

## MM3855 Series

2023/07/20

### Outline

MM3855 series are protection ICs with thermal protection and control terminal for charge and discharge off mode for Lithium-ion and Lithium-polymer rechargeable battery. By using external thermistor, this protects the battery pack and system over temperature. In addition, it reduces the current consumption of system by using charge and discharge off mode, when the system is shutdown.

### Product Series

For one-cell

### Features

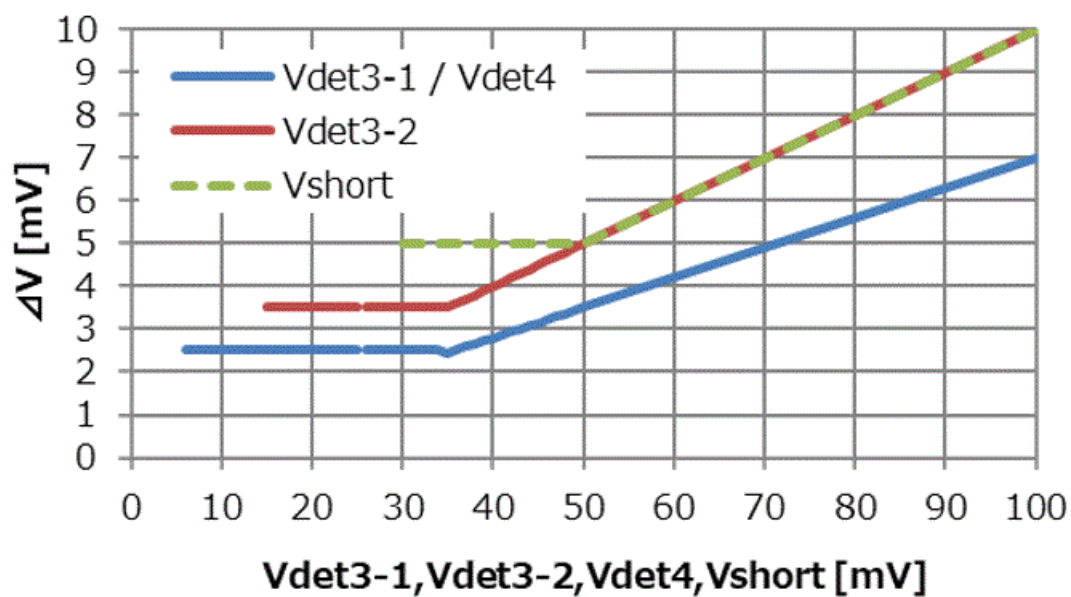
1. Range and accuracy of detection/release voltage
  - Overcharge detection voltage 4.1V to 5.0V 5mV step Accuracy±20mV
  - Overdischarge detection voltage 2.1V to 3.0V 50mV step Accuracy±35mV
  - Discharging overcurrent detection voltage1 6mV to 100mV 1mV step Accuracy±2.5mV ※1
  - Discharging overcurrent detection voltage2 15mV to 100mV 1mV step Accuracy±3.5mV ※1
  - Charging overcurrent detection voltage -6mV to -100mV 1mV step Accuracy±2.5mV ※1
  - Short detection voltage 30mV to 200mV 10mV step Accuracy±5.0mV ※1
  - 0V battery charge inhibition battery voltage 0.9V Accuracy±0.3V
2. Temperature detection functionSelectable "Enable" or "Disable"
3. 0V battery Charge functionSelectable "Permission" or "Inhibition"
4. Control terminal for charge and discharge off mode
5. Current consumption (Not include NTC bias current)
  - Normal mode Temperature detection function "Enable" 3.0μA typ. 5.0μA max.  
Temperature detection function "Disable" 2.5μA typ. 4.5μA max.

## MM3855 Series

2023/07/20

- Standby mode Overdischarge latch function "Enable" 0.1 $\mu$ A max.  
Overdischarge latch function "Disable" 0.8 $\mu$ A max.

## \*1 Accuracy of overcurrent detection voltage



## Specifications

Product name	Package	OV battery charge function	Overcharge release function	Overdischarge release function	Discharging overcurrent release function	Overcharge detection voltage [V]
MM3855AC1RRE	SSON-8ForG	Prohibition	voltage	voltage	voltage	4.520
MM3855AJ1RRE	SSON-8ForG	Permission	voltage	voltage	voltage	4.475
MM3855AL1RRE	SSON-8ForG	Permission	voltage	voltage	voltage	4.475
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## MM3855 Series

2023/07/20

MM3855AL2RRE	SSON-8ForG	Permission	voltage	voltage	voltage	4.475
MM3855AN1RRE	SSON-8ForG	Permission	voltage	voltage	voltage	4.180
MM3855BC1RRE	SSON-8ForG	Prohibition	voltage	voltage	voltage	4.475
MM3855BC2RRE	SSON-8ForG	Prohibition	voltage	voltage	voltage	4.520
MM3855BC3RRE	SSON-8ForG	Prohibition	voltage	voltage	voltage	4.520
MM3855BL1RRE	SSON-8ForG	Permission	voltage	voltage	voltage	4.430
MM3855BL2RRE	SSON-8ForG	Permission	voltage	voltage	voltage	4.480
MM3855CN1RRE	SSON-8ForG	Permission	voltage	Latch	voltage	4.250
MM3855EN7RRE	SSON-8ForG	Permission	Latch	Latch	voltage	4.450
MM3855LC1RRE	SSON-8ForG	Prohibition	voltage	voltage	voltage	4.475
MM3855LE1RRE	SSON-8ForG	Prohibition	Latch	Latch	voltage	4.500

Product name	Overcharge release voltage [V]	Overdischarge detection voltage [V]	Overdischarge release voltage [V]	Discharging overcurrent detection voltage1 [V]	Discharging overcurrent detection voltage2 [V]	Charging overcurrent detection voltage [V]	Short detect voltage [V]
MM3855AC1RRE	4.320	2.100	2.300	0.0210		-0.0240	0.100
MM3855AJ1RRE	4.325	2.400	2.600	0.0350	0.0500	-0.0350	0.100
MM3855AL1RRE	4.275	2.500	2.900	0.0205	0.0295	-0.0265	0.070
MM3855AL2RRE	4.275	2.500	2.900	0.0225		-0.0210	0.100
MM3855AN1RRE	4.070	2.300	2.500	0.0210		-0.0190	0.100
MM3855BC1RRE	4.275	2.500	2.900	0.0150		-0.0150	0.046
MM3855BC2RRE	4.320	2.300	2.500	0.0150		-0.0150	0.046
MM3855BC3RRE	4.340	2.300	2.500	0.0140		-0.0150	0.050
MM3855BL1RRE	4.230	2.500	2.900	0.0210		-0.0210	0.040
MM3855BL2RRE	4.280	2.300	2.700	0.0230		-0.0230	0.050
MM3855CN1RRE	4.150	2.600	2.600	0.0210		-0.0190	0.100
MM3855EN7RRE	4.450	2.600	2.600	0.0360		-0.0210	0.090
MM3855LC1RRE	4.275	2.500	2.900	0.0150		-0.0150	0.040
MM3855LE1RRE	4.500	2.400	2.400	0.0100		-0.0100	0.025

Discharging Discharging

## MM3855 Series

2023/07/20

Product name	Overcharge detection delay time [s]	Overcharge release delay time [ms]	Overdischarge detection delay time [ms]	Overdischarge release delay time [ms]	overcurrent detection delay time 1 [ms]	overcurrent detection delay time 2 [ms]	Discharge overcurrent release delay [ms]
MM3855AC1RRE	1.024	16.0	64.0	1.0	32.0		4.25
MM3855AJ1RRE	1.024	1.0	64.0	1.0	4096.0	16.0	1.00
MM3855AL1RRE	1.024	1.0	64.0	1.0	4096.0	16.0	8.00
MM3855AL2RRE	1.024	1.0	20.0	1.0	16.0		8.00
MM3855AN1RRE	1.024	16.0	96.0	1.0	16.0		4.00
MM3855BC1RRE	1.024	16.0	64.0	1.0	32.0		4.25
MM3855BC2RRE	1.024	16.0	64.0	1.0	64.0		4.25
MM3855BC3RRE	1.024	16.0	64.0	1.0	128.0		4.25
MM3855BL1RRE	0.512	16.0	64.0	1.0	16.0		4.25
MM3855BL2RRE	0.512	16.0	64.0	1.0	16.0		4.25
MM3855CN1RRE	1.024	16.0	96.0	1.0	16.0		4.00
MM3855EN7RRE	1.024	16.0	2048.0	1.0	2048.0		4.00
MM3855LC1RRE	1.024	16.0	64.0	1.0	32.0		4.25
MM3855LE1RRE	1.024	16.0	64.0	4.0	32.0		8.00

Product name	Charging overcurrent detection delay time [ms]	Charging overcurrent release delay time [ms]	Short detection delay time [ms]	Temperature protection detection delay time [s]	Temperature protection release delay time [s]	High temperature detection temperature 1 [deg.C]	High temperature release temperature 1 [deg.C]
MM3855AC1RRE	16.0	1.0	0.280				
MM3855AJ1RRE	16.0	1.0	0.280	0.512	0.032	60	55
MM3855AL1RRE	16.0	4.0	0.280				
MM3855AL2RRE	16.0	4.0	0.300				
MM3855AN1RRE	32.0	1.0	0.280				
MM3855BC1RRE	16.0	1.0	0.250				
MM3855BC2RRE	64.0	1.0	0.280				
MM3855BC3RRE	64.0	1.0	0.280				
MM3855BL1RRE	8.0	1.0	0.280				
MM3855BL2RRE	16.0	1.0	0.530				
MM3855CN1RRE	32.0	1.0	0.280	1.024	0.768	60	55
MM3855EN7RRE	8.0	1.0	0.280	0.064	0.032	75	60
MM3855LC1RRE	16.0	1.0	0.280	1.024	0.032	64	59
MM3855LE1RRE	16.0	8.0	0.250	1.024	0.032	78	63

## MM3855 Series

2023/07/20

### Package

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[SSON-8F](#)

[SSON-8G](#)