



EB8905 step-up DC-DC converter for white LED

General Description

The EB8905 is a CMOS based White LED driver. The driver is primarily designed for LED backlighting of LCD display powered by Li-ion battery with its high efficiency, low standby current and wide range of input supply voltage, the EB8905 is suitable for applications such as portable device display and keypad backlighting.

Features

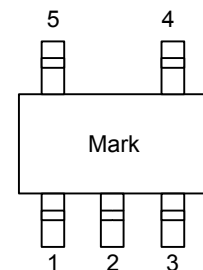
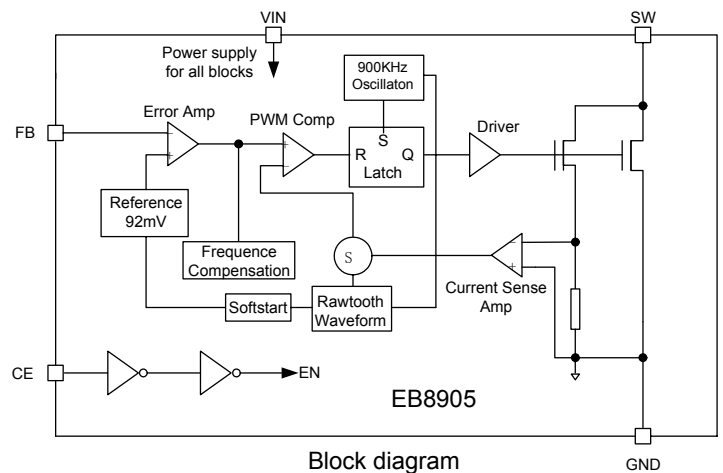
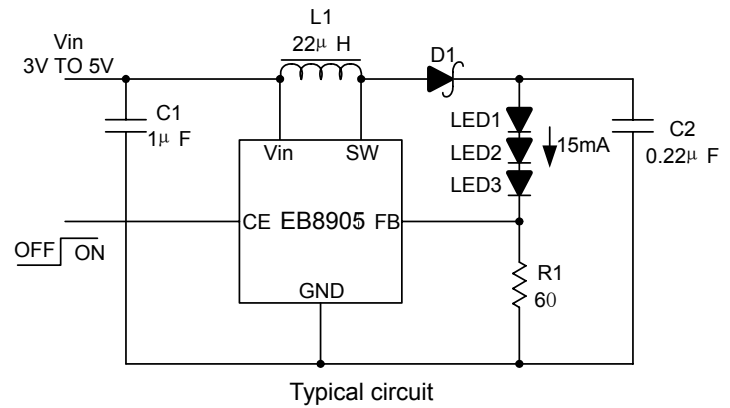
1. Constant current
2. Efficiency: 80%
3. Can be drive 3 LED at 3V
4. Can be drive 6 LED at 5V
5. Operating voltage start at 2V
6. 900 KHz
7. Use mini coil and capacitance
8. SOT-23-5L package, Pb free

Applications

Mobile phone, PDA, Digital camera, MP3

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Input voltage	V_{in}		10	V
SW voltage	V_{ix}		36	V
FB voltage	V_{fb}		10	V
CE voltage	V_{ce}		10	V
Thermal resistance	θ_{JA}		256	$^{\circ}C/W$
Operating temperature range	T_{ope}	-40	85	$^{\circ}C$
Storage temperature range	T_{stg}	-40	125	$^{\circ}C$
Lead temperature and time	T_L, T		260, 10	$^{\circ}C, sec.$



No.	Symbol	Function
1	SW	Switching
2	GND	GND
3	FB	Output Voltage
4	CE	Chip enable
5	VIN	Voltage Input

Pin Assignment

Excel Semiconductor



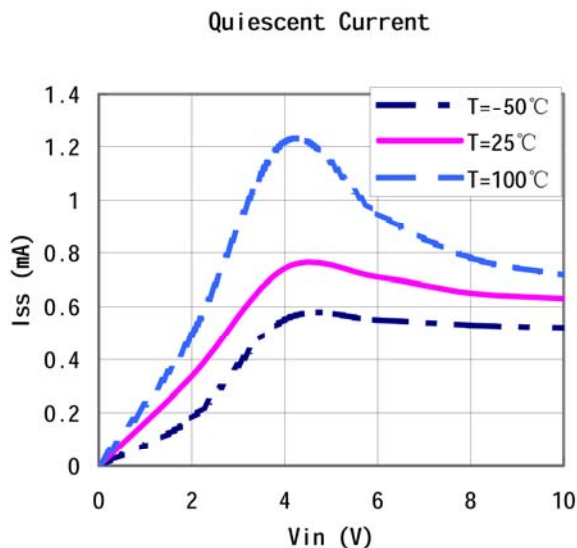
Electrical Characteristics

T_j=25°C

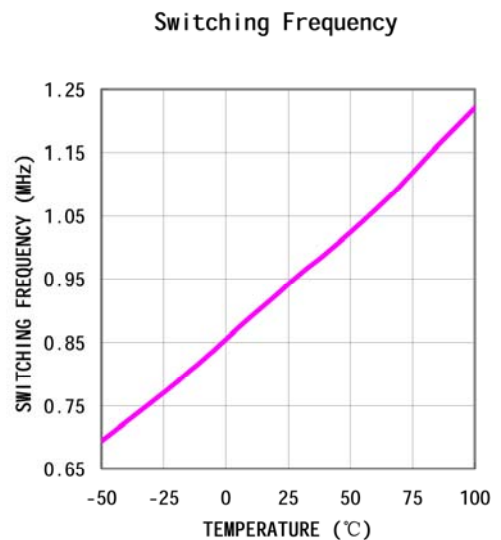
Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Max operating voltage		V _{INmax}	2.0			V
Min operating voltage		V _{INmin}			10	V
Feedback voltage		V _{FB}	82	92	102	mV
Start current		I _{ss}		0.7	1.0	mA
Cut-off current	CE=0	I _{off}		0.1	1.0	uA
Maximum duty cycle		Dty _{max}	85	90		%
Current limiter		I _{limit}		320		mA
Oscillator frequency		F _{sw}	0.8	0.9	1.0	MHz
Output voltage	I _{out} =250mA	V _{out}	0.95	1.05	1.25	V
Leak current	V=5V, SW off	I _{leak}		0.5	1.0	uA
CE high voltage		V _{CEH}	1.5			V
CE low voltage		V _{CEL}			0.8	V
Forward voltage	I _F =200mA	V _F			1.2	V

Operating Characteristics

1) I_{ss} vs. V_{in}



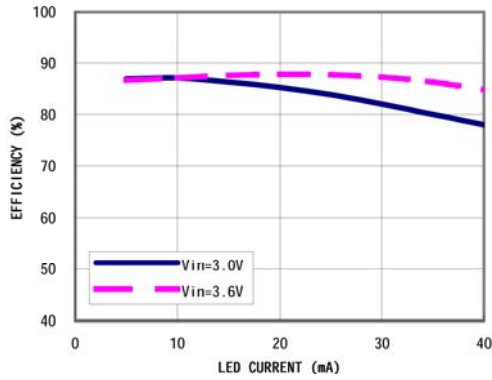
2) Frequency vs. Temperature (V_{in}=3.6V)



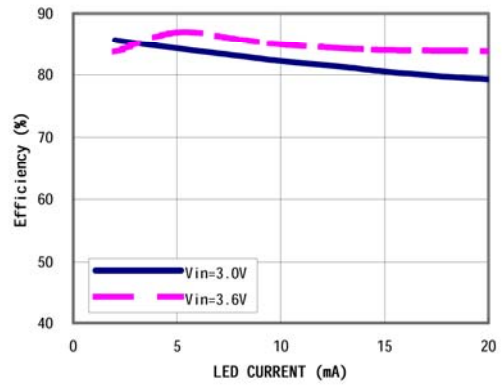


3) Efficiency vs. V_{in}

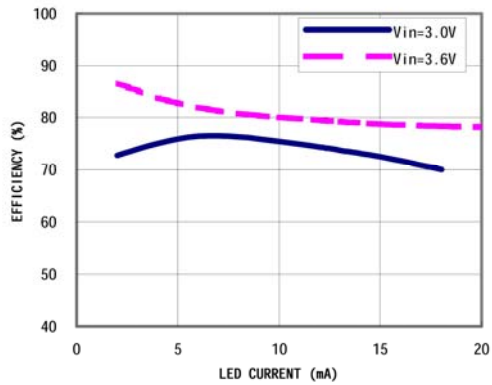
Two LED Efficiency



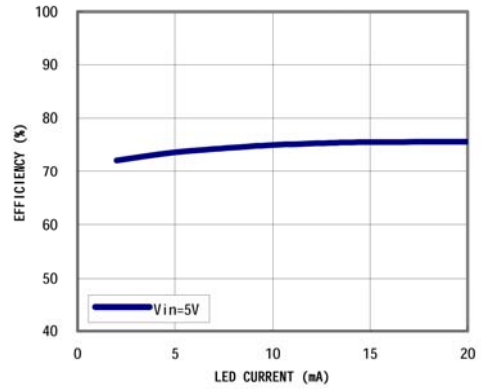
Three LED Efficiency



Four LED Efficiency

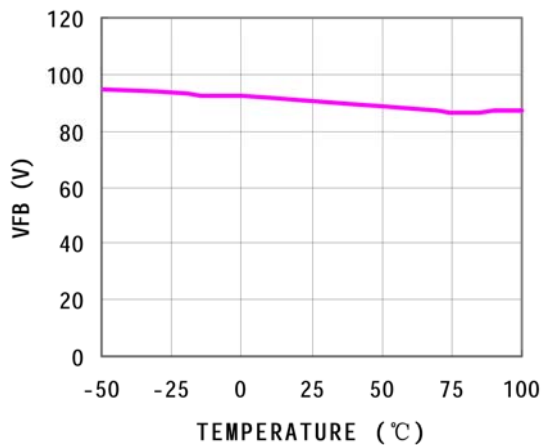


Six LED Efficiency



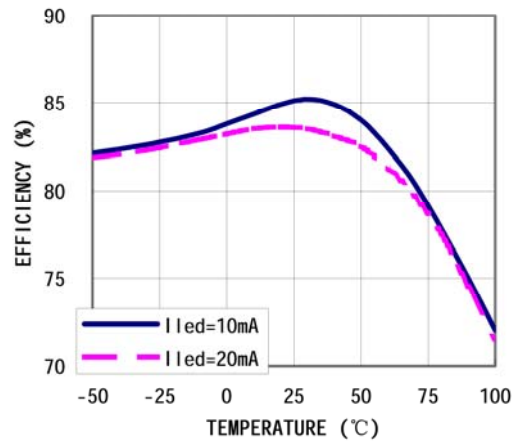
4) V_{FB} vs. Temperature

V_{FB} vs Temperature



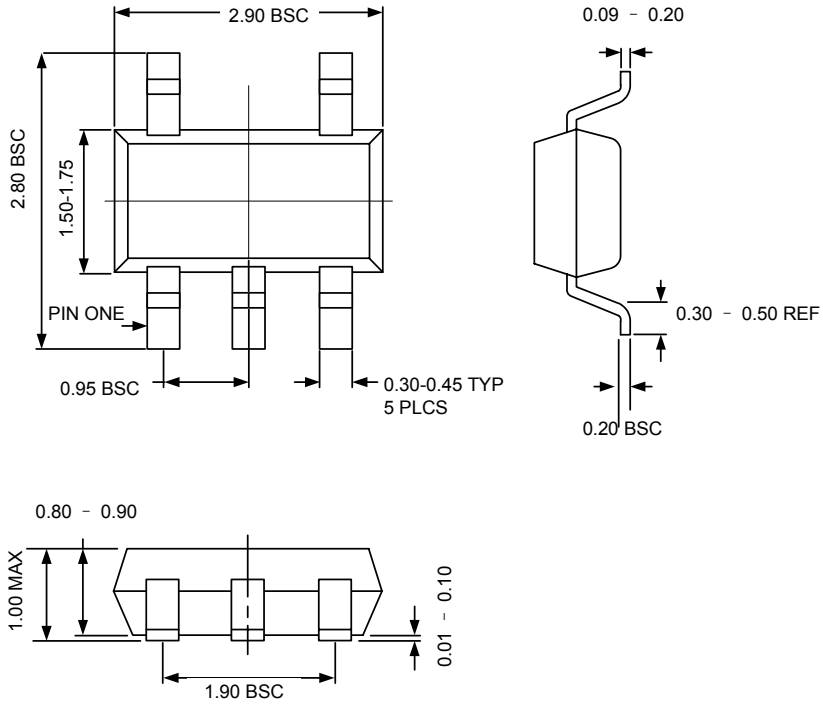
5) Efficiency vs. Temperature ($V_{in}=3.6V$)

Efficiency vs Temperature





Dimensions in mm



SOT-23-5L