

#1 Cell Li-ion and Li-poly Battery Protection IC

General Description

Datasheet Brief

PRELIMINARY DATASHEET

The FH7022 series is a high integration solution for lithium-ion/polymer battery protection. FH7022 series contains internal power MOSFET, high-accuracy voltage detection circuits and delay circuits.

FH7022 series 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 FH7022 series requires a minimal number of readily available, external components and is available in a space saving SOT-23-3L package.

Applications

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

Typical Application Circuit

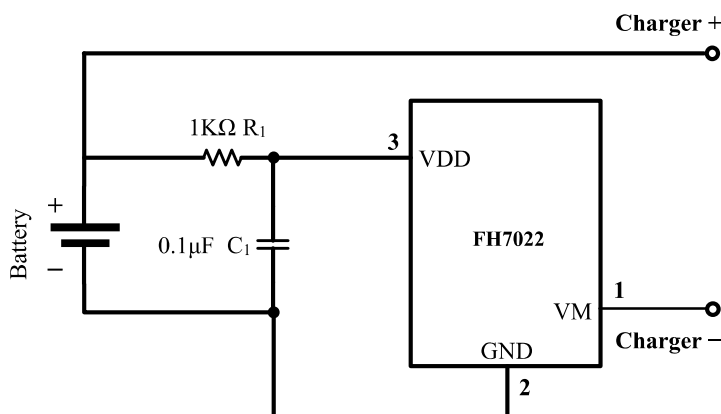


Figure 1. Typical Application Circuit

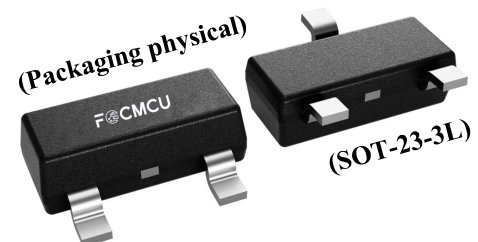
Key Features

- Protection of Battery Cell Reverse Connection without External load
- Over-temperature Protection (OTP)
- Overcharge Current Protection (OCP)
- Two-step Over-current Detection:
 - ▲ Over Discharge Current
 - ▲ Load Short Circuiting
- Charger Detection Function
- 0V Battery Charging Function
- 50mΩ Low $R_{SS(ON)}$ Internal Power MOSFET
- Delay Times are generated inside
- High-accuracy Voltage Detection
- Low Current Consumption
 - ▲ Operation Mode: 0.7μA typ.
 - ▲ Power-down Mode: 0.5μA typ.
- Only One External Capacitor Required
- Available in SOT-23-3L Package
- -40°C to +85°C Temperature Range

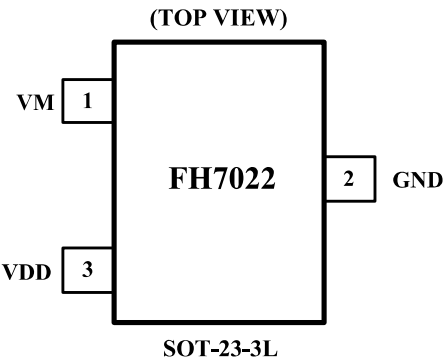
Device Information ⁽¹⁾

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH7022 FH7022A FH7022B	SOT-23 (3L)	2.90mm x 1.30mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.



Pin Configuration

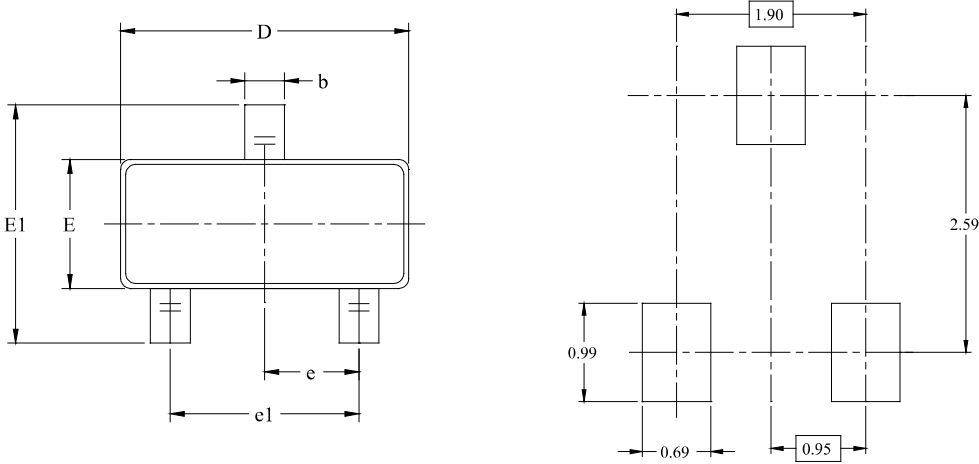


Pin Description

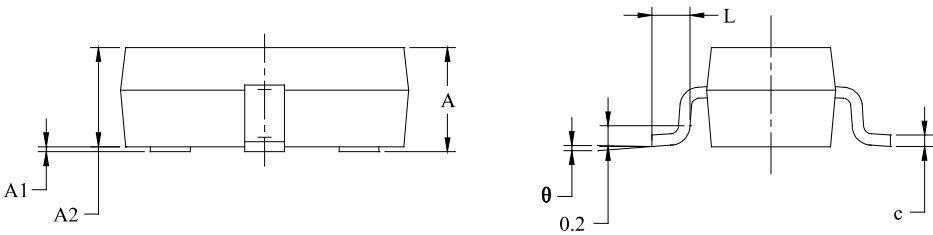
Pin	Name	Function
1	VM	Charger minus voltage input pin
2	GND	Grounding end, battery core negative pole
3	VDD	Power Supply Pin

PACKAGE OUTLINE

- Type: SOT-23-3L



RECOMMENDED LAND PATTERN (Unit: mm)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

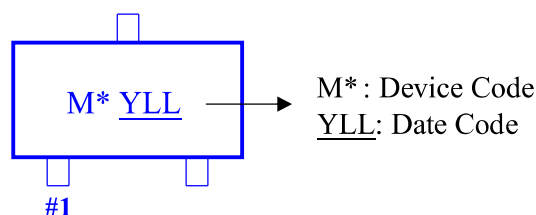
ORDERING INFORMATION

Part Number	VCU (V)	VCL (V)	VDL (V)	VDR (V)	Operating Temperature	Package Type	Top Mark	SPQ
FH7022M3	4.3±50mV	4.1±50mV	2.4±100mV	3.0±100mV	-40°C to +85°C	SOT-23-3L	MJ <u>YLL</u>	3000EA/Reel
FH7022AM3	4.3±50mV	4.1±50mV	2.8±100mV	3.0±100mV	-40°C to +85°C	SOT-23-3L	M3 <u>YLL</u>	3000EA/Reel
FH7022BM3	4.425±50mV	4.1±50mV	2.8±100mV	3.0±100mV	-40°C to +85°C	SOT-23-3L	M4 <u>YLL</u>	3000EA/Reel

Note:

- **FH7022 | FH7022A | FH7022B** 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: SOT-23-3L



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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