NEOTEC
semiconductor

NT1742

Battery Protection IC for Multi-Cell
(Secondary Protection)

Features

- 2-, 3- or 4-Cell Secondary Protection
- High Accuracy Overcharge Voltage:
  4.225V to 4.55V ±25mV
- Low Power Consumption:
  At 3.5V for each cell: 3.5uA max. (+25℃)
- High Input-Voltage Device
  Absolute Maximum Rating: 40V
  Operating Voltage range: 4.5V to 26V
- Output Control Function with CTL Pin
- Over Temperature Protection with PTC Thermistor -Optional
- High Ripple Rejection Ability for Power Supply
- Package: DFN-8L
- Lead-free, Sn 100%, Halogen-free

Applications

- Notebook PCs
- Portable Instrumentation
- Medical and Test Equipment

Descriptions

NT1742 is an accurate secondary battery protection IC for 2/3/4-cell Lithium-Lon/Lithium-Polymer battery packs, on which a precise voltage detection circuit with a specific reference is embedded.

NT1742 monitors individual cell voltages. If any cell voltage reaches or goes over the specified voltage and lasts for a period longer than the delay time set, NT1742 activates an external MOSFET to blow the three-terminal protection fuse, permanently disabling the battery pack.

NT1742 has a CTL pin to control the output voltage of the CO pin. The CTL pin can also offer an over-temperature protection via PTC thermistor. If the thermistor temperature exceeds the over-temperature threshold and lasts for a period longer than the delay time, the output pin activates the external MOSFET to blow external fuse.

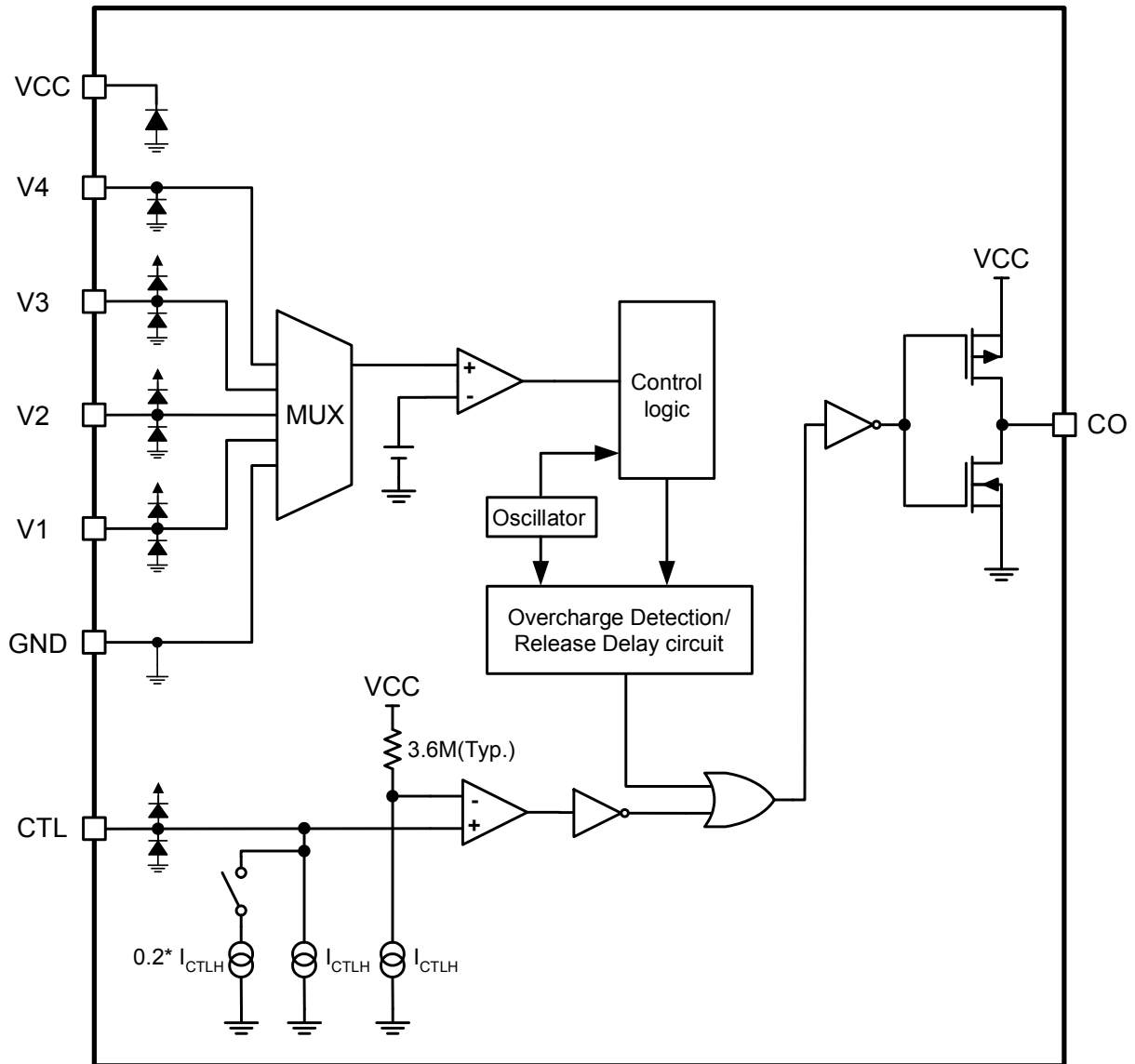## Typical Application Circuit
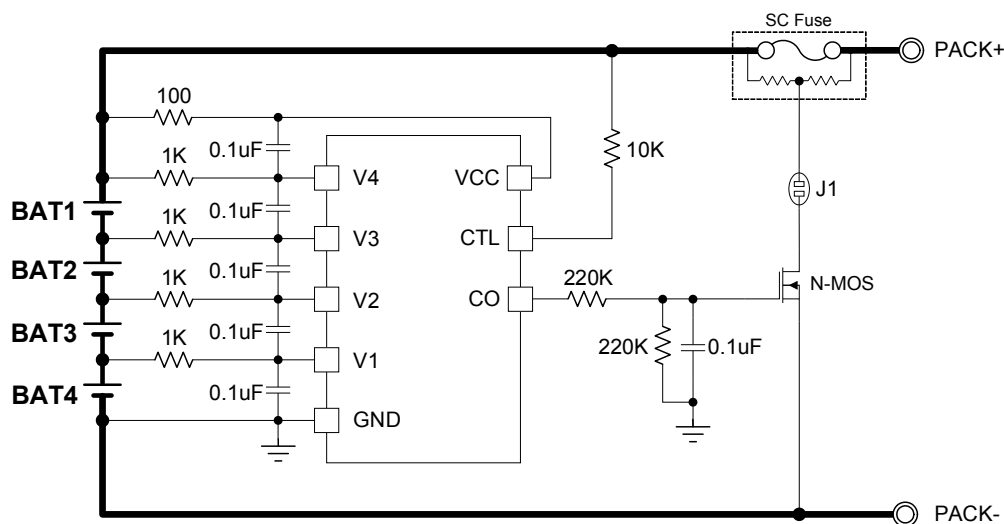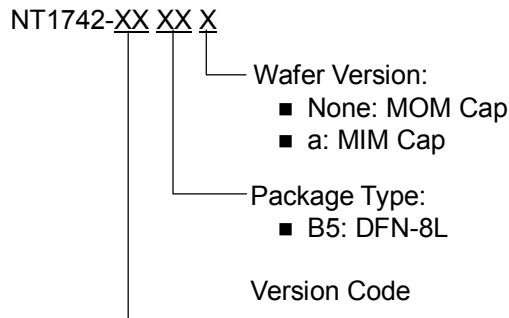

High Side Application for 4-cell Protection

These devices have limited build-in ESD protection. The leads must be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

Block Diagram

Ordering Information

NT1742-<u>XX</u> <u>XX</u> <u>X</u>

- Wafer Version:
  - ■ None: MOM Cap
  - ■ a: MIM Cap
- Package Type:
  - ■ B5: DFN-8L

Version Code

1) A Series

| Product Name	Version Code	Package Type	Overcharge Detection Voltage (V_{CU}) (V)	Overcharge Hysteresis Voltage (V_{CD}) (V)	Overcharge Detection Delay Time (t_{CU}) (s)	Output Form
NT1742	A1	B5	4.450 ± 0.025			
NT1742	A2	B5	4.400 ± 0.025	-0.38 ± 0.1	5.5 ± 0.8	CMOS output active "H"
NT1742	A3	B5	4.350 ± 0.025			

2) B Series

Product Name	Version Code	Package Type	Overcharge Detection Voltage (V_{CU}) (V)	Overcharge Hysteresis Voltage (V_{CD}) (V)	Overcharge Detection Delay Time (t_{CU}) (s)	Output Form
NT1742	B0	B5	4.500 ± 0.025			
NT1742	B1	B5	4.450 ± 0.025			
NT1742	B2	B5	4.400 ± 0.025	-0.38 ± 0.1	4.0 ± 0.8	CMOS output active "H"
NT1742	B3	B5	4.350 ± 0.025			
NT1742	B4	B5	4.300 ± 0.025			
NT1742	B8	B5	4.550 ± 0.025			

For any changes to the detection voltage or other parameters, please contact Neotec.

Pin Configurations and Descriptions

DFN-8L
Top view
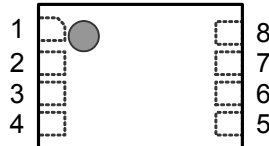
Pin No.	Symbol	Pin description
1	VCC	Power supply input
2	V4	Cell voltage input (the cell of the highest voltage)
3	V3	Cell voltage input (the cell of the second highest voltage)
4	V2	Cell voltage input (the cell of the third highest voltage)
5	V1	Cell voltage input (the cell of the lowest voltage)
6	GND	Ground pin
7	CTL	CO output control
8	CO	Active output pin to control the external MOSFET