R5400N Series

Li-ion/polymer 1Cell Protector

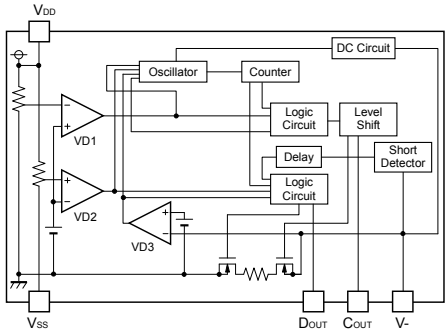
The R5400N Series are high input voltage CMOS-based protection ICs for over-charge/discharge of rechargeable one-cell Lithium-ion (Li-ion) / Lithium polymer excess load current, further include a short circuit protector for preventing large external short circuit current and excess discharge-current.
Each of these ICs is composed of three voltage detectors, reference units, a delay circuit, a short circuit detector, an oscillator, a counter, and a logic circuit. SOT-23-5 package is available.

FEATURES

- Supply Voltage (V_{DD}) ····· 12V (Absolute Maximum Rating)
- Charger Negative Input Voltage (V-) ··· -35V (Absolute Maximum Rating)
- Operating Input Voltage Range (V_{DD}) ····· 1.5V to 5.0V
- Supply Current (I_{DD}) ····· Typ. 3.5µA (A Version)
  Typ. 4.0µA (B Version)
- Standby Current (I_{ss}) ····· Max. 0.1µA
- Over-charge (V_{DET1})
  - Detector Threshold Range ····· 4.0V to 4.5V (0.005V steps)
  - Detector Threshold Accuracy ··· ±25mV (25°C)
    ±30mV (-5 to 55°C)
  - Output Delay Time (tV_{DET1}) ····· Typ. 1.1s or 275ms
- Over-discharge (V_{DET2})
  - Detector Threshold Range ····· 2.0V to 3.0V (0.1V steps)
  - Detector Threshold Accuracy ··· ±2.5%
  - Output Delay Time (tV_{DET2}) ····· Typ. 20ms
- Excess discharge-current (V_{DET3})
  - Detector Threshold Range ···· 0.05V to 0.20V (0.005V steps)
  - Detector Threshold Accuracy ····· ±15mV
  - Output Delay Time (tV_{DET3}) ···· Typ. 12ms
- Short Protection
  - Voltage (V_{short}) ····· Typ. 1.3V
  - Output Delay Time (t_{short}) ····· Typ. 300µs
- 0V-battery charge ····· Selectable (A Version)
- Package ····· SOT-23-5

BLOCK DIAGRAM

R5400N



SELECTION GUIDE

Package	Quantity per Reel	Part No.
SOT-23-5	3,000 pcs	R5400N xxx $ * -TR-FE

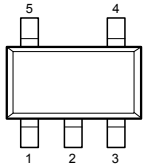
xxx: Serial Number for the R5400N Series designating input three threshold for over-charge, over-discharge, and excess discharge-current detectors.

$: Designation of Output delay time for over-charge.
(C) tV_{DET1}=1.1s
(F) tV_{DET1}=275ms

*: Designation of 0V-battery charge option.
(A) 0V-charge available
(B) 0V-charge unavailable

PACKAGE (Top View)

SOT-23-5



1	V-
2	V_{DD}
3	V_{SS}
4	D_{OUT}
5	C_{OUT}

APPLICATIONS

- Li-ion / Li polymer protector of over-charge, over-discharge, excess discharge-current, excess charge-current for battery pack
- High precision protectors for cell-phones and any other gadgets using on board Li-ion / Li polymer battery