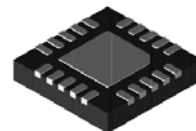


## High Efficiency 1X/1.5X Fractional Charge Pump for White LED (PWM Brightness Control) With Dual Channel 200mA LDO

### OVERVIEW

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The CP2168 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 CP2168 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 CP2168 provides up to 4 LED at 30mA each. LED Brightness are Controlled Through PWM Control Signal

In the section of LDO, The CP2168 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%)
- Low Input Ripple and Low EMI
- 1 MHz operating frequency
- LED brightness controlled by PWM signal (up to 50KHz)

#### LDO Section

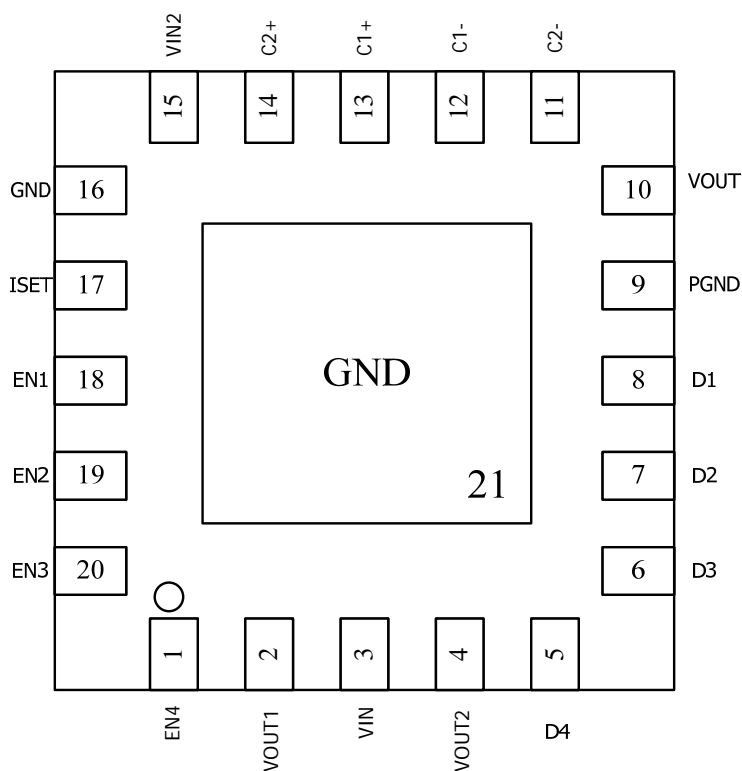
- Low dropout voltage at 200mA load current: 200mV
- High output voltage accuracy: ±1.5%
- High power supply rejection ratio: 68dB@1kHz
- Low output noise: 150μVrms
- Low quiescent current: 72μA (one channel 46μA)

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- Stable with 0.47 $\mu$ F ceramic capacitor
- Fast turn on:50 $\mu$ s
- 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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