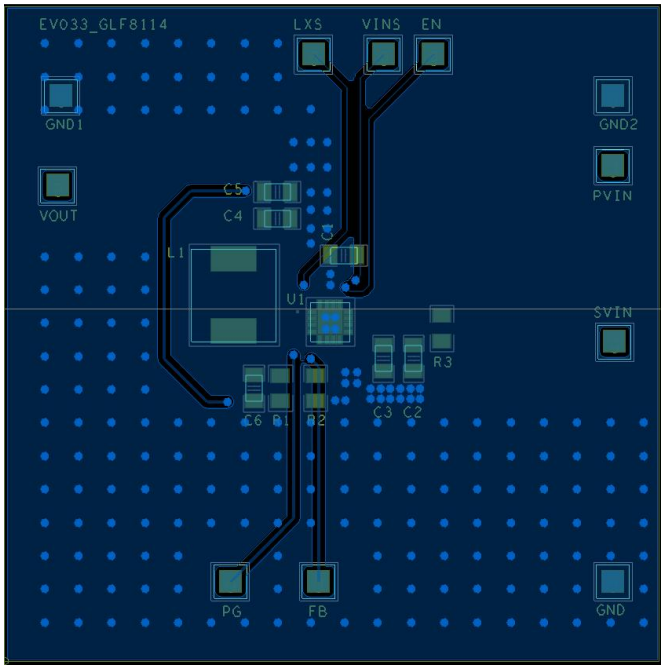


Fig 2. Bottom Layer



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