

MC3761 Series

2023/07/20

Outline

MC3761 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 Lithiumpolymer battery can be detected.

Product Series

For one-cell

Features

(1) Range and accuracy of detection/release voltage

- Overcharge detection voltage 4.20V to 4.70V, 5mV step Accuracy $\pm 20\text{mV}$
- Overcharge release voltage $V_{\text{det1}} - 0.4\text{V}$ to V_{det1} , 100mV step Accuracy $-30/+20\text{mV}$ ($V_{\text{det1}} = V_{\text{rel1}}$)
Accuracy $\pm 30\text{mV}$ ($V_{\text{det1}} \neq V_{\text{rel1}}$)
- Overdischarge detection voltage 2.00V to 3.30V, 50mV step Accuracy $\pm 30\text{mV}$
- Overdischarge release voltage $V_{\text{det2}} + 0.4\text{V}$ to V_{det2} , 100mV step Accuracy $-30/+40\text{mV}$ ($V_{\text{det2}} = V_{\text{rel2}}$)

Accuracy $\pm 90\text{mV}$ ($V_{\text{det2}} \neq V_{\text{rel2}}$)

- Discharging overcurrent detection voltage $+8\text{mV}$ to $+110\text{mV}$, 1mV step Accuracy *1
(Discharging overcurrent detection current 0.140A to 1.95A)
- Discharging overcurrent release voltage Selection from $V_{\text{DD}} - 0.7\text{V}$, V_{det3} , 1.4V
- Charging overcurrent detection voltage -100mV to -8mV , 1mV step Accuracy *1
(Charging overcurrent detection current -0.140A to -1.75A)
- Short detection voltage 0.040V to 0.700V, 5mV step Accuracy ± 20 to 50mV

(2) Range of detection delay time

- Overcharge detection delay time 1.0s fixed
- Overdischarge detection delay time Selection from 20ms, 96ms, 144ms
- Discharging overcurrent detection delay time Selection from 6ms, 8ms, 12ms, 16ms, 20ms,

32ms, 128ms, 256ms, 512ms

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- Charging overcurrent detection delay time Selection from 8ms, 16ms, 32ms
- Short detection delay time 150us to 550us, 50us step

(3) 0V battery charge function Selection from "Inhibition" or "Permission"

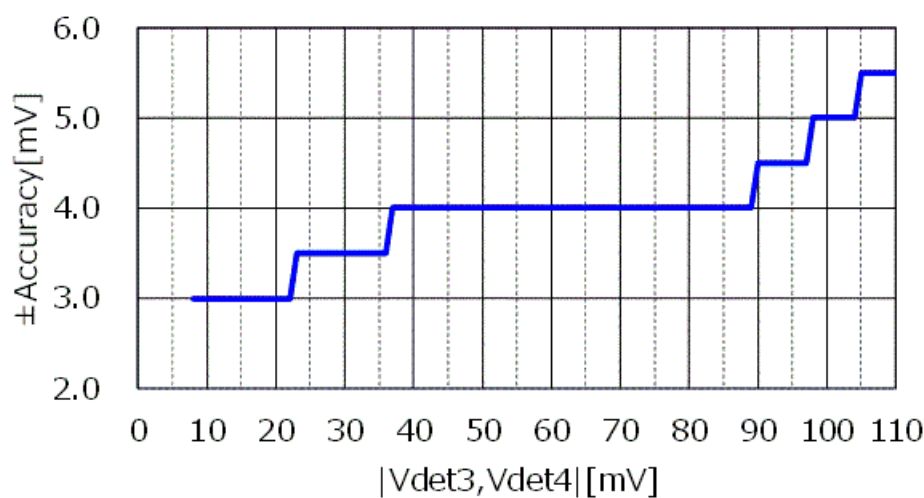
(4) Low current consumption

- Normal mode Typ. 1.0μA, Max. 1.4μA
- Standby mode Max. 0.025μA (In case Overdischarge latch function "Enable")

Max. 0.550μA (In case Overdischarge latch function "Disable")

(5) MOS-FET Source to Source on state resistance Typ. 56.5mΩ (@VDD=3.5V)

*1 Accuracy of overcurrent detection voltage



Specifications

Product name	Package	0V battery charge function	Overcharge detection voltage	Overcharge release voltage	Overdischarge detection voltage	Overdischarge release voltage

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		Function	[V]	[V]	[V]	[V]
MC3761PK1HAU	PLP-6J	Prohibition	4.280	4.180	2.700	2.700
MC3761PK2HAU	PLP-6J	Prohibition	4.430	4.130	3.000	3.000
MC3761PJ2HAU	PLP-6J	Permission	4.380	4.180	2.800	2.800
MC3761AJ2HAU	PLP-6J	Permission	4.455	4.255	2.800	3.200
MC3761AJ3HAU	PLP-6J	Permission	4.225	4.025	2.800	3.200
MC3761EJ1HAU	PLP-6J	Permission	4.525	4.525	2.700	2.700
MC3761EK1HAU	PLP-6J	Prohibition	4.410	4.410	2.700	2.700
MC3761PK4HAU	PLP-6J	Prohibition	4.475	4.375	2.700	2.700
MC3761PK6HAU	PLP-6J	Prohibition	4.475	4.375	2.700	2.700
MC3761PJ4HAU	PLP-6J	Permission	4.270	4.070	3.000	3.000
MC3761FK1HAU	PLP-6J	Prohibition	4.280	4.180	2.700	3.000

Product name	Discharging overcurrent detection voltage [V]	Charging overcurrent detection voltage [V]	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]
MC3761PK1HAU	0.030	-0.0300	0.060	1.000	96.0	20.0	8.0
MC3761PK2HAU	0.019	-0.0120	0.055	1.000	96.0	20.0	8.0
MC3761PJ2HAU	0.056	-0.0560	0.140	1.000	20.0	12.0	16.0
MC3761AJ2HAU	0.110	-0.1000	0.270	1.000	96.0	12.0	8.0
MC3761AJ3HAU	0.037	-0.0360	0.080	1.000	96.0	12.0	8.0
MC3761EJ1HAU	0.020	-0.0330	0.080	1.000	96.0	512.0	8.0
MC3761EK1HAU	0.017	-0.0170	0.047	1.000	20.0	128.0	8.0
MC3761PK4HAU	0.017	-0.0170	0.150	1.000	20.0	128.0	8.0
MC3761PK6HAU	0.017	-0.0170	0.150	1.000	96.0	256.0	8.0
MC3761PJ4HAU	0.050	-0.0530	0.120	1.000	96.0	12.0	8.0
MC3761FK1HAU	0.019	-0.0240	0.060	1.000	96.0	20.0	8.0

Product name	Short detection delay time [ms]	Discharge current limit [A]	Charge current limit [A]
MC3761PK1HAU	0.300	0.530	0.535
MC3761PK2HAU	0.300	0.335	0.215
MC3761PJ2HAU	0.400	1.010	1.020
MC3761AJ2HAU	0.300	1.945	1.785
MC3761AJ3HAU	0.300	0.655	0.645
MC3761EJ1HAU	0.250	0.360	0.600
MC3761EK1HAU	0.200	0.305	0.310

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MC3761PK4HAU	0.150	0.305	0.310
MC3761PK6HAU	0.150	0.305	0.310
MC3761PJ4HAU	0.500	0.900	0.965
MC3761FK1HAU	0.300	0.335	0.435

Package

PLP-6J