

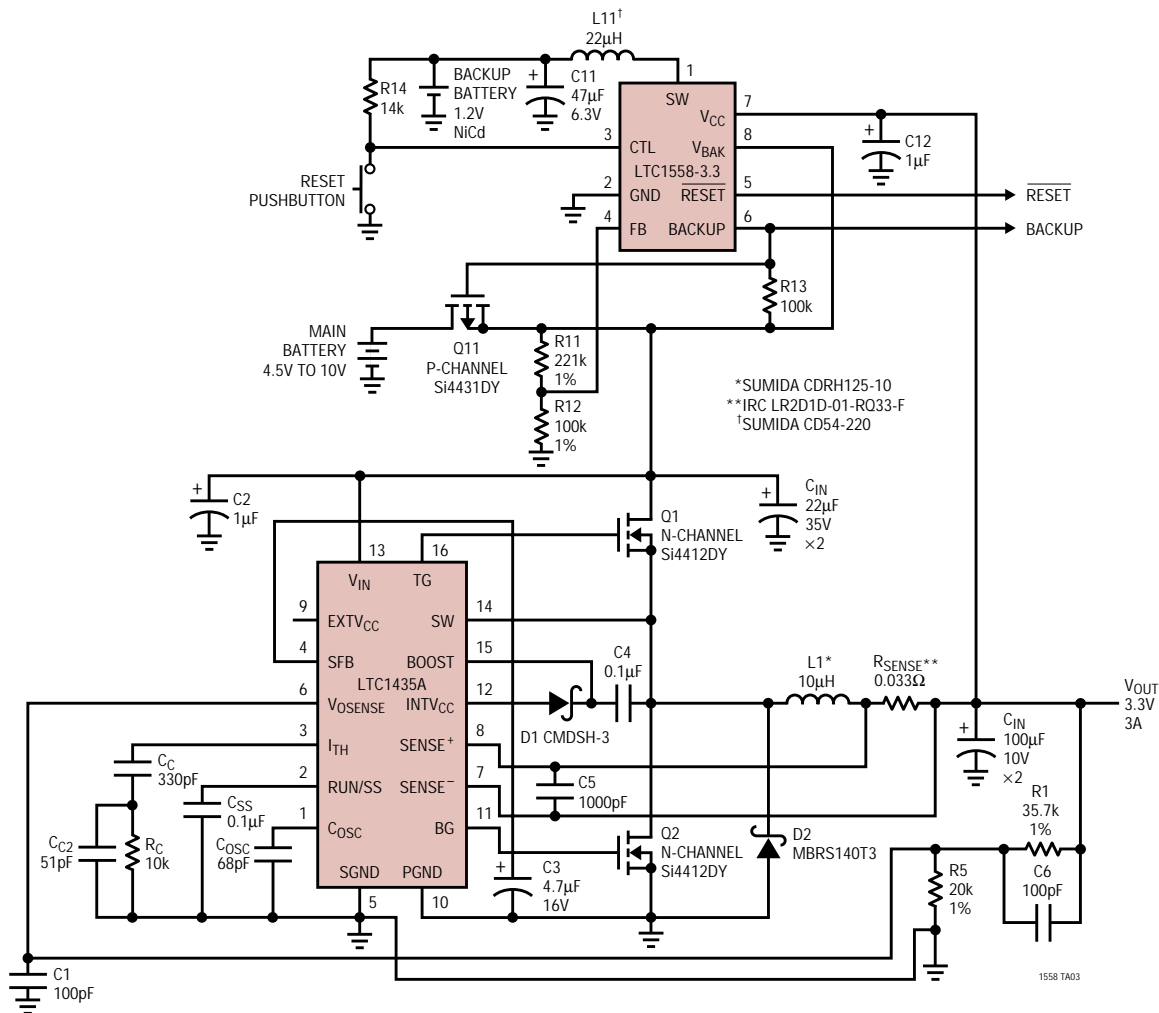
# Battery Backup Supply Operates from Single Rechargeable NiCd Cell

Battery backup solutions typically use an expensive non-rechargeable Li-Ion battery that requires battery access and can lead to inadvertent battery removal. The circuit below eliminates this problem by permitting the use of a single, low cost 1.2V rechargeable NiCd cell and the **LTC1558-3.3** battery backup controller.

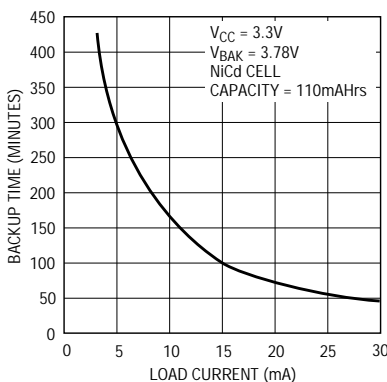
During normal operation the **LTC1558's** BACKUP pin is held low, which turns on Q11 and allows the **LTC1435A** to generate a 3.3V output from the 4.5V to 10V main battery. During this period the backup battery is fast charged at a

15mA charge rate, followed by a maintenance trickle charge that overcomes the NiCd cell's self-discharge current.

In backup mode, the **LTC1558-3.3** acts as a synchronous boost converter that generates a regulated 4V at  $V_{BAK}$ , which supplies the **LTC1435A** with a sufficient supply voltage to generate its 3.3V output at 30mA for critical system circuitry. The BACKUP pin is pulled high by R13 and Q11 turns off, preventing further drain from the main battery. The BACKUP pin also notifies the system microprocessor that backup mode has been enabled.



Backup Time vs 3.3V Output Load Current



Source: LTC Applications Dept.  
www.linear-tech.com/notebook.html