■ INTRODUCTION

The CE9910 is a 1.5MHz constant frequency, slope compensated current mode PWM synchronous step-down converter that delivers a regulated output current. The internal synchronous switch increases efficiency and eliminates the need for an external Schottky diode.

The CE9910 is targeted to be used for driving loads up to 1A from a single cell Lithium-Ion battery. The LED current can be programmed by the external current sense resistor. A low 100mV feedback voltage reduces the power loss for better efficiency.

■ FEATURES

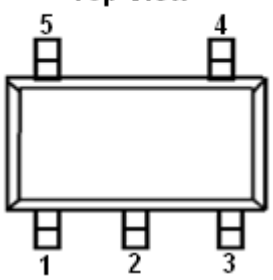
- High efficiency : Up to 90%
- Output Current: 1A（Typ.）
- 1.5MHz Constant Switching Frequency
- No Schottky Diode Required
- Input Voltage: 2.5V to 6.0V
- Low Dropout: 100% duty Cycle
- Low Quiescent Current: 300μA
- Shutdown Current: <1μA
- Built-in Thermal Protection
- Short Circuit Protection
- Package: SOT-23-5
- RoHS Compliant and Lead (Pb)-Free

■ APPLICATIONS

- White LED Torch (Flashlight)
- Digital Still Camera Flash
- Camcorder Flashlight Lamp
- White LED Camera Flash
- Cellular Camera Phone Flash
- PDA Camera Flash

■ PIN CONFIGURATION

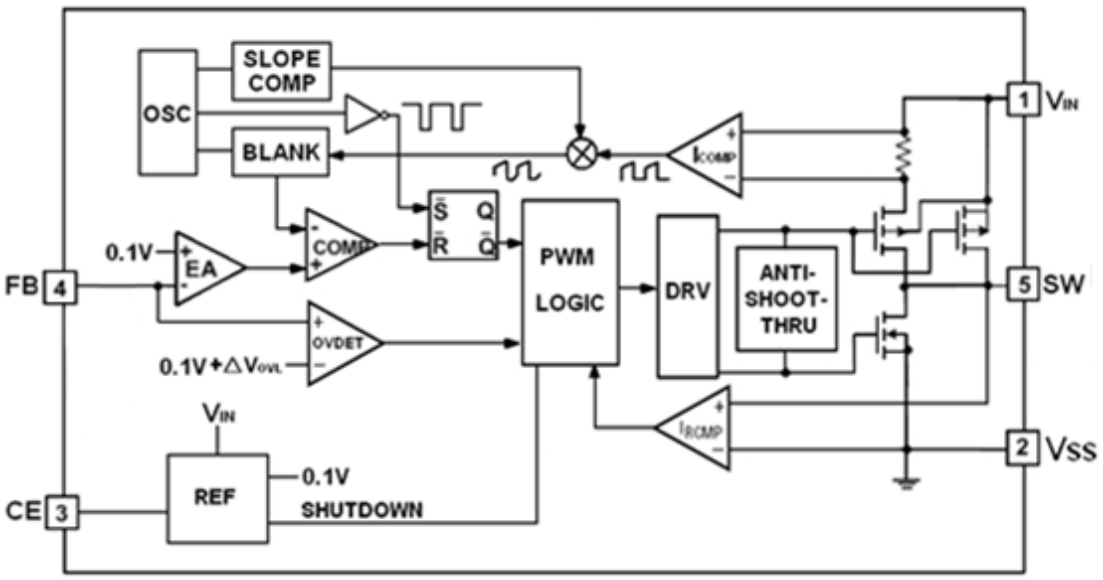
SOT-23-5
Top View



■ PIN DESCRIPTION

PIN NUMBER	PIN NAME	FUNCTION
1	V_{IN}	Power Input
2	V_{SS}	Ground
3	CE	Chip Enable Pin
4	FB	Feedback Pin
5	SW	External Inductor Connection Pin

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Unless otherwise specified, Ta=25°C)

PARAMETER		SYMBOL	RATINGS	UNITS
Input Voltage		V_{IN}	V_{SS}-0.3~V_{SS}+7	V
CE,SW,FB/V_{OUT} Voltage			V_{SS}-0.3~V_{IN}+0.3	V
Peak SW Sink and Source Current		I_{SWMAX}	1500	mA
Power Dissipation	SOT-23-5	Pd	250	mW
Operating Temperature		T_{Opr}	-40~+85	℃
Junction Temperature		T_j	125	℃
Storage Temperature		T_{stg}	-40~+125	℃
Soldering Temperature & Time		T_{solder}	260℃, 10s	

■ ELECTRICAL CHARACTERISTICS

(V_{IN}=CE=3.6V, Ta=25℃, Test Circuit Figure1, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Feedback Voltage	V_{FB}	T_A=25℃	90	100	110	mV
Input Voltage	V_{IN}		2.5		6.0	V
Supply Current	I_{SS}	V_{FB}=80mV		300	400	μA
Shutdown Current	I_{SHDN}	V_{CE}=V_{SS}		0.1	1	μA
Feedback Current	I_{FB}	V_{FB}=0.2V			±30	nA
Maximum Output Current	I_{OUT}	V_{IN}=4.2V	1.0			A
Oscillator Frequency	f_{osc}	V_{FB}=0.2V	1.2	1.5	1.8	MHz
SW Leakage	I_{LSW}	CE=0,V_{SW}=0 or 5V, V_{IN}=5V		±0.01	±1	μA
CE "High" Voltage(1)	V_{CE}"H"		1.5		V_{IN}	V
CE "Low" Voltage(2)	V_{CE}"L"				0.3	V
CE Leakage Current	I_{CE}			±0.1	±1	μA

NOTE:

1. High Voltage：Forcing CE above 1.5V enables the part.
2. Low Voltage：Forcing CE below 0.3V shuts down the device. In shutdown, all functions are disabled drawing <1μA supply current. Do not leave CE floating.

■ TYPICAL APPLICATION CIRCUIT

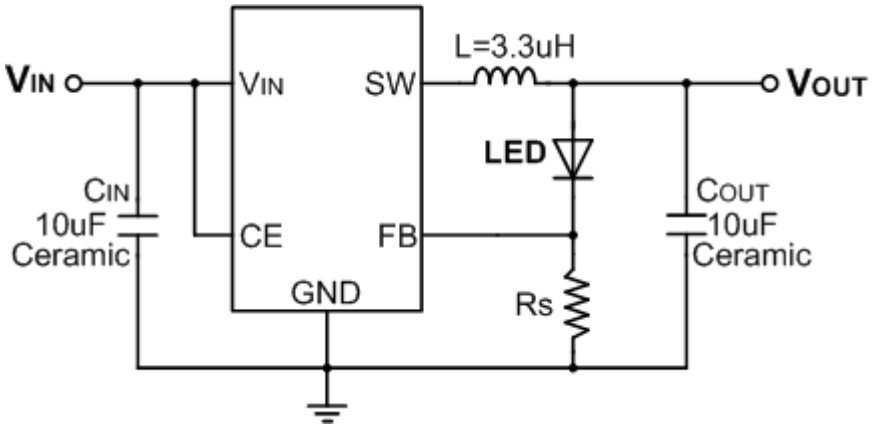


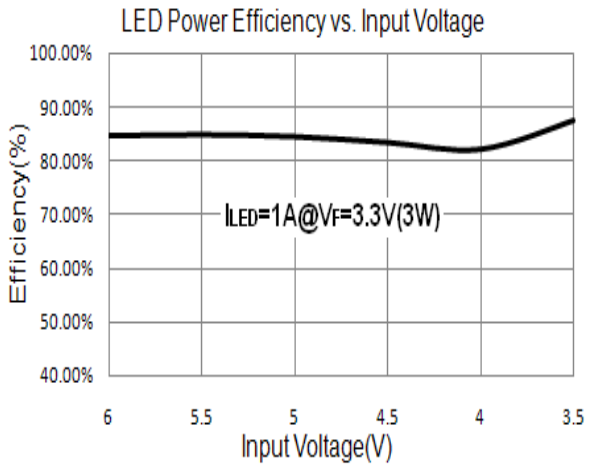
Figure1

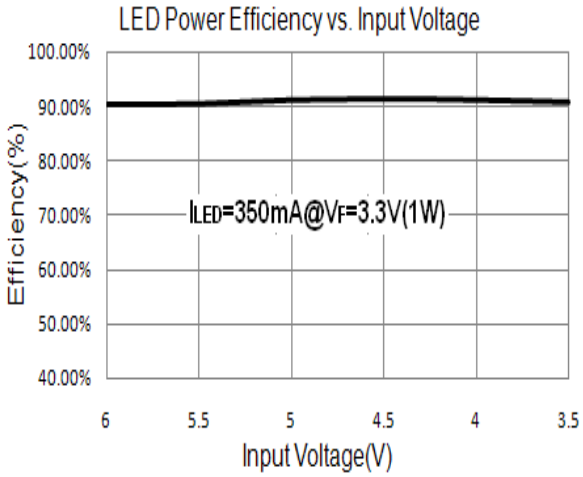
NOTE: I_{LED}=100mV/R_S, I_{LED}=1A, R_S=0.1Ω

■ TYPICAL PERFORMANCE CHARACTERISTICS

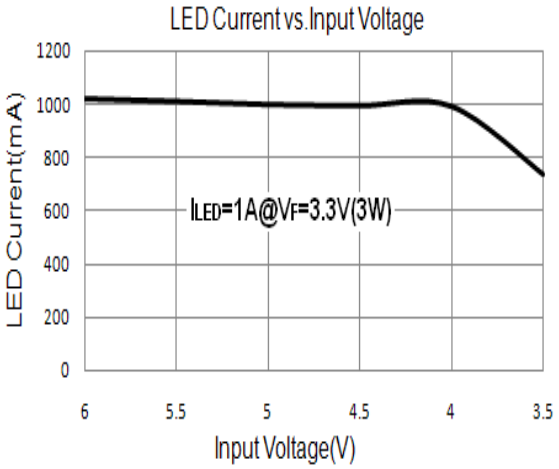
(Ta=25℃, Test Figure1 above unless otherwise specified)

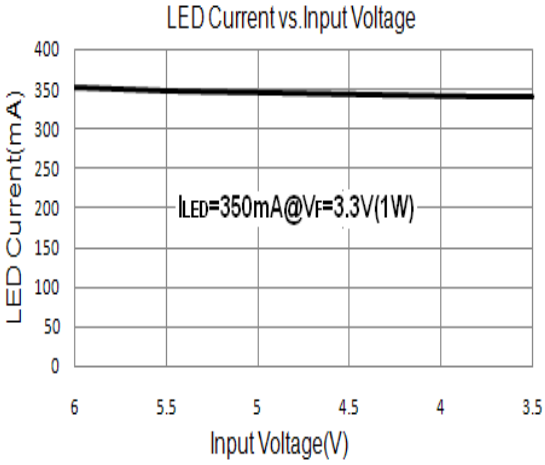
1. LED Power Efficiency vs. Input Voltage



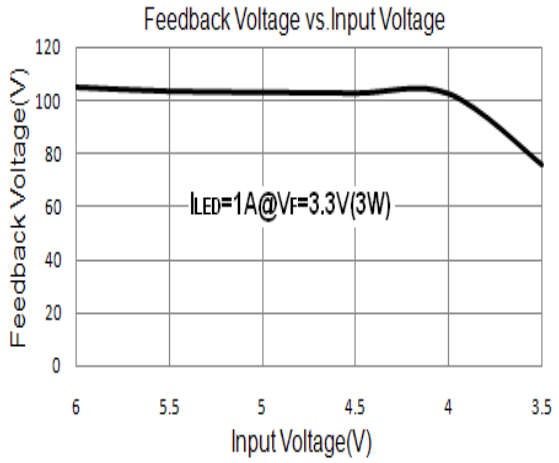


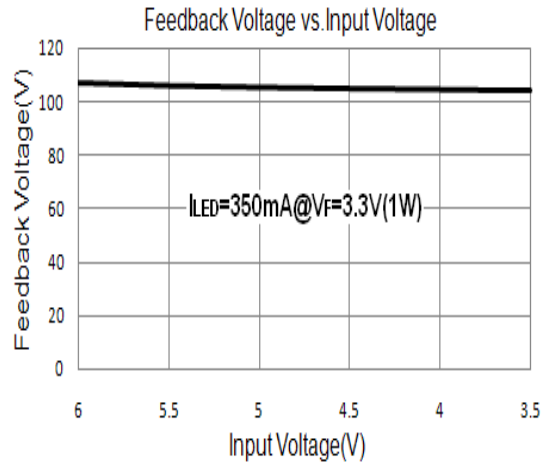
2. LED Current vs. Input Voltage





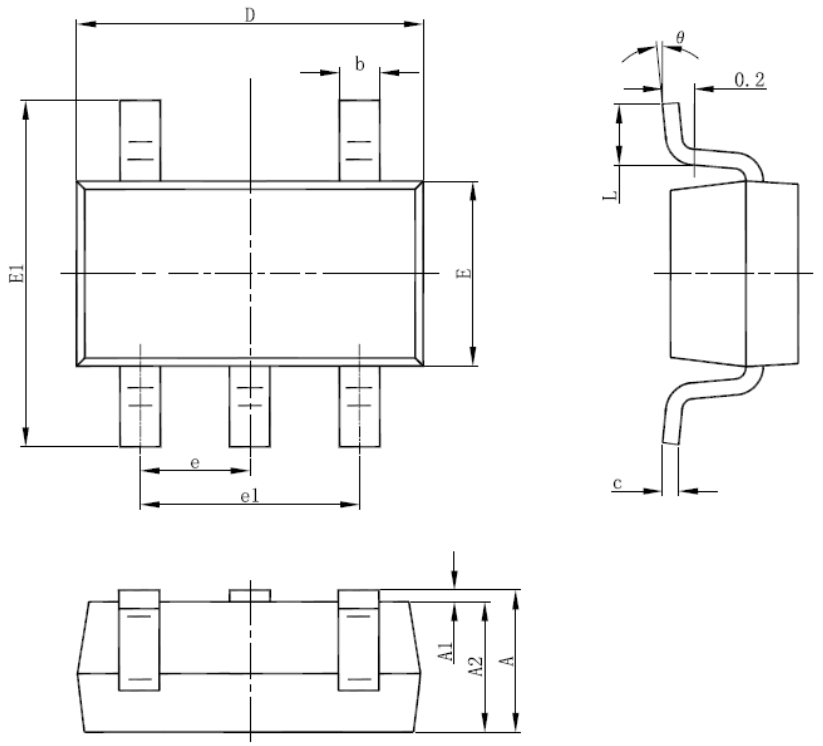
3. Feedback Voltage vs. Input Voltage





■ PACKAGING INFORMATION

● SOT-23-5 PACKAGE OUTLINE DIMENSIONS



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	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°