

1.2MHz 24V Built-in OVP White LED Boost(Step-Up) Converter -Backlight Driver

PRELIMINARY DATASHEET

Datasheet Brief

■ Description

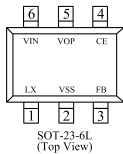
The FH2120 Serie is a fixed frequency, constant current step-up DC-DC converter ideal for driving LEDs used in high-definition screen backlight LED driver etc.

The highest output voltage is 24.0V, the input voltage of 3.6V can drive 3 series, 17 in parallel, a total of 51 LED.

The internal circuit integrated overvoltage protection circuit and temperature protection circuit, and the brightness of the leds can be controlled with a PWM signal. The internal circuit integrates a large pipes of 0.2 ohms.

■ Package Type

- SOT-23-6L



■ Features

- Input voltage range: 3.0V to 6.0V
- Output voltage range: up to 24V
- Oscillation frequency: 1.2MHz ±20%
- Efficiency: 88%
- Control mode: PWM control
- Stand-by Current: ISTB=1.0uA(MAX)
- Load capacitor: 10uF, ceramic

■ Applications

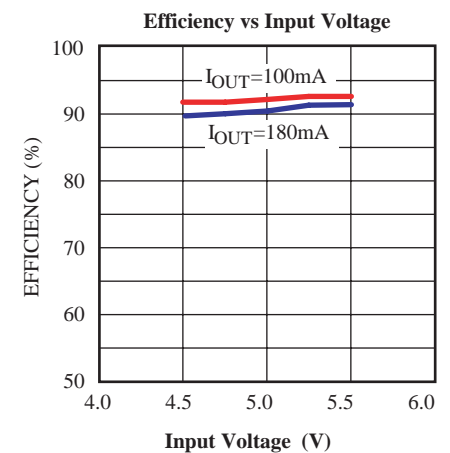
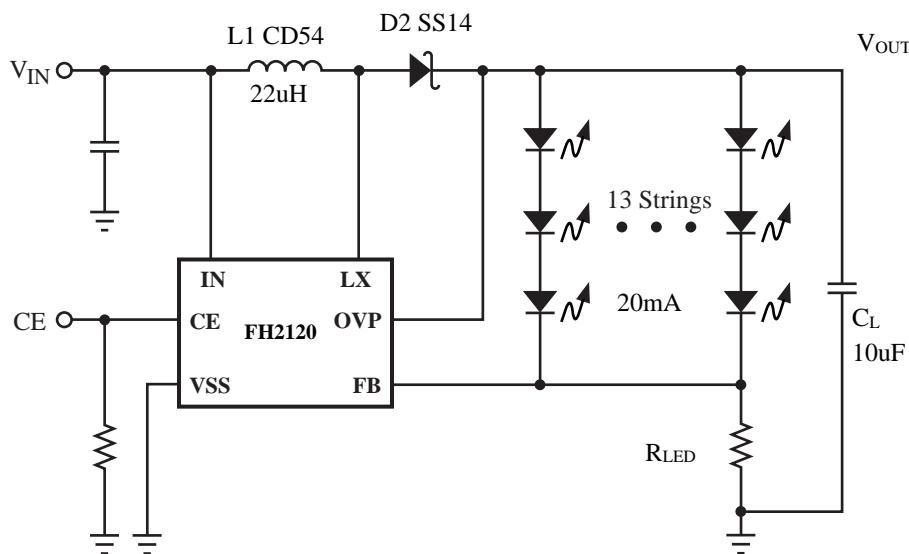
- LCD Bias
- Battery Backup
- Digital Cameras
- Smart Phone
- Hand-held Computers
- Personal Navigation Device
- Digital Picture Frame

Device Information (1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
FH2120	SOT-23 (6L)	2.90mm x 1.60mm

(1) For all available packages, see the orderable addendum at the end of the data sheet.

■ Typical Application Circuit

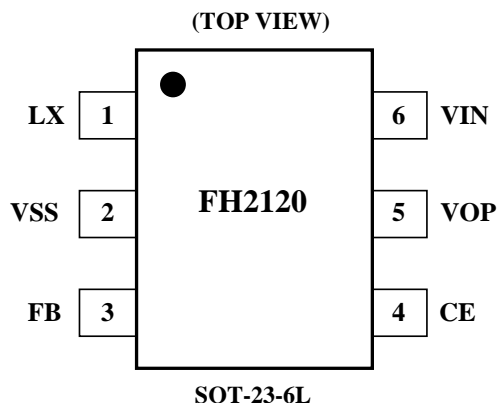


The application of single section lithium electricity power supply

Caution: The value of the resistance named R_{LED} : $R_{LED} = V_{FB} / (I_{LED} * n)$; V_{FB} is the voltage of the FB pin;

I_{LED} is the current of LED and equal to 20mA usually. N is the number of LEDs in the circuit in parallel.

■ Functional Pin Description



PIN DESCRIPTION

Pin Number	Pin Name	Pin Description
1	LX	Power Switch input. This is the drain of the internal NMOS power switch. Minimize the metal trace area connected to this pin to minimize EMI.
2	VSS	Ground. Tie directly to ground plane.
3	FB	Output voltage feedback input. Connect the ground of the feedback network to an AGND(Analog Ground) plane which should be tied directly to the GND pin.
4	CE	Enable control input, active high. The enable pin is an active high control. Tie this pin above 2.0V to enable the device.
5	OVP	Over Voltage Protection.
6	VIN	Power Input. Input Supply Pin. Bypass this pin with a capacitor as close to the device as possible.

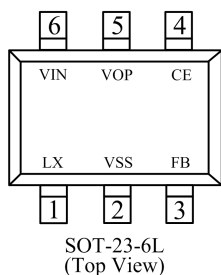
产品概述

FH2120系列是一款固定频率、恒定电流的升压DC/DC控制器,主要用于高清屏等设备上的背光LED驱动。输出电压最高可以达到24V,输入电压为3.6V时能驱动17并3串一共51个LED,电路内部集成过压和温度保护,LED的亮度可以外加一个PWM信号来控制。电路内部集成了一个内阻0.2欧姆的大管子。

封装

- SOT-23-6L

引脚配置



产品特点

- 输入电压 3.0V– 6.0V
- 输出电压 最大可以达到 24V
- 振荡频率 1.2MHz±20%
- 效率 88%
- 工作控制模式 PWM控制的电流模工作模式
- 待机功耗 最大 1.0μA
- 负载电容 10μF, 陶瓷电容

用途

- 高清屏 LED 驱动

引脚号	引脚名	功能描述
1	LX	SWITCH
2	VSS	接地
3	FB	电压反馈端
4	CE	芯片使能端
5	OVP	过压保护
6	VIN	电源输入

绝对最大额定值

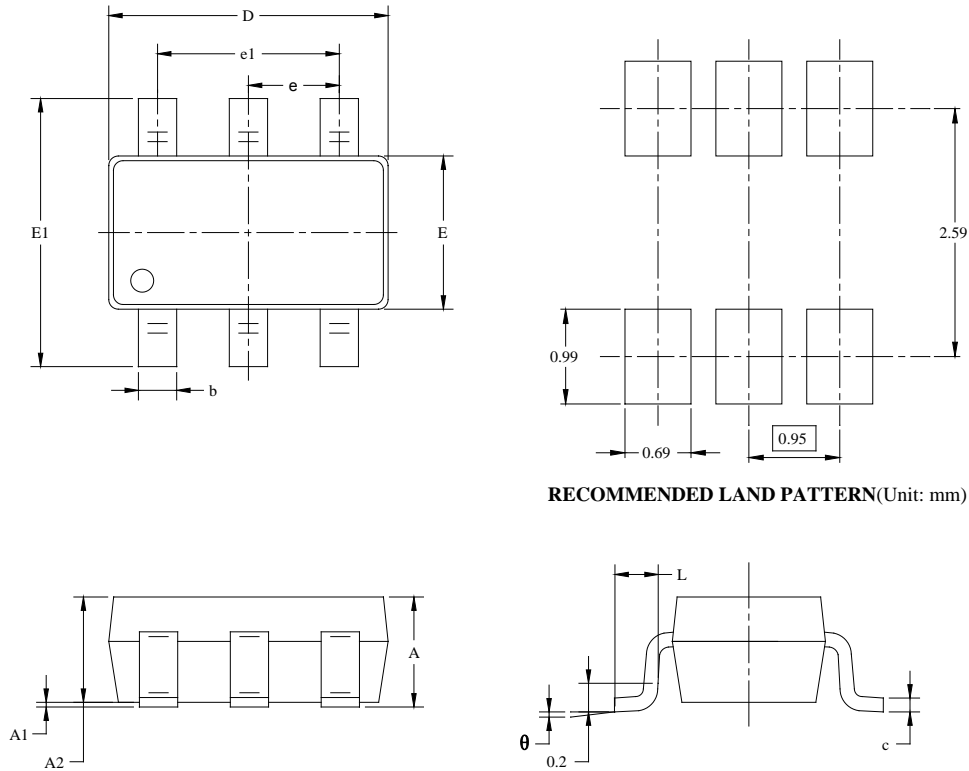
项目	符号	绝对最大额定值	单位
输入电压	VIN	$V_{SS}-0.3 \sim V_{SS}+7$	V
输出电压	VOUT	$V_{SS}-0.3 \sim V_{SS}+26$	
	VLX	$V_{SS}-0.3 \sim V_{SS}+26$	
FB端电压	Vfb	$V_{SS}-0.3 \sim V_{SS}+7$	V
CE端电压	Vce	$V_{SS}-0.3 \sim V_{SS}+7$	V
LX端电流	ILX	2500	mA
OVP端电压	Vovp	$V_{SS}-0.3 \sim V_{SS}+26$	
容许功耗	P _D	SOT-23-6L 250	mW
工作环境温度	Topr	-40 ~ +85	°C
保存温度	Tstg	-55 ~ +125	

注意：

绝对最大额定值是指在任何条件下都不能超过的额定值。万一超过此额定值,有可能造成产品劣化等物理性损伤。

■ Package Information

- SOT-23-6L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	MIN	MAX	MIN	MAX
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950 BSC		0.037 BSC	
e1	1.900 BSC		0.075 BSC	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Ordering Information

Part Number	FB Voltage	Features	Operating Temperature	Package Type	Top Mark	SPQ
FH2120AM6	100mV	<ul style="list-style-type: none"> • White LED Boost(Step-Up) • Output Voltage: up to 24V • Frequency: 1.2MHz • Stand-by Current: 1.0uA(max.) • PWM Dimming • Input Voltage: 3.0V ~ 6.0V 	-40°C to +85°C	SOT-23-6L	Y <u>YML</u>	3000PCS/Reel
FH2120BM6	200mV		-40°C to +85°C	SOT-23-6L	Y <u>YML</u>	3000PCS/Reel
FH2120CM6	230mV		-40°C to +85°C	SOT-23-6L	Y <u>YML</u>	3000PCS/Reel
FH2120DM6	250mV		-40°C to +85°C	SOT-23-6L	Y <u>YML</u>	3000PCS/Reel

Note:

- **FH2120A/B/C/D** devices are Pb-free and RoHs compliant.
- The surface prints of our semiconductor devices are subject to change during the production process and do not involve changes in electrical parameters, and we will not separately state the notice.
- If you have any other custom purchase needs, please contact our sales department.
- ForDevices reserves the right to amend and legally interpret the electrical parameters of this chip device. (<http://www.fordevices.com>)



ESD SENSITIVITY CAUTION

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.



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