

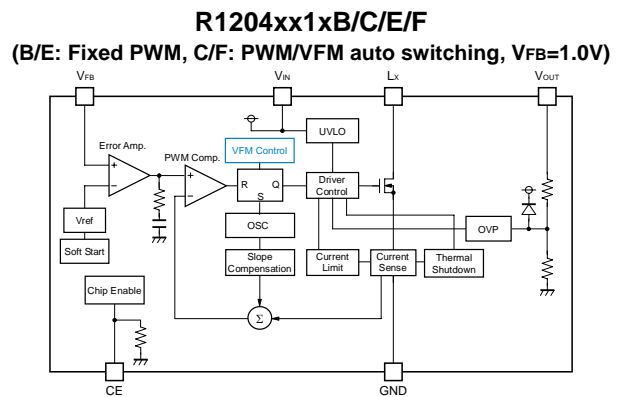
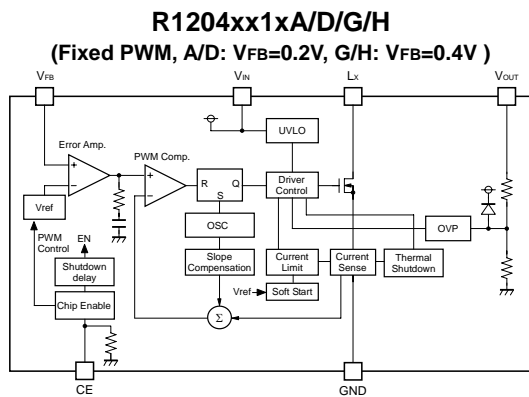
The R1204x Series are CMOS-based PWM/VFM step-up DC/DC converters, which are optimized to drive white LEDs and PMOLED with constant current. There are two types. The A/D/G/H version is optimized for the serial/parallel drive of white LED with constant current, and the B/C/E/F version is optimized for the general use or the drive of PMOLED. The R1204x includes an under-voltage lockout circuit (UVLO), a soft-start circuit, and an over-voltage protection circuit (OVP), a thermal shutdown circuit. By simply using an inductor, resistors, capacitors and a diode as external components, PMOLED and white LEDs can be driven with high efficiency. The A/D/G/H version can set the LED current with feedback resistor (R1). The brightness of the LEDs and the soft-start time can be adjusted by applying a PWM signal (200Hz to 300kHz) to the CE pin. In addition to DFN(PLP)1820-6, 0.95mm thickness TSOT-23-6 is available.

*) R1204x Series are suitable for automotive applications (Under Development). For details, please refer to our "ELECTRONIC DEVICE PRODUCT CATALOG FOR AUTOMOTIVE" or contact us.

FEATURES

- Supply Current (I_{DD}) Typ. 800 μ A (No switching)
- Standby Current ($I_{standby}$) Typ. 1 μ A (CE="L")
- Input Voltage Range (V_{IN}) 2.3V to 5.5V (Absolute maximum rating: 6.5V)
- Feedback Voltage (V_{FB}) 0.2V (A/D Version), 0.4V (G/H Version)
1.0V (B/C/E/F Version)
- Feedback Voltage Accuracy ± 10 mV (A/D/G/H Version)
 ± 15 mV (B/C/E/F Version)
- Oscillator Frequency (f_{osc}) 1MHz (A/B/C/G Version), 750kHz (D/E/F/H Version)
- Oscillator Maximum Duty Cycle (Maxduty) .. Min. 91% (A/B/C/G Version), Min. 92% (D/E/F/H Version)
- UVLO Detect Voltage (V_{UVLO}) Typ. 2.0V
- Coil-current Limit Circuit Current Limit Typ. 900mA
- Over Voltage Protection Circuit (OVP) .. Typ. 23V, Typ. 33V, Typ. 42V
- Soft Start Time (t_{start}) Controllable by PWM signal to the CE pin (A/D/G/H Version)
Typ. 10ms (B/C/E/F Version)
- Thermal Shutdown Circuit Stops at 150°C
- LED High-speed Dimming Control A/D/G/H Version
- Packages DFN(PLP)1820-6, TSOT-23-6

BLOCK DIAGRAMS



Blue line : only R1204xx1xC/F

SELECTION GUIDES

Halogen Free	Package	Q'ty per Reel	Part No.
H/F	DFN(PLP)1820-6	5,000 pcs	R1204Kx12*-TR
H/F	TSOT-23-6	3,000 pcs	R1204Nx13*-TR-FE

x : Specify the OVP voltage.

(1) 23V, (2) 33V, (3) 42V

* : Specify the control, feedback voltage and oscillator frequency.

$V_{FB}=0.2V$		$V_{FB}=1.0V$	
(A) fixed PWM, 1MHz	(B) fixed PWM, 1MHz	(C) PWM/VFM auto switching, 1MHz	(D) fixed PWM, 750kHz
(D) fixed PWM, 750kHz	(E) fixed PWM, 750kHz	(F) PWM/VFM auto switching, 750kHz	(G) fixed PWM, 1MHz
(G) fixed PWM, 1MHz	(H) fixed PWM, 750kHz		

PACKAGES (Top View)

DFN(PLP)1820-6				TSOT-23-6			
1	VOUT	4	VIN	1	Lx	4	CE
2	Lx	5	CE	2	GND	5	VOUT
3	GND	6	VFB	3	VFB	6	VIN

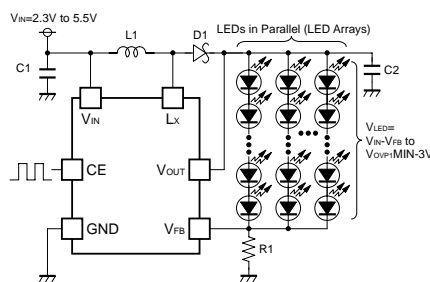
*) The tab is substrate level (GND).

APPLICATIONS

- Power source for hand-held equipment
- PMOLED power supply for hand-held equipment
- White LED backlight for hand-held equipment

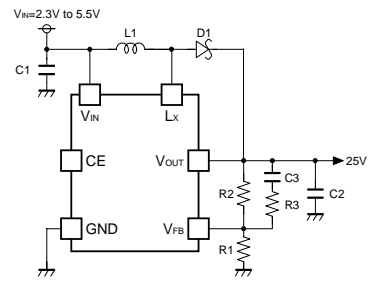
TYPICAL APPLICATIONS

R1204xx1xA/D/G/H



L1: 10 μ H (A/G) or 22 μ H (D/H)
C1: 1 μ F, C2: 1 μ F, R1: 10 Ω

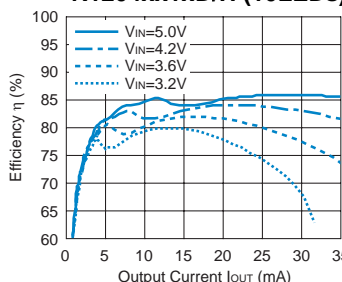
R1204xx1xB/C/E/F



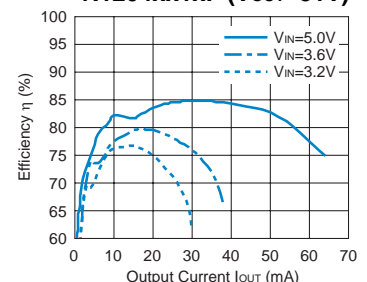
L1: 10 μ H (B/C) or 22 μ H (E/F),
C1: 1 μ F, C2: 1 μ F, C3: 10pF,
R1: 10k Ω , R2: 240k Ω , R3: 0 Ω

TYPICAL CHARACTERISTICS

Efficiency vs. Output Current R1204xx1xD/H (10LEDs)



Efficiency vs. Output Current R1204xx1xF (VOUT=31V)





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Ricoh has been providing RoHS compliant products since April 1, 2006 and Halogen-free products since April 1, 2012.

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