

Battery Protection IC for 2-Cell

Features

- High Accuracy
 - Over-charge Detection : $\pm 20\text{mV}$
 - Over-discharge Detection : $\pm 50\text{mV}$
 - Discharge over-current Detection : $\pm 10\text{mV}$
 - Charge over-current Detection : $\pm 20\text{mV}$
 - Load short-circuiting Detection : $\pm 20\%$
- High withstand voltage
 - Absolute Maximum Rating: 40V
 - Operating voltage range: 2.5V to 10V
- Low power consumption:
 - Supply current : 3.2 μA typ. ($T_a = +25^\circ\text{C}$)
 - Power-down current: 0.1 μA max. ($T_a = +25^\circ\text{C}$)
- Delay times are generated by an internal circuit.
- Power-down function “available” / “unavailable” is selectable.
- 0 V battery charging function “available” / “unavailable” is selectable.
- Package: SOT-23-6

Applications

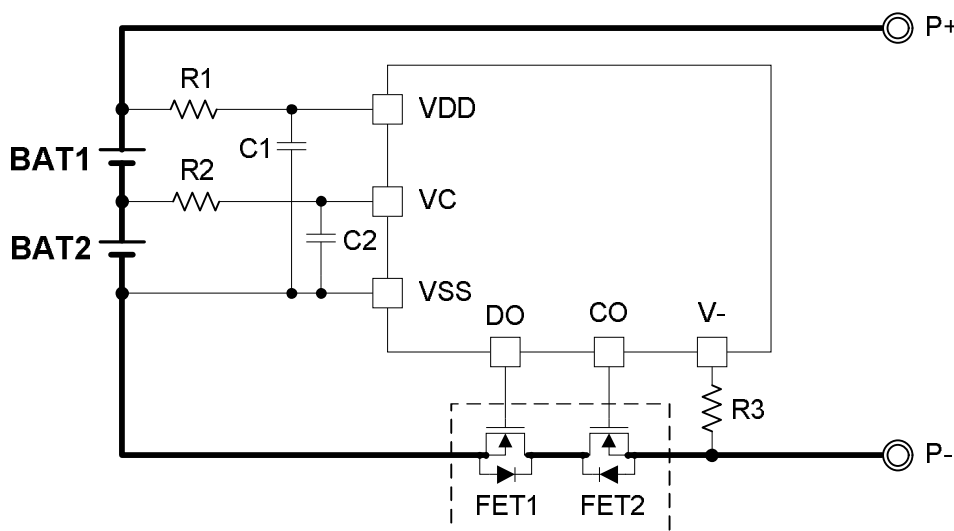
- Lithium-ion rechargeable battery pack
- Lithium-polymer rechargeable battery pack

Description

The NT1724 series are the 2-cell protection IC for lithium-ion/lithium-polymer rechargeable battery pack. The high accuracy voltage, current detector and delay time circuit are built in NT1724 series with state-of-art design and process.

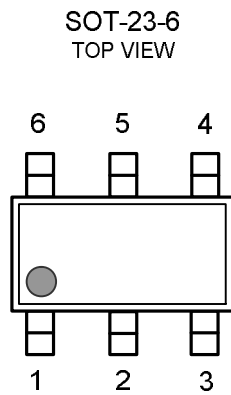
To minimize power consumption, NT1724 series activates power-down function when an over-discharge event is detected (for power-down function “available” version). Besides, NT1724 series performs protection functions with six external components for miniaturized PCB.

Typical Application Circuit



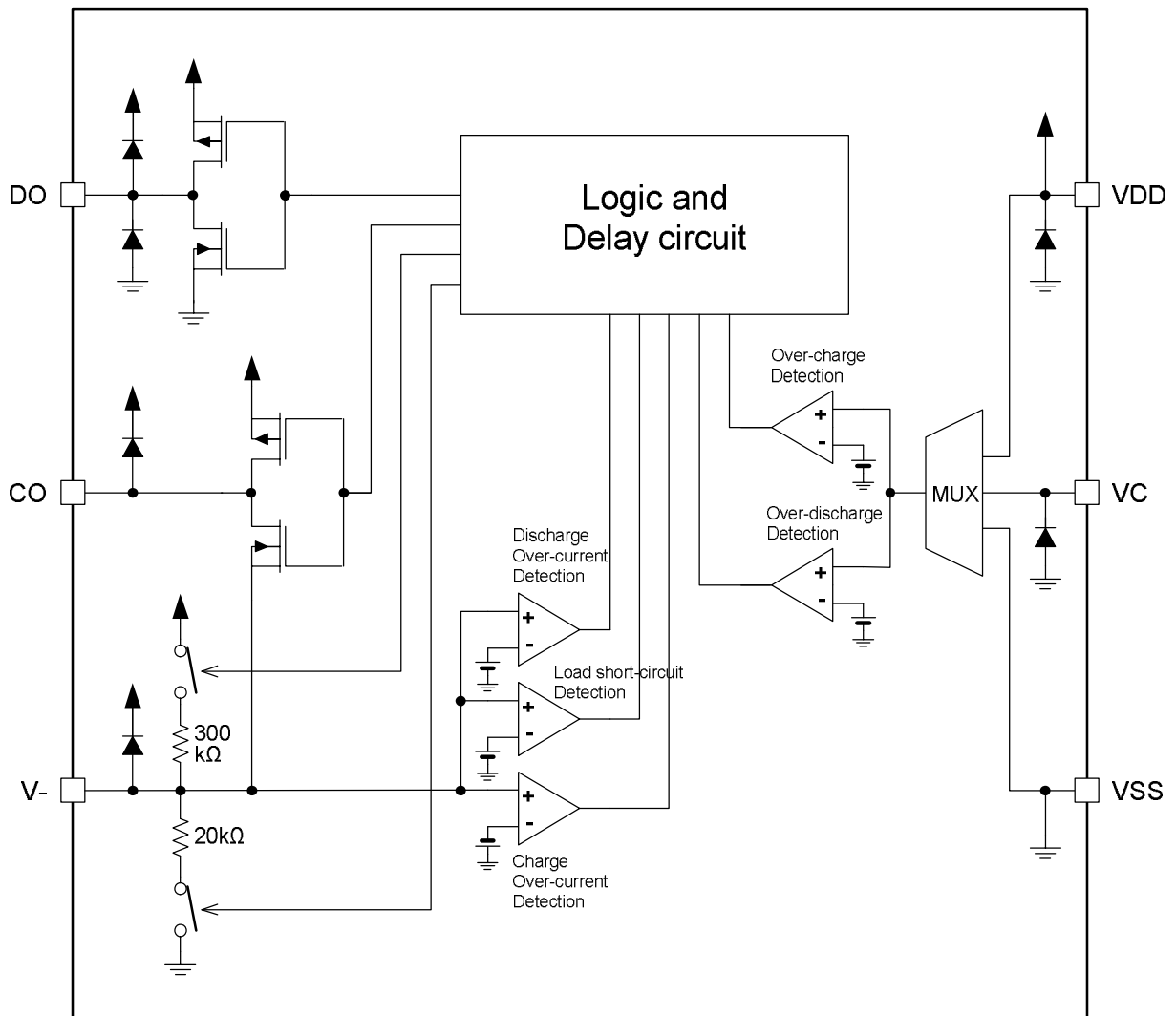
These devices have limited built-in ESD protection. The leads must be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

Package and Pin Configurations

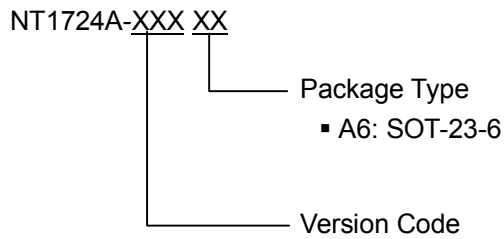


Pin No.	Symbol	Pin description
1	DO	Connection pin of discharge control FET gate
2	CO	Connection pin of charge control FET gate
3	V-	Voltage detection between V- pin and VSS pin (Power-down and Load Detector pin)
4	VC	Connection pin for negative voltage of battery 1 and connection pin for positive voltage of battery 2.
5	VDD	Connection pin for positive power supply input and connection pin for positive voltage of battery 1
6	VSS	Connection pin for negative power supply input and connection pin for negative voltage of battery 2

Block Diagram



Ordering Information



Product version code:

Table1: Detection threshold level table

Product Name	Version Code	Package Type	Over-charge Detection Voltage	Over-charge Hysteresis Voltage	Over-Discharge detection voltage	Over-Discharge release voltage	Discharge over-current detection voltage	Charge over-current detection voltage	Load short-circuiting detection voltage	0V Battery Charge Function	Power-down Function	Auto Over-discharge Recovery Function
			V _{DET1} (V)	V _{REL1} (V)	V _{DET2} (V)	V _{REL2} (V)	V _{DET3} (V)	V _{DET4} (V)	V _{SHORT} (V)			
NT1724A	EMA	A6	4.225	4.050	2.600	3.000	0.150	-0.150	0.5	Available	Yes	No
NT1724A	FHA	A6	4.250	4.050	2.400	3.000	0.200	-0.200	1.1	Available	Yes	No
NT1724A	FKA	A6	4.250	4.050	2.500	3.000	0.200	-0.200	0.5	Available	Yes	No
NT1724A	HHA	A6	4.280	4.130	2.400	2.900	0.150	-0.150	0.5	Unavailable	Yes	No
NT1724A	HHB	A6	4.280	4.130	2.400	2.900	0.100	-0.100	0.5	Unavailable	Yes	No
NT1724A	HQA	A6	4.280	4.080	2.800	3.000	0.200	-0.200	1.1	Available	Yes	No
NT1724A	LFA	A6	4.350	4.150	2.300	3.000	0.200	-0.200	1.1	Available	Yes	No
NT1724A	MKA	A6	4.400	4.250	2.500	2.900	0.150	-0.100	0.5	Available	Yes	No
NT1724A	NKA	A6	4.425	4.250	2.500	2.900	0.120	-0.100	0.5	Available	Yes	No

Remark: Please contact our sales for the products with detection voltage value other than those specified above.