

35V Hot Swappable Supercapacitor Backup Power Controller Provides Uninterrupted Power, Protection & Monitoring

NORWOOD, MA – January 24, 2018 – [Analog Devices](#) announces the Power by Linear™ [LTC3351](#), a supercapacitor charger and backup power controller IC that includes hot swap front-end protection and all the features necessary to provide a complete, standalone capacitor-based backup power solution. The LTC3351's integrated hot swap controller and circuit breaker use N-channel MOSFETS to provide a low loss power path from the input to the output, plus foldback current limiting to reduce inrush current. The device enables reliable short term uninterrupted power in the event of a main power failure for applications such as solid-state drives (SSDs) and nonvolatile dual in-line memory modules (NVDIMMs) data backup, power fail alarms in medical and industrial applications and “dying gasp” power fail indicators. The LTC3351 provides PowerPath™ control, capacitor stack charging and balancing, protection and capacitor health monitoring. Other applications include high current 12V ride-through supplies and short term uninterruptible power supplies (UPS) for servers, mass storage and high availability systems.

- View the LTC3351 product page, download data sheet, order samples and evaluation boards: www.linear.com/product/LTC3351

The LTC3351 features a 4.5V to 35V input voltage range and over 10A of charge/backup current capability. The device also provides balancing and overvoltage protection for a series stack of one to four supercapacitors. The LTC3351's synchronous step-down controller enables constant current/constant voltage charging of the capacitor stack at up to 5V per cell. In backup mode, the step-down converter runs in reverse as a synchronous step-up DC/DC to deliver power from the supercapacitor stack to the system supply to be backed up. The hot swap controller provides

programmable UV/OV thresholds, PCIe compatible start-up timing and a precision threshold /RETRY input.

The LTC3351 includes an accurate 16-bit analog-to-digital converter (ADC) which continuously monitors input and output voltage and current. In addition, the internal measurement system monitors parameters associated with the backup capacitors themselves, including capacitor stack voltage, capacitance and stack ESR (equivalent series resistance) to ensure adequate energy storage and power delivery during backup. By monitoring the actual capacitance of the backup supercapacitors, the LTC3351 provides longer capacitor life by enabling the system to set the capacitor voltage to a minimum value while ensuring the required backup energy is maintained. All system parameters and fault status can be monitored via a 2-wire I²C interface, and alarm levels can be set to alert the system to a sudden change in any of these measured parameters.

The LTC3351 is available in a thermally enhanced 44-lead, low profile (0.75mm) 4mm x 7mm QFN package. The device operates over a –40°C to 125°C junction temperature range and is available from stock. For more information, visit www.linear.com/product/LTC3351.

Summary of Features: LTC3351

- Integrated Hot Swap Controller with Circuit Breaker
- High Efficiency Synchronous Step-Down CC/CV Charging of One to Four Series Supercapacitors
- Step-Up Backup Mode Provides Greater Utilization of Stored Energy in Supercapacitors
- 16-Bit ADC for Monitoring System Voltages/Currents, Capacitance & ESR
- Programmable Undervoltage & Overvoltage Thresholds to 35V
- V_{IN}: 4.5V to 35V, V_{CAP(n)}: Up to 5V per Capacitor, Charge/Backup Current: >10A
- Programmable Input Current Limit Prioritizes System Load Over Capacitor Charge Current
- All N-FET Charger Controller & PowerPath™ Controller
- Compact 44-Lead 4mm x 7mm QFN Package

Pricing & Availability

Product	Production Availability	Price Each Per 1,000	Package
LTC3351	Now	Starts at \$5.25	4mm x 7mm 44-Lead QFN

About Analog Devices

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