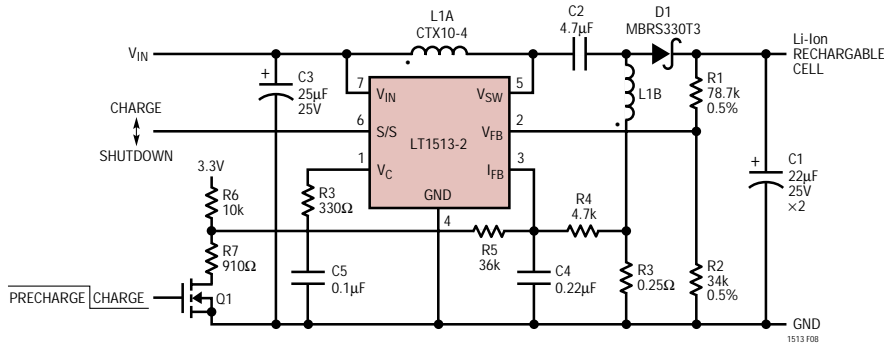


## SEPIC Li-Ion Battery Charger With Switchable Charge Current

The circuit below is based on a standard SEPIC battery charger circuit set to a single Li-Ion cell charge voltage of 4.1V. The **LT1513-2** has  $I_{FB}$  referenced to ground allowing a simple resistor network ( $R_3$ ,  $R_4$ , and  $R_5$ ) to set the charge current. In constant-current mode, the error amplifier drives the  $I_{FB}$  pin, increasing charging current until  $I_{R_4}$  is balanced by  $I_{R_5}$ .  $I_{R_5}$  can be controlled using a DAC, PWM or resistor network, as shown.

During pre-charging, Q1 is turned on, setting a constant current of 0.13A. When the preset charge voltage is reached, Q1 is turned off, programming the full charge current of 1.35A. As the cell voltage approaches 4.1V, the voltage sensing network ( $R_1$ ,  $R_2$ ) starts driving the  $V_{FB}$  pin, changing the **LT1513-2** to constant voltage mode for the remainder of the charging cycle. When charging is complete, the **LT1513-2** can be shut down with the S/S pin.



$$I_{\text{CHARGE}} = \frac{(I_{R_5}) (R_4) - I_{FBVOS}}{R_3}$$

Source: LT1513 Data Sheet  
[www.linear-tech.com/chargers.html](http://www.linear-tech.com/chargers.html)