R5550KxxxA Series

Intelligent power switch IC

The R5550KxxxA Series are CMOS-based intelligent power switch IC. R5550K is a protection IC used in power line with built-in current limit circuit and under-voltage lockout circuit (UVLO). Due to a built-in 180mΩ on-resistor, R5550K can provide a low supply current. R5550K can detect two different over current threshold and under voltage error. When the R5550K detects over current, the switch turns off after the preset delay time (10ms). If the output current exceeds the larger current limit, the current is limited by the preset value immediately, and the switch turns off after the preset delay time (1.33ms). R5550K has V_{SENSE} pin. If an abnormal low voltage is detected, after the preset delay time (10ms), the switch turns off. After detecting the abnormal situation, the switch turns on automatically if the cause of the error is removed. A 1mm square DFN(PLP)1010-4F package called a flip chip is available.

FEATURES

- Supply Current (I_{SS}) ····· Typ. 2.6μA (Enabled, V_{SENSE}=2.0V)
- Input Voltage Range (V_{IN}) ····· 2.3V to 5.25V (Absolute maximum rating : 6.0V)
- Switch ON Resistance (R_{ON}) ····· Typ. 180mΩ (V_{IN}=3.3V, I_{OUT}=100mA)
- UVLO Released Voltage (V_{UVLO}) ··· Typ. 2.1V
- Output Current (I_{OUT}) ····· 1A
- Over Current Threshold (I_{DET}) ····· Min. 300mA, Typ. 460mA, Max. 624mA
- Current Limit Threshold (I_{LIM}) ····· Min. 1130mA, Typ. 1470mA, Max. 1790mA
- Detector Threshold (-V_{DET}) ····· Typ. 0.5V (Accuracy : ± 3%)
- Short Current Limit ····· Typ. 300mA

Over Current / Low Voltage Detection Time

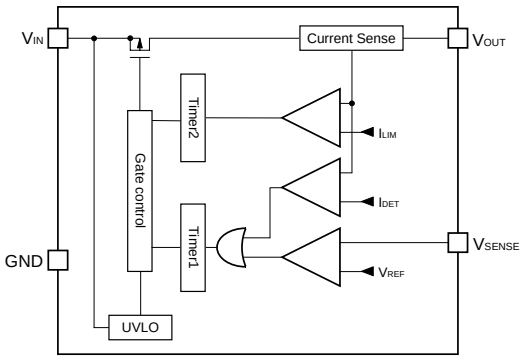
- Protection Delay Time1 (t_{DET1}) ····· Typ. 10ms
- OFF Time1 (t_{OFF1}) ····· Typ. 80ms
- ON Time1 (t_{ON1}) ····· Typ. 2.5ms

Current Limit Detection Time

- Protection Delay Time2 (t_{DET2}) ····· Typ. 1.33ms
- OFF Time2 (t_{OFF2}) ····· Typ. 80ms
- ON Time2 (t_{ON2}) ····· Typ. 1.33ms
- Reset Protection Circuit ····· Auto Release
- Package ····· DFN(PLP)1010-4F

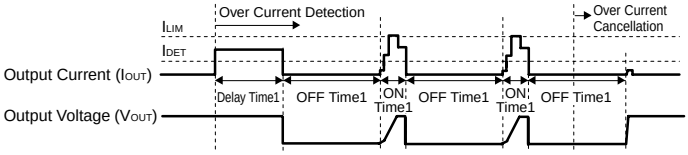
BLOCK DIAGRAM

R5550KxxxA
(Reset type, With V_{SENSE} pin)

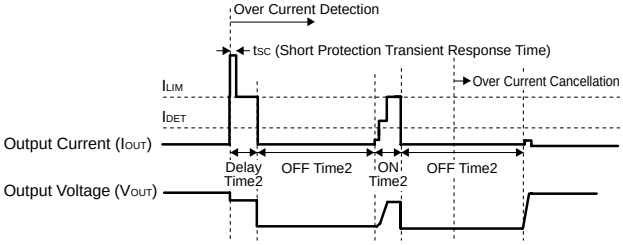


TIMING CHARTS

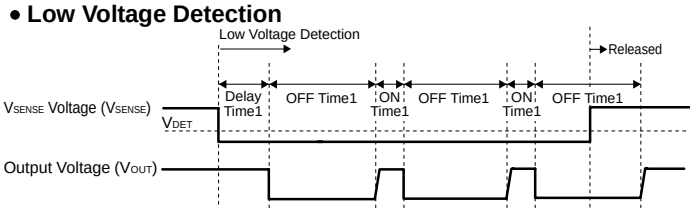
- **Over Current Detection**



- **Current limit Detection**



- **Low Voltage Detection**



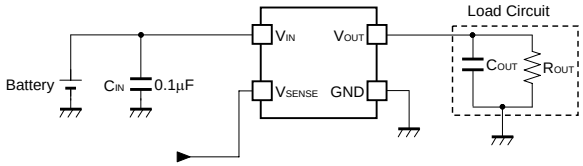
SELECTION GUIDE

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)1010-4F	10,000 pcs	R5550KxxxA-TR

xxx : Specify a combination of over current threshold, current limit threshold and protection delay time setting using serial numbers.

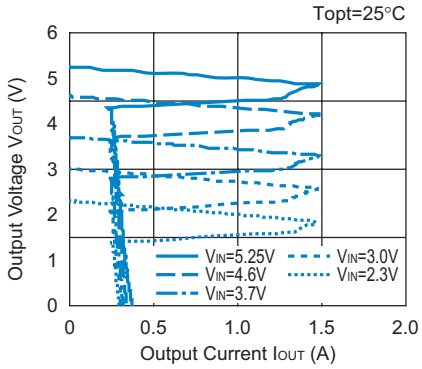
TYPICAL APPLICATION

R5550KxxxA



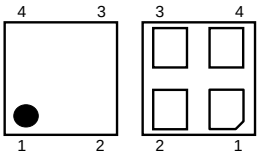
TYPICAL CHARACTERISTIC

R5550KxxxA Output Voltage vs. Output Current



PACKAGE

DFN(PLP)1010-4F



1	GND
2	VSENSE
3	VIN
4	VOUT

APPLICATION

- Power supply switch for hand-held communication equipment.

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