

## MJ3542 Series

2023/07/20

### Outline

MJ3542 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 4.10V to 4.60V, 5mV step  $\pm 10\text{mV}$
- Overcharge release voltage  $V_{\text{det1}} - \text{CHYS} *1$
- Overdischarge detection voltage 2.00V to 2.80V, 100mV step  $\pm 35\text{mV}$
- Overdischarge release voltage  $V_{\text{det2}} + \text{DHYS} *2$
- Discharge current limit 3.0A to 12.0A, 0.1A step \*3
- Charge overcurrent limit 3.0A to 12.0A, 0.1A step \*3
- Short detection voltage 90mV to 180mV, 5mV step  $\pm 10\text{mV}$

(2) Range of detection/release delay time

- Overcharge detection delay time Selection from 1.024s, 4.6s
- Overcharge release delay time Selection from 8ms, 16ms
- Overdischarge detection delay time Selection from 20ms, 96ms, 144ms
- Discharging overcurrent detection delay time Selection from 6ms, 8ms, 12ms, 16ms, 20ms, 32ms, 128ms, 256ms
- Charging overcurrent detection delay time Selection from 8ms, 16ms, 32ms
- Short detection delay time 300us to 600us, 50us step

## MJ3542 Series

2023/07/20

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

(4) 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. 4.7mΩ (@VDD=3.5V)

\*1 "CHYS" is selectable from "None(0V)", "CHYS1", "CHYS2" "CHYS1", "CHYS2" depend on setting value of Vdet1

\*2 "DHYS" is selectable from "None(0V)", "DHYS1", "DHYS2", "DHYS3" "DHYS1", "DHYS2", "DHYS3" depend on setting value of Vdet2

\*3 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]
MJ3542CM1EBU	SSON-6N	Permission	4.425	4.220	2.500	2.925
MJ3542CM2EBU	SSON-6N	Permission	4.475	4.265	2.300	2.690
MJ3542CM5EBU	SSON-6N	Permission	4.450	4.245	2.000	2.340
MJ3542CM6EBU	SSON-6N	Permission	4.425	4.220	2.500	2.925
MJ3542CM7EBU	SSON-6N	Permission	4.475	4.265	2.300	2.690
MJ3542KM2EBU	SSON-6N	Permission	4.475	4.475	2.300	2.690
MJ3542KT1EBU	SSON-6N	Prohibition	4.475	4.475	2.300	2.690
MJ3542LM1EBU	SSON-6N	Permission	4.435	4.435	2.300	2.300
MJ3542LT1EBU	SSON-	Prohibition	4.435	4.435	2.300	2.300

## MJ3542 Series

2023/07/20

	6N					
MJ3542LT2EBU	SSON-6N	Prohibition	4.435	4.435	2.300	2.300
MJ3542LT3EBU	SSON-6N	Prohibition	4.490	4.490	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]
MJ3542CM1EBU	0.090	1.024	96.0	12.0	8.0	0.270	6.100
MJ3542CM2EBU	0.120	1.024	96.0	20.0	32.0	0.460	6.800
MJ3542CM5EBU	0.090	1.024	96.0	12.0	8.0	0.350	6.100
MJ3542CM6EBU	0.090	1.024	96.0	12.0	8.0	0.500	9.100
MJ3542CM7EBU	0.150	1.024	96.0	20.0	32.0	0.500	10.000
MJ3542KM2EBU	0.120	1.024	96.0	20.0	32.0	0.460	6.800
MJ3542KT1EBU	0.120	1.024	96.0	20.0	32.0	0.470	6.800
MJ3542LM1EBU	0.090	1.024	144.0	16.0	8.0	0.460	8.100
MJ3542LT1EBU	0.090	1.024	144.0	16.0	8.0	0.460	8.100
MJ3542LT2EBU	0.090	1.024	144.0	16.0	8.0	0.460	7.600
MJ3542LT3EBU	0.090	1.024	144.0	32.0	16.0	0.600	7.800

Product name	Charge current limit [A]
MJ3542CM1EBU	6.100
MJ3542CM2EBU	6.800
MJ3542CM5EBU	6.100
MJ3542CM6EBU	6.450
MJ3542CM7EBU	7.300
MJ3542KM2EBU	6.800
MJ3542KT1EBU	6.800
MJ3542LM1EBU	6.400
MJ3542LT1EBU	6.400
MJ3542LT2EBU	6.400
MJ3542LT3EBU	7.000

## Package

## MJ3542 Series

2023/07/20

SSON-6N