

### DESCRIPTION

The GLF76121 is an ultra-efficient  $I_{QSmart}^{TM}$  load switch with an integrated reset timer for wearables and IoT devices.

The /SRO pin offers a true reset function enabling the load switch to completely disconnect the load from the input battery after a reasonable long delay time. After the reset period, the main switch of the GLF76121 reconnect the output load to the input battery for normal operation. The GLF76121 offers 5.8 second delay time before the 360 ms reset duration.

The ultra-low  $I_Q$  enables direct interface to lower voltage chipset without any external circuit and maintains lower power consumption. The OFF input pin allows the GLF76121 to achieve complete shutdown with total downstream standby current of 7nA typical. With the switch placed between a battery and system, this switch can help to significantly extend system battery life in mobile devices during shipping or periods of extended off time.

The GLF76121 help to reduce power consumption with the best in class  $R_{ON}$  and a breakthrough on state  $I_Q$  of only 3 nA typical when the switch is on.

The GLF76121 integrated 1ms slew rate control can also enhance system reliability by mitigating bus voltage swings during switching events. Where uncontrolled switching can generate high inrush current that results in voltage droop and/or bus reset events, the GLF slew rate control specifically limits inrush current during turn-on to minimize voltage droop. The output discharge function makes output voltage off quickly during the reset period.

The GLF76121 is available in 0.97 mm x 1.47 mm x 0.55mm wafer level chip scale package (WLCSP).

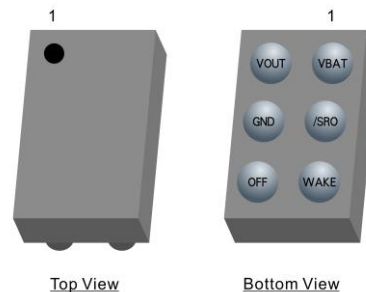
### FEATURES

- Ultra-Low  $I_{SD}$ : 7 nA Typ @ 3.6 VBAT
- Ultra-Low  $I_Q$ : 3 nA Typ @ 3.6 VBAT
- Low  $R_{ON}$  : 34 m $\Omega$  Typ @ 3.6 VBAT
- $I_{OUT}$  Max : 2 A
- Supply Voltage Range: 2.5 V to 5.5 V  
6 Vabs max
- Reset Delay Time (/SRO Hold Time): 5.80 s
- Reset Pulse Period : 360 ms
- Turn-Off Delay Time: 5.80 s
- Controlled Output Rise Time: 1 ms at 3.6 VBAT
- 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 1.47 mm WLCSP

### APPLICATIONS

- Wearables
- IoT Devices
- Medical Devices

### PACKAGE



0.97 mm x 1.47 mm x 0.55 mm WLCSP

## APPLICATION DIAGRAM

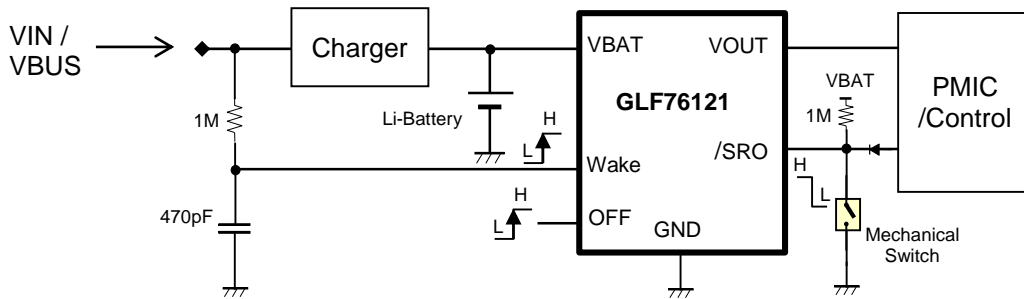


Figure 1. Typical Application with Standalone Charger IC

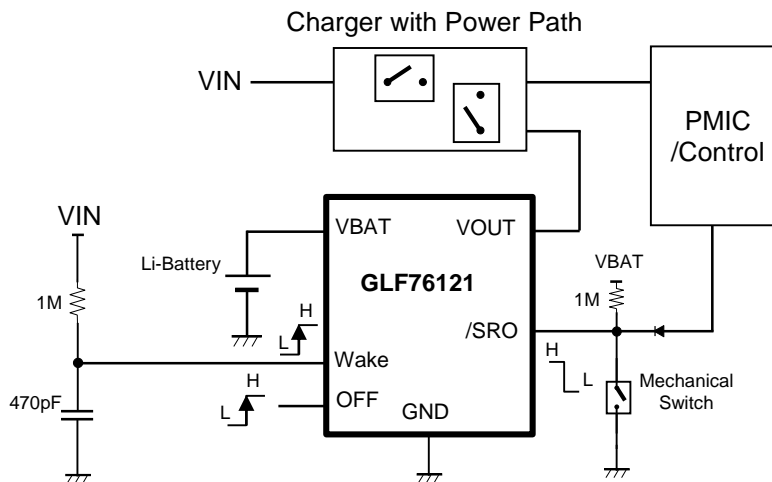
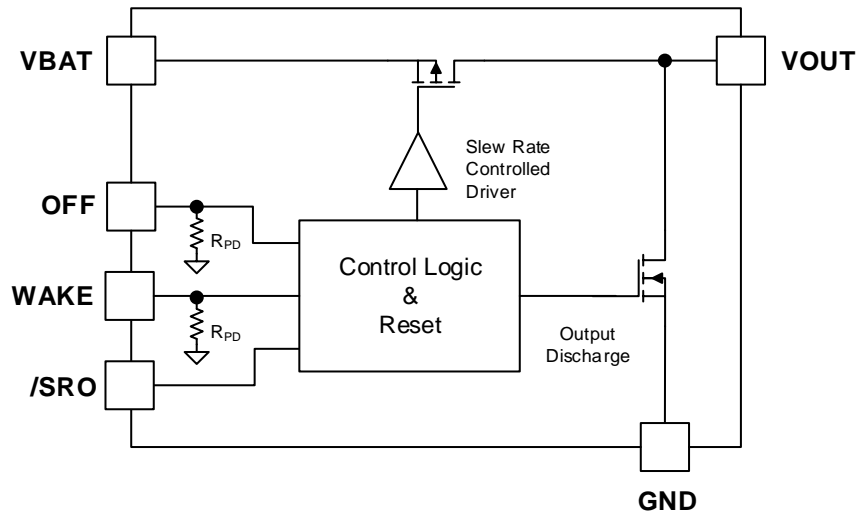


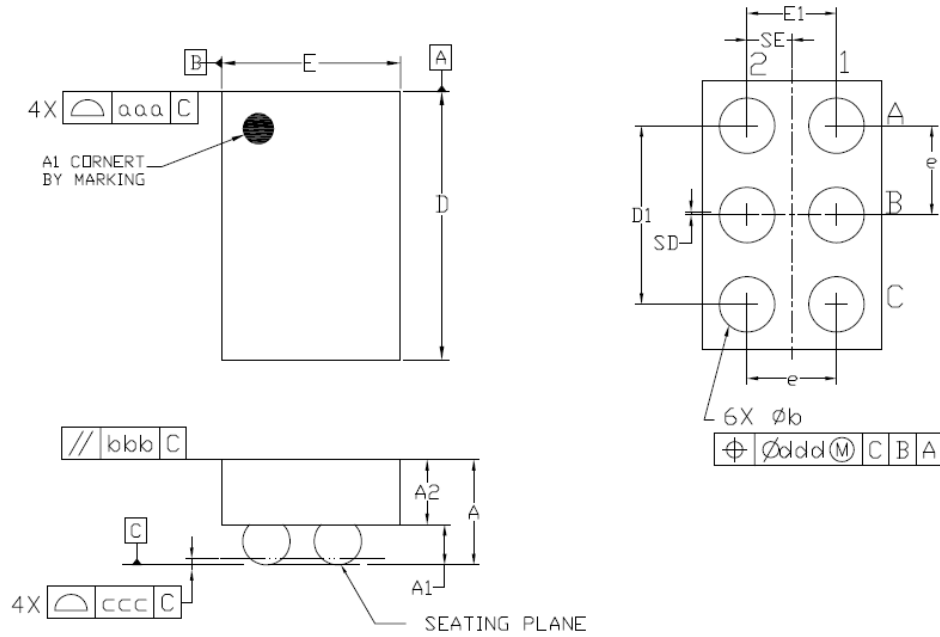
Figure 2. Typical Applications with Charger IC with Power Path and PMIC

**FUNCTIONAL BLOCK DIAGRAM**



**Figure 3. Functional Block Diagram**

**PACKAGE OUTLINE**



Dimensional Ref.			
REF.	Min.	Nom.	Max.
A	0.500	0.550	0.600
A1	0.225	0.250	0.275
A2	0.275	0.300	0.325
D	1.460	1.470	1.485
E	0.960	0.970	0.985
D1	0.950	1.000	1.050
E1	0.450	0.500	0.550
b	0.260	0.310	0.360
e	0.500 BSC		
SD	0.000 BSC		
SE	0.250 BSC		
Tol. of Form&Position			
aaa	0.10		
bbb	0.10		
ccc	0.05		
ddd	0.05		

Notes

1. ALL DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1994.

### DOCUMENT REVISION HISTORY

Revision	Date	Changes
0.0	2016.05.16	Target Spec.
0.1	2016.07.13	Add GLF76121L spec with long reset delay time(14s)
0.1	2016.08.10	Updated the datasheet
0.1	2016.08.24	Updated diagrams
0.2	2016.11.17	Updated elec parameter values and remove the zero test time
0.2	2016.12.09	Add the default state table
0.3	2017.04.10	Released
0.4	2019.11.11	Page 2 : Updated the top mark of GLF76121L from RS to BI Page 5 : Added Iq_dyn parameter Updated graphs, Corrected terms.
	2020.01.13	Page 2 : Change the top mark back to "RS" based on 033AB(012AA)
	<a href="#">2020.05.22</a>	<a href="#">Rev0.5 with GLF76121S</a>

### SPECIFICATION DEFINITIONS

Document Type	Meaning	Product Status
Target Specification	This is a target specification intended to support exploration and discussion of critical needs for a proposed or target device. Spec limits including typical, minimum, and maximum values are desired, or target, limits. GLF reserves the right to change limits at any time without warning or notification. A target specification in no way guarantees future production or producability of the device in question.	Design / Development
Preliminary Specification	This is a draft version of a product specification. The specification is still under internal review and subject to change. GLF reserves the right to change the specification at any time without warning or notification. A preliminary specification in no way guarantees future production or producability of the device in question.	Qualification
Product Specification	This document represents the anticipated production performance characteristics of the device.	Production

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