

MM3746 Series

2023/07/20

Outline

MM3746 series are protection ICs with charger pump and drive high side N channel FET for Lithium-ion and Lithium-polymer secondary battery. This IC is most suitable for the intelligent battery pack with which I communicate data between the battery pack and the system. And MM3746 series has a temperature detection by using a NTC Thermistor, protects the battery pack and system from over temperature.

Product Series

For one-cell

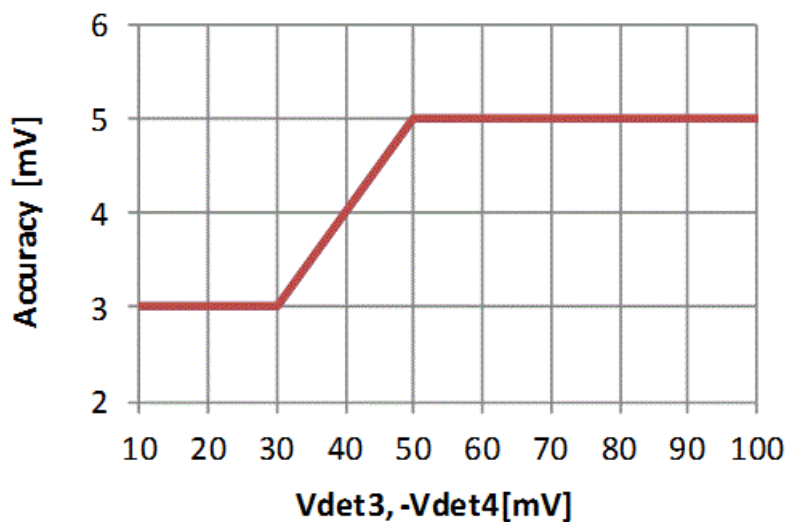
Features

1. Range and accuracy of detection/release voltage
 - Overcharge detection voltage 4.2V to 4.6V, 5mV step Accuracy±15mV
 - Overdischarge detection voltage 2.0V to 3.0V, 50mV step Accuracy±40mV
 - Discharging overcurrent detection voltage 10mV to 150mV, 1mV step Accuracy±3.0mV ※1
 - Charging overcurrent detection voltage -150mV to -10mV, 1mV step Accuracy±3.0mV ※1
 - Short detection voltage 40mV to 300mV, 50mV step Accuracy±5.0mV
 - 0V battery charge inhibition battery voltage 1.3V fixed Accuracy±100mV
 - Temperature detection Tdet 55 to 85°C Accuracy±5.0°C
2. Temperature detection function Selectable "Enable" or "Disable"
3. 0V battery Charge function Selectable "Permission" or "Inhibition"
4. Current consumption (Not include NTC bias current)
 - Normal mode Typ. 6.0μA, Max. 10.0μA
 - Stand-by mode Max. 0.1μA (Overdischarge latch function Enable)
Max. 1.2μA (Overdischarge latch function Disable)

*1 Accuracy of overcurrent detection voltage

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Specifications

Product name	Package	OV battery charge function	Overcharge release function	Overdischarge release function	Discharging overcurrent release function	Overcharge detection voltage [V]
MM3746BB1LBE	WLCSP-10A	Prohibition	voltage	Latch	voltage	4.270
MM3746BC1LBE	WLCSP-10A	Prohibition	voltage	Latch	voltage	4.490
MM3746DA1LBE	WLCSP-10A	Prohibition	Latch	Latch	voltage	4.445

Product name	Overcharge release voltage [V]	Overdischarge detection voltage [V]	Overdischarge release voltage [V]	Discharging overcurrent detection voltage [V]	Charging overcurrent detection voltage [V]	Short detection voltage [V]	Overcharge detection delay time [s]
MM3746BB1LBE	4.170	2.300	2.300	0.013	-0.0100	0.040	1.020
MM3746BC1LBE	4.386	2.900	2.900	0.033	-0.0170	0.140	1.020
MM3746DA1LBE	4.445	2.500	2.500	0.020	-0.0160	0.040	0.512

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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]
MM3746BB1LBE	2.0	128.0	1.0	16.0	1.00	8.0	1.0
MM3746BC1LBE	2.0	16.0	1.0	16.0	1.00	8.0	1.0
MM3746DA1LBE	2.0	128.0	1.0	32.0	1.00	8.0	1.0

Product name	Short detection delay time [ms]
MM3746BB1LBE	0.250
MM3746BC1LBE	0.250
MM3746DA1LBE	0.250

Package

WLCSP-10A