

**High Efficiency,  
Const Current WLED Driver**

**FEATURES**

- On board power MOSFET
- Drives up to 4 strings of parallel LEDs
- Up to 87% efficiency
- 1.46MHz Fixed switching frequency
- Open load shutdown
- Low 250mV feedback voltage
- Soft start
- PWM dimming control
- UVLO, Thermal shutdown
- Internal circuit limit
- Available in SOT26 package

**APPLICATIONS**

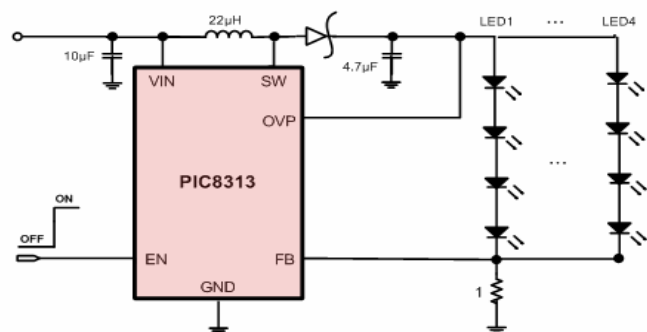
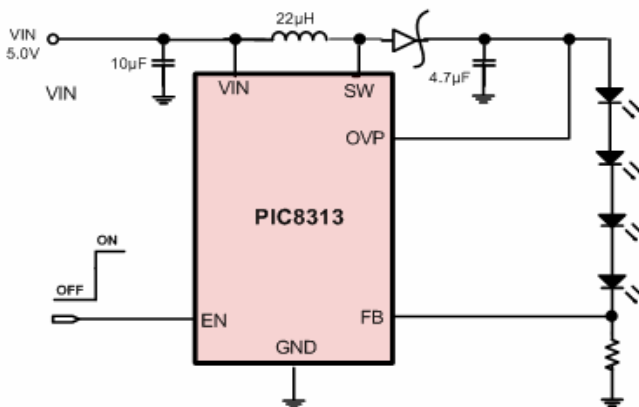
- WLED backlight
- Cell phones
- Handheld computers and PDAs
- Digital cameras
- Small LCD displays
- LED module
- Game devices

**DESCRIPTION**

The PIC8313 is a step up converter designed for driving up to 4 branches with 4 white LEDs in series in each branch, providing backlight in cell phones, PDAs, and other hand-held devices. The PIC8313 uses current mode, fixed frequency architecture to regulate the LED current, which is measured through an external current sense resistor. Its low 250mV feedback voltage reduces power loss and improves efficiency. The OV pin monitors the output voltage and turns off the converter if an over-voltage condition is present due to an open circuit condition.

The PIC8313 includes under-voltage lockout, current limiting and thermal overload protection preventing damage in the event of an output overload. The PIC8313 is available in small 6-pin SOT26 Package.

**TYPICAL APPLICATION CIRCUIT**



## ELECTRICAL CHARACTERISTICS

( $V_{IN} = 2.5V$ ,  $T_A = +25^\circ C$ , unless otherwise noted. Typical values are at  $T_A = +25^\circ C$ .)

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{IN}$	Operating input voltage		2.5		5.5	V
UVLO	Under voltage lock-out	$V_{IN}$ going Low.	2.17	2.15	2.4	V
	UVLO hysteresis			80		mV
$I_G$	Supply current (quiescent)	No switching ( $V_{IN}=5V$ , $V_{FB}= 300mV$ )		235	320	$\mu A$
	Supply current	Switching, ( $V_{IN}=5V$ , $V_{FB}= 0$ )		1956	2660	$\mu A$
$I_{SH}$	Supply current (shut-down)	$V_{EN} = 0$		0.162	1	$\mu A$
$F_{OSC}$	Operation frequency		1.15	1.46	1.76	MHz
$D_{MAX}$	Maximum duty cycle		85	95	96	%
$V_{FB}$	Feedback voltage		220	250	295	mV
	Feedback input bias current	$V_{FB}=250mV$		1.82		$\mu A$
$R_{DS(ON)}$	MOSFET ON resistance			0.63		$\Omega$
$I_{LIM}$	Current limit		0.77	1.18	1.8	A
$V_{EN}$	Enable threshold	Turn ON	0.95			V
		Turn OFF			0.35	V
$I_{EN}$	Enable input bias current	$V_{EN} = 0, 5V$		6.28		$\mu A$
$V_{OV}$	Over voltage threshold	$V_{OV}$ rising		18		V