MJ3401 Series

ミネベアミツミ株式会社

Outline

The MJ3401 series are protection IC with integrated MOS-FET for protection of the rechargeable Lithium-ion or Lithium-polymer battery. The overcharge, overdischarge and discharging and charging overcurrent protection of the rechargeable one-cell Lithium-ion or Lithium-polymer battery can be detected. It's possible by OTP technology to detect unusual state of a Li-ion battery with very high accuracy.

Product Series

For one-cell

Features

1. Range and accuracy of detection/release voltage
- Overcharge detection voltage 4.15V to 4.50V, 5mV steps Accuracy±10mV
- Overcharge release hysteresis voltage 0V, 0.1V, 0.2V
- Overdischarge detection voltage 2.00V to 3.00V 100mV steps Accuracy±35mV
- Overdischarge release hysteresis voltage 0V, 0.2V, 0.3V, 0.4V
- Discharging overcurrent detection current 4.0A to 8.0A, 0.1A step (Note1)
- Charging overcurrent detection current 4.0A to 8.0A, 0.1A step (Note1)
- Short detection voltage 180mV to 360mV, 10mV step Accuracy±15mV

2. Range of detection delay time
- Overcharge detection delay time 1.024s, 4.60s
- Overdischarge detection delay time 20ms, 96ms, 144ms
- Discharging overcurrent detection delay time 6ms, 8ms, 12ms, 16ms, 20ms, 32ms, 128ms, 256ms
- Charging overcurrent detection delay time 8ms, 16ms, 32ms
- Short detection delay time 500μs, 820μs

3. 0V battery charge functionSelection from "Permission" or "Prohibition" (Note2)

4. Low current consumption

● Normal mode Typ. 4.5μA, Max. 7.0μA

● Stand-by mode Max. 0.1μA (In case Overdischarge latch function "Enable")

　　　　　　　　　Max. 0.3μA (In case Overdischarge latch function "Disable")

5. MOS-FET 　　Source to Source on state resistance Typ. 11.0mΩ (@VDD=3.6V)

Note1 : Please inquire to us about details of the accuracy of Overcurrent detection current, which is varies depending on the setting value.

Specifications

Product name	Package	0V battery charge function	Overcharge detection voltage [V]	Overcharge release voltage [V]	Overdischarge detection voltage [V]	Overdischarge release voltage [V]
MJ3401A01DAM	PLP-6G	Permission	4.425	4.220	2.500	2.925
MJ3401A07DAM	PLP-6G	Permission	4.425	4.220	2.500	2.925
MJ3401A08DAM	PLP-6G	Permission	4.475	4.265	2.300	2.690
MJ3401A11DAM	PLP-6G	Permission	4.425	4.220	2.500	2.925
MJ3401A12DAM	PLP-6G	Permission	4.475	4.265	2.300	2.690
MJ3401C01DAM	PLP-6G	Prohibition	4.425	4.425	2.800	2.800
MJ3401C02DAM	PLP-6G	Prohibition	4.435	4.435	2.800	2.800
MJ3401C03DAM	PLP-6G	Prohibition	4.275	4.275	2.300	2.300

Product name	Short detection voltage [V]	Overcharge detection delay time [s]	Overdischarge detection delay time [ms]	Discharging overcurrent detection delay time [ms]	Charging overcurrent detection delay time [ms]	Short detection delay time [ms]	Discharge current limit [A]
MJ3401A01DAM	0.360	1.024	96.0	12.0	8.0	0.500	6.000
MJ3401A07DAM	0.180	1.024	96.0	12.0	8.0	0.500	8.000
MJ3401A08DAM	0.360	1.024	96.0	20.0	32.0	0.500	9.200
MJ3401A11DAM	0.180	1.024	96.0	12.0	8.0	0.500	8.800
MJ3401A12DAM	0.360	1.024	96.0	20.0	32.0	0.500	9.760
MJ3401C01DAM	0.180	1.024	144.0	16.0	8.0	0.500	7.500
MJ3401C02DAM	0.180	1.024	144.0	16.0	8.0	0.500	7.500
MJ3401C03DAM	0.130	1.024	96.0	8.0	16.0	0.500	6.000

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Product name	Charge current limit [A]
MJ3401A01DAM	6.600
MJ3401A07DAM	6.000
MJ3401A08DAM	6.900
MJ3401A11DAM	6.000
MJ3401A12DAM	6.900
MJ3401C01DAM	6.000
MJ3401C02DAM	6.000
MJ3401C03DAM	4.000

Package

PLP-6G