

## High Efficiency 1X/1.5X Fractional Charge Pump for White LED

### OVERVIEW

The CP2133 is optimized for white LED supplies in backlight color display applications. The device provides a constant current, set by an external resistor, for each LED. The supply voltage ranges from 2.7 V to 5.5 V and is ideally suited for all applications powered by a single LI-Ion battery cell or three to four NiCd, NiMH, or Alkaline battery cells. The CP2133 provides up to 30 mA per LED, for a total of 120 mA, for input voltage rang from 3 V to 5.5 V. High efficiency is achieved by utilizing a 1x/1.5x adaptive fractional conversion technique in combination with very low dropout current sources. Additionally, the current controlled charge pump ensures low input current ripple and EMI. Only two external 1 $\mu$ F and two 0.47  $\mu$ F capacitors are required to build a complete small and low cost power supply solution. The CP2133 switches at 1 MHz operating frequency and is available in a small 16-pin QFN package to keep a minimum board space.

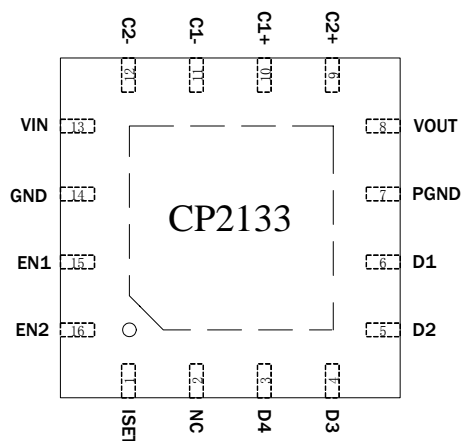


3mm\*3mm QFN 16L  
-40°C ~ 85°C

### FEATURES

- Drives up to 4 LEDs at 30 mA Each
- Regulated Output Current With 0.5% Matching Over Temperature
- LED Brightness Control Through PWM Control Signal (0Hz~50KHz)
- Low Input Ripple and Low EMI
- Over-current and Over-temperature Protected
- Less than 0.1  $\mu$  A Quiescent Current In Shutdown Mode
- RoHS Compliant and 100% Lead (Pb)-Free

### Pin Diagram (Top View)

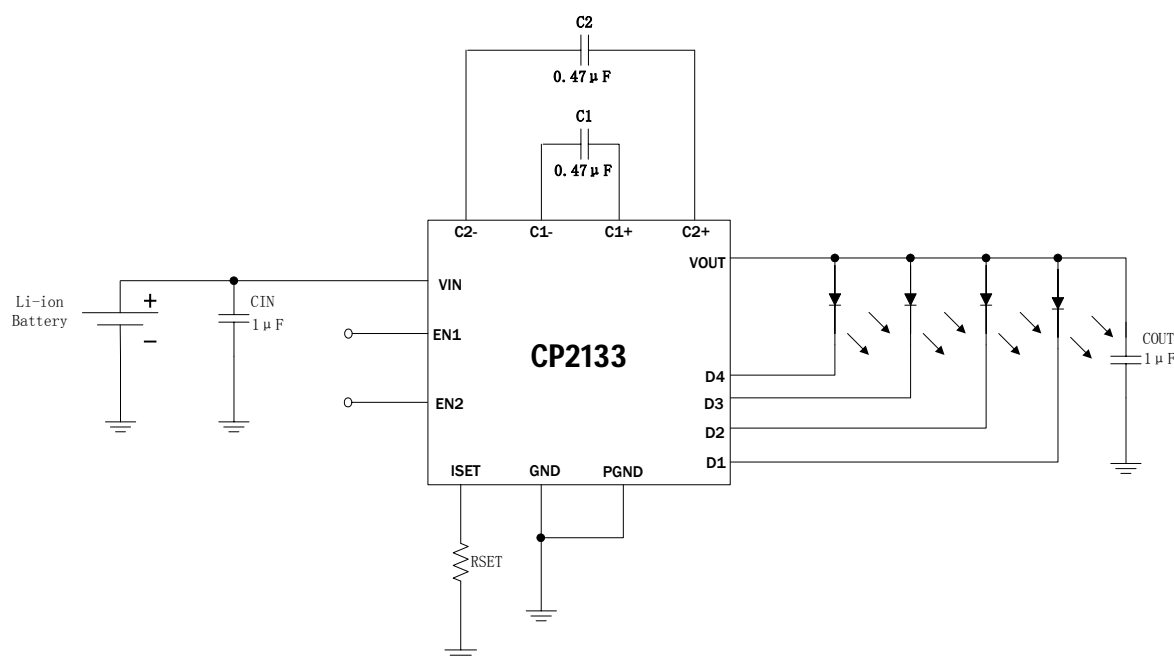


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### APPLICATIONS

- Cell phone
- Digital Camera
- MP3,PMP,PDA

### TYPICAL APPLICATION



### RELATED PRODUCTS

CP2130: High Efficiency 1X/1.5X Fractional Charge Pump for White LED

CP2131: High Efficiency 1X/1.5X Fractional Charge Pump for White LED



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