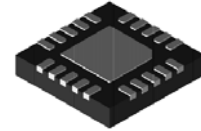


High Efficiency 1X/1.5X Fractional Charge Pump for White LED (1-Wire Pulse Counting Dimming Control) With Dual Channel 200mA LDO

OVERVIEW

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The CP2167 is an integrated solution for 4 white LED supplies in backlighting color display applications and phone camera input supply. The device contains a self adapted charge pump white LED driver and dual channel low dropout linear regulators. The CP2167 is available in a small 20-pin 3mm*3mm QFN package.



3mm*3mm QFN 20L
-40°C ~ 85°C

In the section of charge pump, high efficiency is achieved by utilizing a 1x/1.5x adaptive fractional conversion technique in combination with low dropout current regulator. The CP2167 provides up to 4 LED at 30mA each and uses 1-wire pulse counting technique to adjust the brightness of LEDs, with the pulse signal on the EN1 pin, and the LED current varies according to 16 steps logarithm scale.

In the section of LDO, The CP2167 contains a dual channel, low noise, and low dropout regulator sourcing up to 200mA at each channel, and while the typical dropout-voltage is 200mV. The excellent transient response performance, high PSRR and no bypass capacitor makes the LDOs suitable for digital applications. The output voltage ranges from 1.0V ~3.3V. Anti reverse current function can prevent reverse current in the situation that the output voltage is above the input voltage. The LDO also provides current limiting and short-protection.

FEATURES

- supply voltage ranging from 2.7 V to 5.5 V
- Over-current, over-temperature and short protection
- Anti reverse current
- 3mm*3mm QFN 20L
- Less than 0.1µA Quiescent Current In Shutdown Mode
- RoHS6 Compliant

Charge Pump Section

- Drives up to 4 LEDs at 30 mA Each
- Regulated Output Current With 0.5% Matching
- Utilizing a 1x/1.5x adaptive fractional conversion technique for high efficiency (up to 92%)
- wire pulse counting dimming : 16 steps logarithm scale
- Low Input Ripple and Low EMI
- 1 MHz operating frequency
- 1-wire pulse counting technique

LDO Section

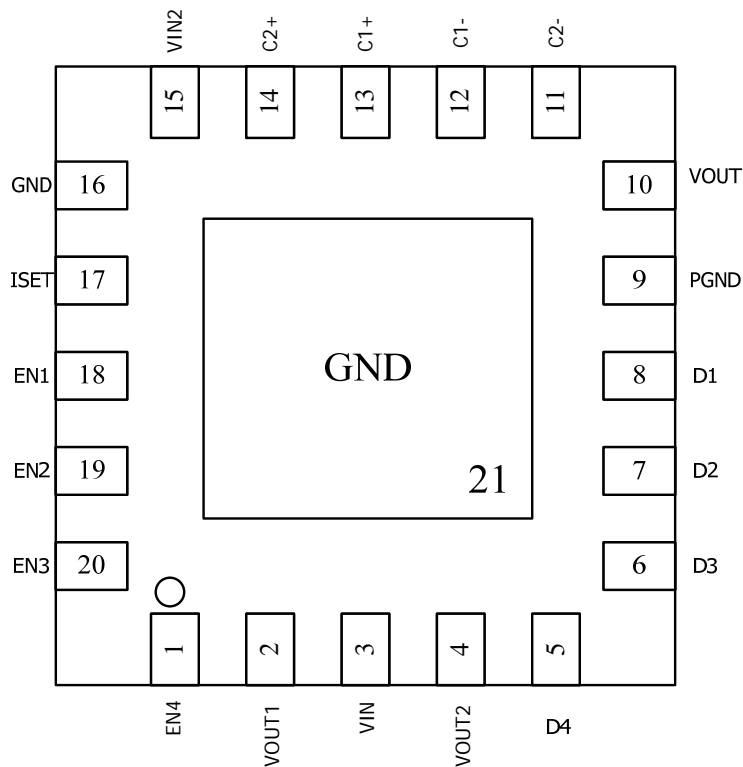
- Low dropout voltage at 200mA load current: 200mV
- High output voltage accuracy: ±1.5%

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- High power supply rejection ratio: 68dB@1kHz
- Low output noise: 150μVrms
- Low quiescent current: 72μA (one channel 46μA)
- Stable with 0.47μF ceramic capacitor
- Fast turn on:50μs
- Output voltage range: 1.0V~3.3V
- Using two EN pin to control each LDO

Pin Diagram (Top View)



APPLICATIONS

- Cellular/GSM/PHS phones
- Digital cameras
- PDAs, MP3 players
- Portable, battery powered equipments, Portable computers

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TYPICAL APPLICATION

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