

High Accuracy Li-ion/polymer 1Cell protector IC

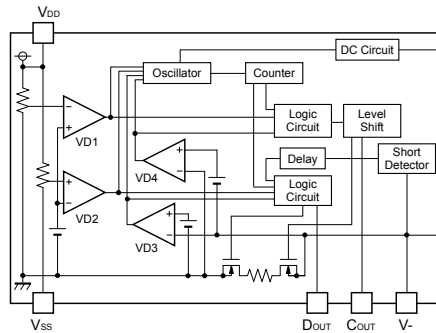
The R5470x/5471x Series are high input voltage CMOS-based protection ICs for over-charge/discharge and over-current of rechargeable one-cell Lithium-ion/Lithium polymer battery. They can detect over-charge/discharge and excess-current of one-cell Li-ion, further include a short circuit protection. They consist of four voltage detectors, reference units, a delay circuit, a short circuit detector, an oscillator, a counter, and a logic circuit. Voltage accuracy is superior to previous items. DFN(PLP)2114-4B (for R5470K) and DFN(PLP)1616-6B (for R5471K) packages are available.

FEATURES

- Supply Voltage (V_{DD}) 12V (Absolute Maximum Rating)
- Charger Negative Input Voltage (V_-) -30V (Absolute Maximum Rating)
- Operating Input Voltage Range (V_{DD}) 1.5V to 5.0V
- Supply Current (I_{DD}) Typ.4.0 μ A
- Standby Current (I_s) Max.0.1 μ A
- Over-charge (V_{DET1})
 - Detector Threshold Range 4.1V to 4.5V (0.005V steps)
 - Detector Threshold Accuracy ± 10 mV (0°C to 50°C)
 - Output Delay Time ($t_{V_{DET1}}$) Typ.1.0s
- Over-discharge (V_{DET2})
 - Detector Threshold Range 2.0V to 3.0V (0.1V steps)
 - Detector Threshold Accuracy $\pm 2.5\%$
 - Output Delay Time ($t_{V_{DET2}}$) Typ.20ms
- Excess discharge-current (V_{DET3})
 - Detector Threshold Range 0.05V to 0.13V (0.005V steps)
 - Detector Threshold Accuracy ± 10 mV
 - Output Delay Time ($t_{V_{DET3}}$) Typ.12ms
- Excess charge-current (V_{DET4})
 - Detector Threshold Range -0.05V to -0.15V (0.005V steps)
 - Voltage Accuracy ± 20 mV
 - Output Delay Time ($t_{V_{DET4}}$) 16ms
- Short Protection Voltage (V_{short}) Typ.0.6V
- Output Delay Time (t_{short}) Typ.250 μ s
- 0V-battery charge Unavailable
- Packages DFN(PLP)2114-4B (R5470K)
DFN(PLP)1616-6B (R5471K)

BLOCK DIAGRAMS

R5470xxxx/ R5471xxxx



SELECTION GUIDES

Package	Quantity per Reel	Part No.
DFN(PLP)2114-4B	5,000 pcs	R5470Kxxx\$*-TR
DFN(PLP)1616-6B	5,000 pcs	R5471Kxxx\$*-TR

xxx: Serial Number of R5470x/R5471x Series designating input four threshold for over-charge, over-discharge, excess discharge-current, and excess charge-current detectors.

\$: Designation of Output delay time option of over-charge, excess charge-current, and excess discharge-current.

(C) $t_{V_{DET1}}=1s$, $t_{V_{DET2}}=20ms$, $t_{V_{DET3}}=12ms$, $t_{V_{DET4}}=16ms$, $t_{short}=250\mu s$

*: Design of protection type.

(G) With Latch function after Over-charge and Over-discharge.

PACKAGES

DFN(PLP)2114-4B			DFN(PLP)1616-6B		
<p>Top View</p>	<p>Bottom View</p>	<p>1 V-</p> <p>2 COUT</p> <p>3 DOUT</p> <p>4 VSS</p> <p>5 VDD</p>	<p>Top View</p>	<p>Bottom View</p>	<p>1 VSS</p> <p>2 VDD</p> <p>3 COUT</p> <p>4 V-</p> <p>5 NC</p> <p>6 DOUT</p>

*) The tab is substrate level (V_{DD})

APPLICATIONS

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