

MM3723 Series

2023/07/20

Outline

The MM3723 series integrates into 1.09mm × 0.81mm × 0.46mm WLCSP Package. It's using high voltage CMOS process for overcharge, overdischarge and overcurrent protection of the rechargeable Lithium-ion and Lithium-polymer battery. The overcharge, overdischarge, discharging overcurrent, charging overcurrent and short protection of the rechargeable one-cell Lithium-ion and Lithium-polymer battery can be detected.

Product Series

For one-cell

Features

1. Range and accuracy of detection/release voltage

- Overcharge detection voltage 3.6V to 4.6V, 5mV step Accuracy±12mV
- Overdischarge detection voltage 2.0V to 3.0V, 50mV step Accuracy±35mV
- Discharging overcurrent detection voltage 20mV to 100mV, 1mV step Accuracy±ΔV ※1
- Charging overcurrent detection voltage -100mV to -20mV, 1mV step Accuracy±ΔV ※1
- Short detection voltage 100mV to 300mV, 10mV step Accuracy±8%

2. Range of detection delay time

- Overcharge detection delay time 1.0s, 1.2s, 4.0s
- Overdischarge detection delay time 20ms, 24ms, 32ms, 96ms, 128ms
- Discharging overcurrent detection delay time 8ms, 12ms, 16ms, 20ms, 256ms, 512ms
- Charging overcurrent detection delay time 4ms, 6ms, 8ms, 10ms, 12ms, 16ms, 96ms
- Short detection delay time 250μs to 400μs

3. 0V battery Charge function Selection from "Permission" or "Prohibition"

4. Low current consumption

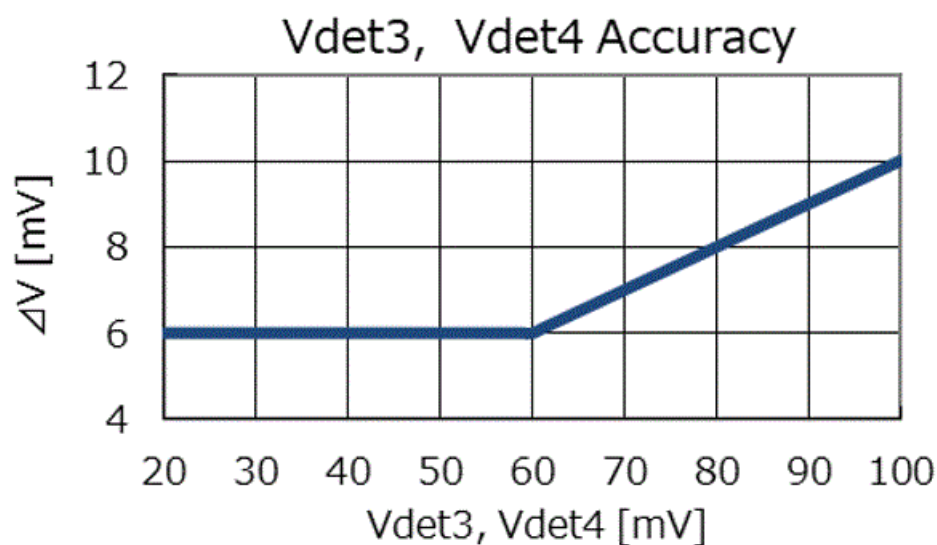
- Normal mode Typ. 2.5μA, Max. 4.0μA

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- Stand-by mode Max. 0.1 μ A (Overdischarge latch function Enable)
Max. 0.6 μ A (Overdischarge latch function Disable)

*1 Accuracy of overcurrent detection voltage



Specifications

Product name	Package	0V battery charge function	Overcharge release function	Overdischarge release function	Discharging overcurrent release function	Overcharge detection voltage [V]
MM3723CL1LRE	WLCSP-6B	Permission	voltage	Latch	voltage	4.425
MM3723CL3LRE	WLCSP-6B	Permission	voltage	Latch	voltage	4.425
MM3723CL4LRE	WLCSP-6B	Permission	Latch	Latch	voltage	4.475

Product name	Overcharge release voltage	Overdischarge detection voltage	Overdischarge release voltage	Discharging overcurrent detection	Charging overcurrent detection	Short detection voltage	Overcharge detection delay time

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Product name	Overcharge voltage [V]	Overdischarge voltage [V]	Overdischarge voltage [V]	Discharging overcurrent voltage [V]	Discharging overcurrent voltage [V]	Charging overcurrent voltage [V]	Charging overcurrent delay time [s]
MM3723CL1LRE	4.225	2.300	2.300	0.040	-0.0250	0.150	1.020
MM3723CL3LRE	4.225	2.300	2.300	0.060	-0.0200	0.150	1.020
MM3723CL4LRE	4.275	2.200	2.200	0.070	-0.0300	0.200	1.020

Product name	Overcharge release delay time [ms]	Overdischarge detection delay time [ms]	Overdischarge release delay time [ms]	Discharging overcurrent detection delay time [ms]	Discharging overcurrent release delay time [ms]	Charging overcurrent detection delay time [ms]	Charging overcurrent release delay time [ms]
MM3723CL1LRE	16.0	96.0	1.0	12.0	1.00	10.0	1.0
MM3723CL3LRE	16.0	96.0	1.0	12.0	1.00	10.0	1.0
MM3723CL4LRE	32.0	96.0	1.0	24.0	1.00	20.0	1.0

Product name	Short detection delay time [ms]
MM3723CL1LRE	0.300
MM3723CL3LRE	0.300
MM3723CL4LRE	0.650

Package

WLCSP-6B