Voltage Monitor IC for Li-ion Cell Balance MM3513 Series

Outline

The MM3513 series are voltage monitor ICs for rechargeable Lithium-ion or Lithium-polymer batteries, using a high voltage CMOS process. Each Lithium-ion or Lithium-polymer battery can be balanced. Each of these ICs is composed of voltage detectors, reference voltage sources, an oscillator, a counter circuit and logical circuits.

Features (Unles	s otherwise specified, Topr=+25°C)			
(1) High-accuracy detecti	on voltage			
Detection voltage	3.5V to 4.5V, 5mV steps Accuracy±20mV			
	Accuracy±25mV (Topr=–5 to +60°C)			
Hysteresis voltage	0V to 0.4V, 50mV steps			
	However, "Detection voltage-Hysteresis voltage<3.5V" is disabled.			
(2) Range of Detection de	lay time			
Detection delay time	Selectable from 0.25s , 1.0s , 1.2s , 4.5s			
(3) Low current consump	ion			
Normal mode	Тур. 1.5µА, Мах. 3.0µА			
●Stand-by mode	Max. 0.5µA			
(4) Absolute maximum ra	ings			
●VDD pin	VSS-0.3V to 12V			
●OUT pin	VDD-0.3V to VDD+0.3V			
●DS pin	VSS-0.3V to VDD+0.3V			
Storage temperature	–55 to +125°C			
Operation temperature	–40 to +85°C			

Pin Assignment

Top view SOT-25A	Pin No.	Function
	1	No connection.
OUT DS 5 4	2	VDD terminal. Connected to IC substrait.
	3	VSS terminal. Connected to ground.
1 2 3 NC VDD VSS	4	Delay shorten terminal.
	5	Output of detecting voltage. Output type is CMOS.

Any products mentioned in this catalog are subject to any modification in their appearance and others for improvements without prior notification.
The details listed here are not a guarantee of the individual products at the time of ordering. When using the products, you will be asked to check their specifications.

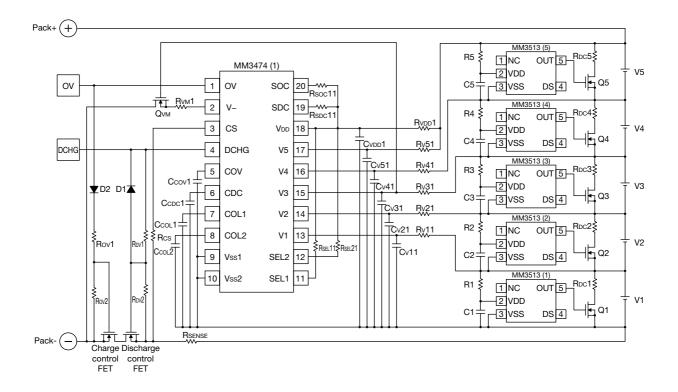
Selection Guide (3,

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Product name	Package	Detection voltage [V] Vdet	Hysteresis voltage [V] Vhys	Detection delay time [sec] tVdet
MM3513A01NRH	SOT-25A	4.150	0.010	0.25
MM3513B01NRH	SOT-25A	3.750	0.010	0.25
MM3513C01NRH	SOT-25A	4.200	0.010	0.25
MM3513D01NRH	SOT-25A	3.600	0.010	0.25
MM3513D02NRH	SOT-25A	3.600	0.100	0.25
MM3513F01NRH	SOT-25A	3.650	0.010	0.25
MM3513H01NRH	SOT-25A	4.175	0.010	0.25
MM3513J01NRH	SOT-25A	3.475	0.010	0.25

Please inquire to us, if you request a rank other than the above.

Application Circuit



- \cdot Resistors R1 to R5 and capacitors C1 to C5 stabilize a supply voltage ripple. However, if the resistors R1 to R5 are increased, the detection voltage raises due to through-current in the IC. Therefore, adjust the value to 1k Ω or less. Moreover, the capacitors C1 to C5 should be 0.01 μ F or more to ensure stable operation.
- · For resistors RDC1 to RDC5, the value of bypass current is determined.

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