

One Cell Li-ion and Li-poly Battery Protection IC

PRELIMINARY DATASHEET

Description

The FH7009 is a high integration solution for li-ion/polymer battery protection. FH7009 contains internal power MOSFET, high-accuracy voltage detection circuits and delay circuits. FH7009 has all the protection functions required in the battery application including overcharging, over discharging, over-current and load short circuiting protection etc.

The accurate overcharging detection voltage ensures safe and full utilization charging. The low standby current drains little current from the cell while in storage.

The device is not only targeted for digital cellular phones, but also for any other Li-Ion and Li-Poly battery-powered information appliances requiring long-term battery life.

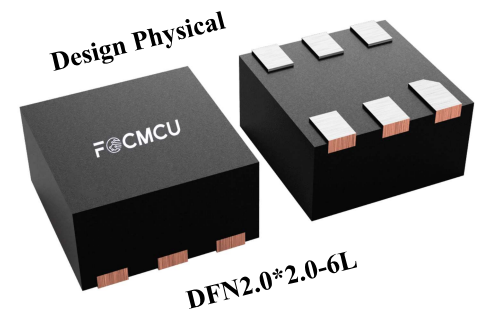
The FH7009 requires a minimal number of readily available, external components and is available in a space saving DFN2*2-6L package.

Applications

- One-Cell Li-ion Battery Pack
- Power Bank
- One-Cell Li-poly Battery Pack
- IOT Sensor/Electronic Toys

Key Features

- Protection of Charger Reverse Connection
- Protection of Battery Cell Reverse Connection
- Over-temperature Protection
- Overcharge Current Protection
- Two-step Overcurrent Detection:
 - Over Discharge Current
 - Load Short Circuiting
- Charger Detection Function
- 0V Battery Charging Function
- RoHS Compliant and Lead (Pb) Free
- 40mΩ Low $R_{SS(ON)}$ Internal Power MOSFET
- Delay Times are generated inside
- High-accuracy Voltage Detection
- Low Current Consumption
 - Operation Mode: 2.5μA typ.
 - Power-down Mode: 1.5μA typ.
- Only One External Capacitor Required
- Available in DFN2*2-6L Package
- -40°C to +85°C Temperature Range



Typical Application Circuit

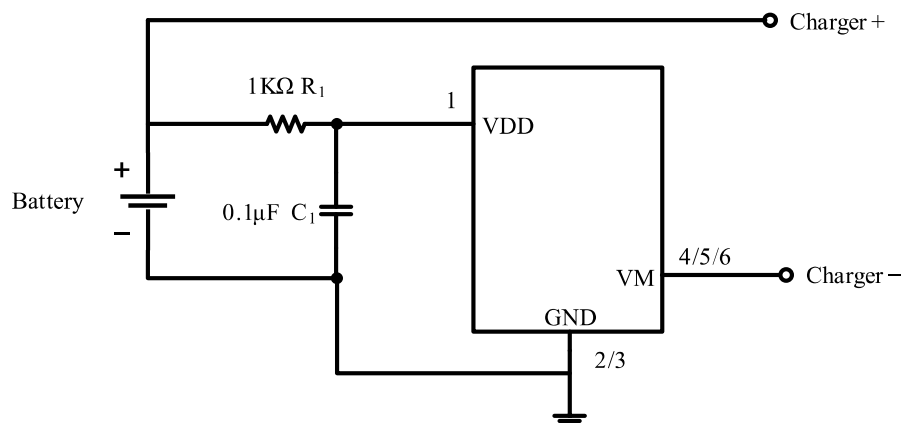
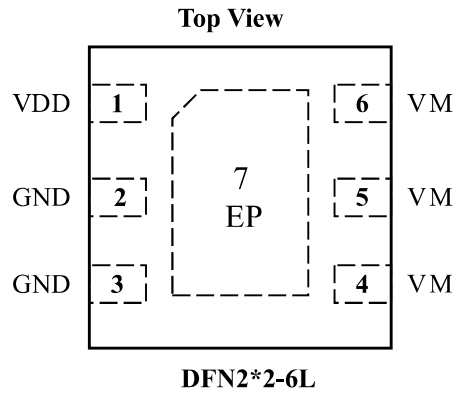


Figure 1. Typical Application Circuit

Pin Configuration



Pin Description

Pin	Name	Function
1	VDD	Power Supply Pin
2/3	GND	Ground Pin
4/5/6	VM	The negative terminal of the battery pack. The internal FET switch connects this terminal to GND
7	EP	Ground Pin

Functional Block Diagram

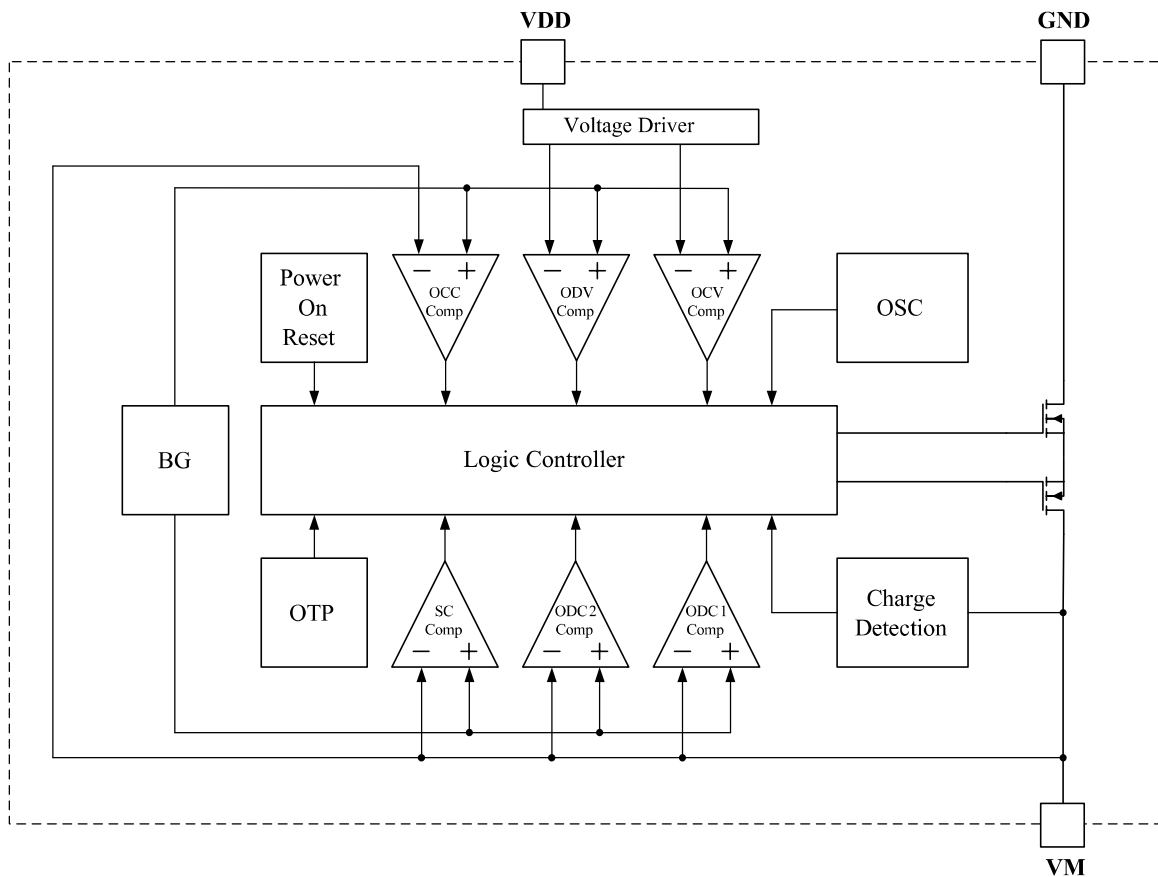
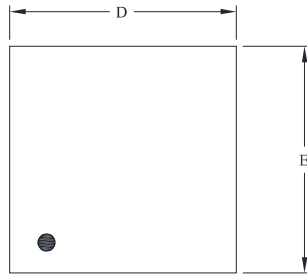


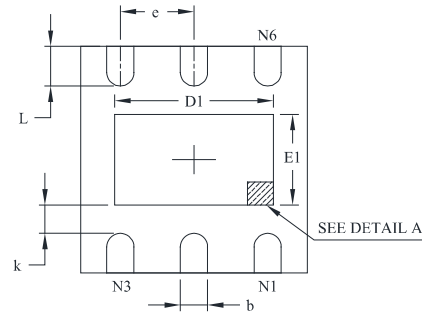
Figure 3. Functional Block Diagram

PACKAGE OUTLINE DIMENSIONS

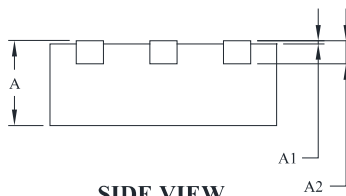
DFN2*2-6L Unit: inches/mm



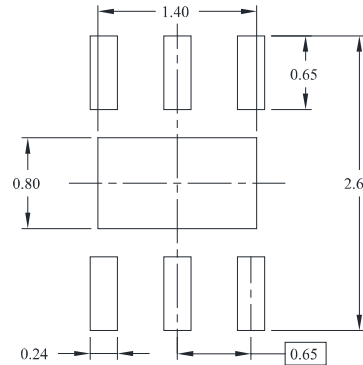
TOP VIEW



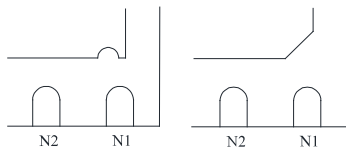
BOTTOM VIEW



SIDE VIEW



RECOMMENDED LAND PATTERN(Unit: mm)



DETAIL A

Pin #1 ID and Tie Bar Mark Options

NOTE: The configuration of the Pin #1 identifier is optional, but must be located within the zone indicated.

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	0.700	0.800	0.028	0.031
A1	0.000	0.050	0.000	0.002
A2	0.203 REF		0.008 REF	
D	1.900	2.100	0.075	0.083
D1	1.100	1.450	0.043	0.057
E	1.900	2.100	0.075	0.083
E1	0.600	0.850	0.024	0.034
k	0.200 MIN		0.008 MIN	
b	0.180	0.300	0.007	0.012
e	0.650 TYP		0.026 TYP	
L	0.250	0.450	0.010	0.018

NOTE: This drawing is subject to change without notice.

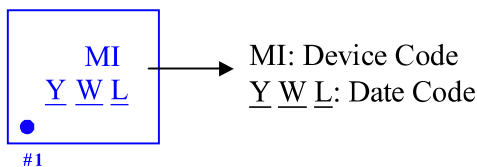
ORDERING INFORMATION

Part Number	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH7009D6	<ul style="list-style-type: none"> Overcharge detection voltage(VCU): 4.30V Overcharge release voltage(VCL): 4.10V Overdischarge Detection Voltage(VDL): 2.40V Overdischarge Release Voltage(VDR): 3.0V Overcurrent Detection Current (IOV1): 3.5A 	-40°C to +85°C	DFN2.0*2.0-6L	MI <u>Y W L</u>	3000EA/Reel

Note:

- **FH7009D6** devices are Pb-free and RoHs compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
- If you have any other custom purchase needs, please contact our sales department.
- FOCMCU Inc. reserves the right to amend and legally interpret the electrical parameters of this chip device. (<http://www.fordevices.com>)

Device Name: DFN2x2-6L



ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.



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