

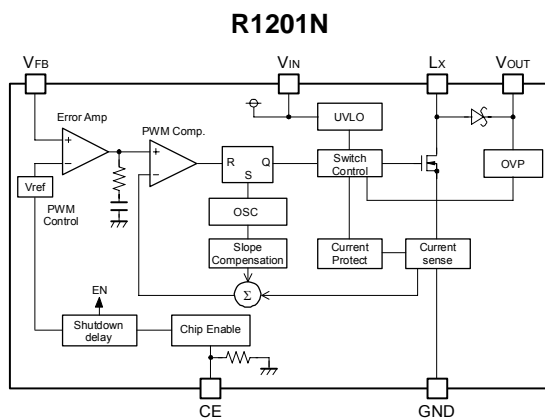
## PWM Step-up DC/DC Converter for White LED

The R1201N Series are CMOS-based PWM step-up DC/DC converters, which are optimized to drive white LEDs with constant current. R1201N includes a forward diode, an under-voltage lockout circuit (UVLO), and over-voltage protection circuit (OVP). By simply using an inductor, a resistor, and capacitors as external components, white LEDs can be driven with constant current and high efficiency. A diode is built-in; therefore it is possible to drive up to 5 serial LEDs without an external diode. The oscillator frequency can be selected from 1MHz or 1.2MHz. The LED current can be determined by the value of current setting resistor. The brightness of the LEDs can be adjusted quickly by applying a PWM signal (200Hz to 300kHz) to the CE pin.

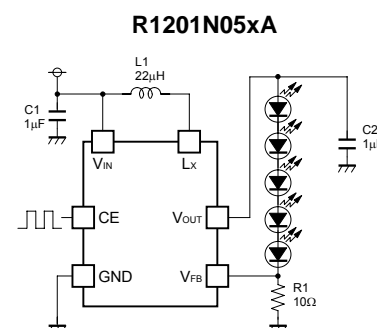
### FEATURES

- Supply Current ( $I_{DD}$ ) ..... Typ. 500 $\mu$ A (1.2MHz,  $V_{FB}=0V$ , Lx at no load)  
Typ. 450 $\mu$ A (1MHz,  $V_{FB}=0V$ , Lx at no load)
- Standby Current ( $I_{standby}$ ) ..... Max. 5 $\mu$ A ( $V_{IN}=5.5V$ , CE="L")
- Input Voltage Range ( $V_{IN}$ ) ..... 1.8V to 5.5V (1A/3A Version)  
1.8V to 4.5V (2A/4A Version)
- Absolute maximum rating ..... 6.5V
- Feedback Voltage ( $V_{FB}$ ) ..... 0.2V
- Feedback Voltage Accuracy .....  $\pm 10mV$
- Oscillator Frequency ( $f_{osc}$ ) ..... 1MHz, 1.2MHz
- Oscillator Maximum Duty Cycle (Maxduty) .. Typ. 91%
- UVLO Detect Voltage ( $V_{UVLO}$ ) ..... Typ. 1.6V
- Coil-current Limit Circuit ..... Current limit Typ. 700mA
- Over Voltage Protection Circuit (OVP)
- Packages ..... SOT-23-6

### BLOCK DIAGRAMS



### TYPICAL APPLICATION



### SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	SOT-23-6	3,000 pcs	R1201NxxxA -TR-FE

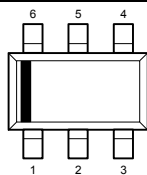
xxx : Specify a combination of the oscillator frequency and OVP voltage.

(021) 1.2MHz, 9.5V	(023) 1MHz, 9.5V
(031) 1.2MHz, 14.0V	(033) 1MHz, 14.0V
(041) 1.2MHz, 18.5V	(043) 1MHz, 18.5V
(051) 1.2MHz, 20.6V	(053) 1MHz, 20.6V
(052)* 1.2MHz, 21.6V	(054)* 1MHz, 21.6V

\*) Input Voltage range: 1.8V to 4.5V

### PACKAGES

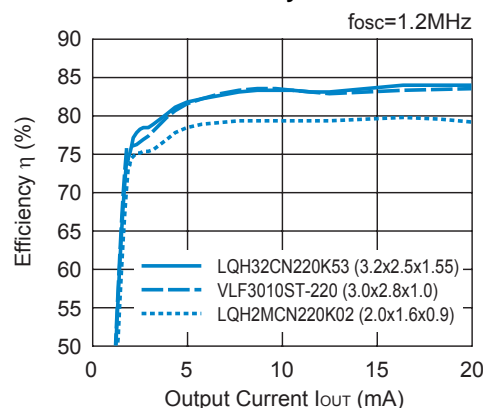
#### SOT-23-6



1	CE
2	VOUT
3	VIN
4	Lx
5	GND
6	VFB

### TYPICAL CHARACTERISTIC

#### R1201N041A Efficiency vs. LED Current



### APPLICATIONS

- White LED driver for hand-held equipment



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Ricoch continually strives to promote customer satisfaction, and shares the achievements of its management quality improvement program with people and society.



■ Ricoh awarded ISO 14001 certification.

The Ricoh Group was awarded ISO 14001 certification, which is an international standard for environmental management systems, at both its domestic and overseas production facilities. Our current aim is to obtain ISO 14001 certification for all of our business offices.

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Ricoh completed the organization of the Lead-free production for all of our products. After Apr. 1, 2006, we will ship out the lead free products only. Thus, all products that will be shipped from now on comply with RoHS Directive.