

3W High Power White LED ME2206

General Description :

The **ME2206** is a set-up DC-DC converter that delivers a regulated output current. The device switches at a 1MHz constant frequency, allowing for the use of small value external inductor and ceramic capacitors.

The ME2206 is targeted to be used for driving loads up to 1A from a two-cell alkaline battery. The LED current can be programmed by the external current sense resistor, R_s , connected between the feedback pin (FB) and ground. A low 95mV feedback voltage reduces the power loss in the R_s for better efficiency. During the shutdown mode, the feedback resistor R_s and the load are completely disconnected and the current consumption is reduced to less than 1uA.

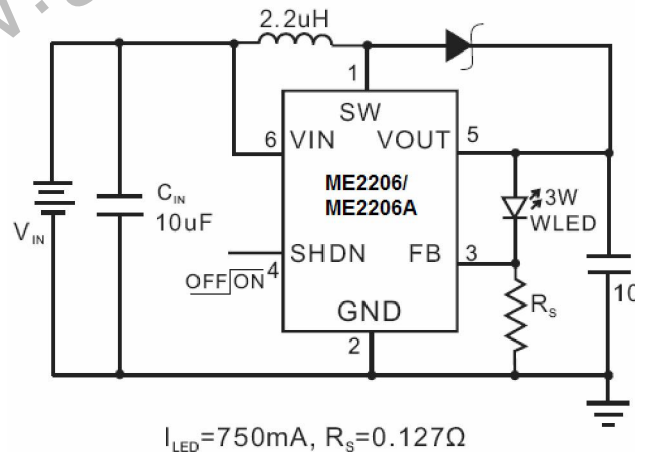
Features :

- | LED Power Efficiency: up to 90%
- | Current Accuracy: $\pm 10\%$
- | Low Start-Up Voltage: 0.9V($I_{LED} = 270mA$)
- | Low Hold Voltage: 0.75V($I_{LED} = 200mA$)
- | 1MHz Switching Frequency
- | Uses small, Low Profile External Components
- | Low RDS(ON) : 100m (TYP.)
- | Open LED Protection
- | Over Temperature Protection
- | Low Profile SOT-23-6 Package
- | Pb-Free Package

Applications :

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

Typical Application :



R_s Resistor Value Selection :

TYP. (m)	I_{LED} (mA)
127	750
270	351.8

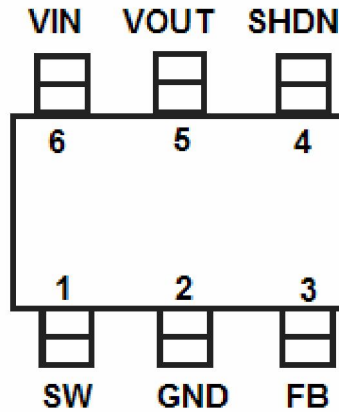
CS05FTGR127N(0805 , 1% , TCR300,127 m)

CS05FTGR270(0805 , 1% , TCR300,270 m)

Precautions :

ME2206 is only applicable to two battery-driven 1W or 3W white LED, ME2206A a battery can drive 1W or 3W white LED.

Pin Configuration & Marking Information :



SOT23-6

Pin information :

Pin Number	Name	Function
1	SW	Switch
2	GND	Ground
3	FB	Feedback
4	SHDN	Shut Down
5	V _{OUT}	Output
6	V _{IN}	Input

Absolute Maximum Ratings :

Parameter	Symbol	Ratings	Units
Input Voltage	V _{IN}	- 0.3V~6V	V
SW Pin Voltage	SW	- 0.3V~6V	V
SHDN, FB Pin Voltage	SHDN/FB	- 0.3V~6V	V
Operating Temperature Range	T _{OPR}	- 40 ~85	
Storage Temperature Range	T _{STG}	- 65 ~125	
Lead Temperature (Soldering, 10 sec)	T _L	260	
Internal Power Dissipation (SOT23-6)	P _D	400	mW

Electrical Characteristic

T=25 , Vin = 2.4V , I_{LED} = 750mA , V_{SHDN} = Vin , L=2.2uH , Cin = Cout = 10uF , unless otherwise noted.

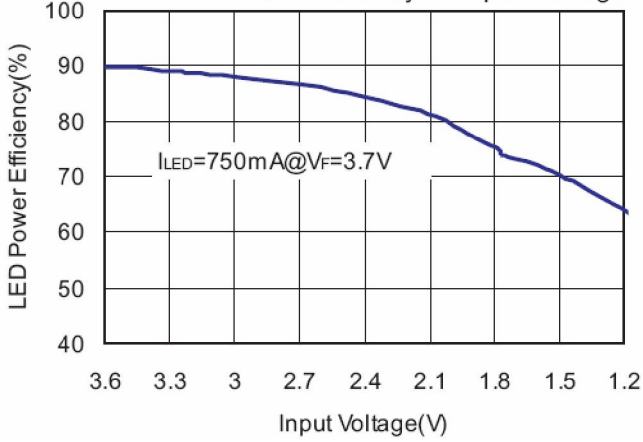
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Input Voltage Range	V _{in}		0.9		V _F -0.2	V
Feedback Voltage	V _{FB}		85	95	105	mV
Start-up Voltage	V _{START}	V _{in} : 0V ~ 3V I _{LED} = 270mA		0.9		V
Hold Voltage	V _{HOLD}	V _{in} : 3V ~ 0V I _{LED} = 750mA ~ 200mA		0.75		V
Oscillator Frequency	F _{OSC}			1		MHz
SHDN Input High	V _{SH}	V _{in} = 1.8V	1.0			V
SHDN Input Low	V _{SL}	V _{in} = 1.8V			0.4	V
Over Temperature Shutdown	OTS			150		
Over Temperature Hysteresis	OTH			15		
Maximum Output Current Range	I _{MAX}		750			mA
Quiescent Current	I _Q	I _{LED} = 0mA , V _{out} = 3.4V , Device Switch at 1MHz		1	3	mA
Shutdown Current	I _{SD}	Shutdown mode			1	uA
Switch on Resistance	R _{DSON}	V _{out} = 3.4V		0.1		
Current Limit	I _{LIM}	V _{out} = 3.4V	2			A
Efficiency		I _{LED} = 750mA		90		%

Note1 : V_F---LED Forward Voltage

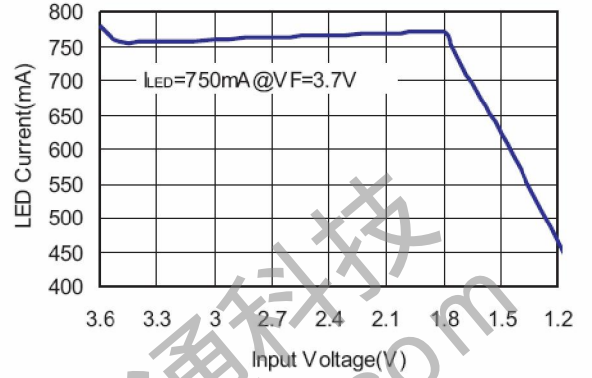
Typical Performance Characteristics

T=25 , L=2.2uH , Cin = Cout = 10uF , unless otherwise noted.

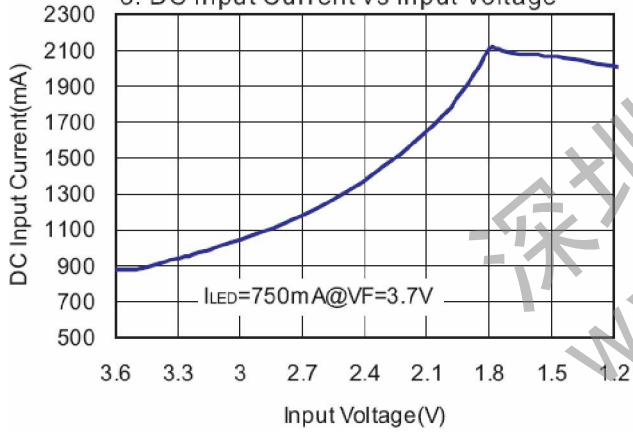
1. LED Power Efficiency vs Input Voltage



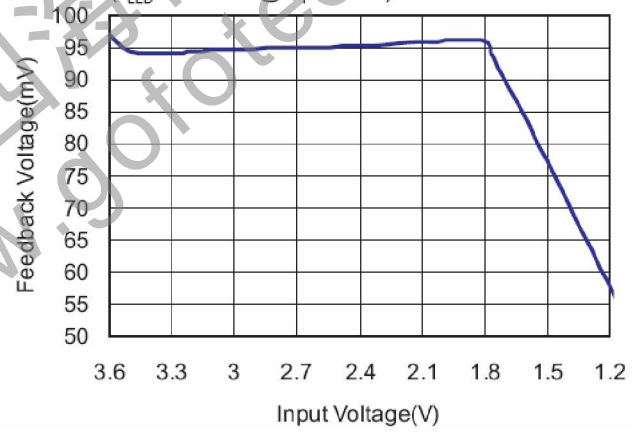
2. LED Current vs Input Voltage



3. DC Input Current vs Input Voltage

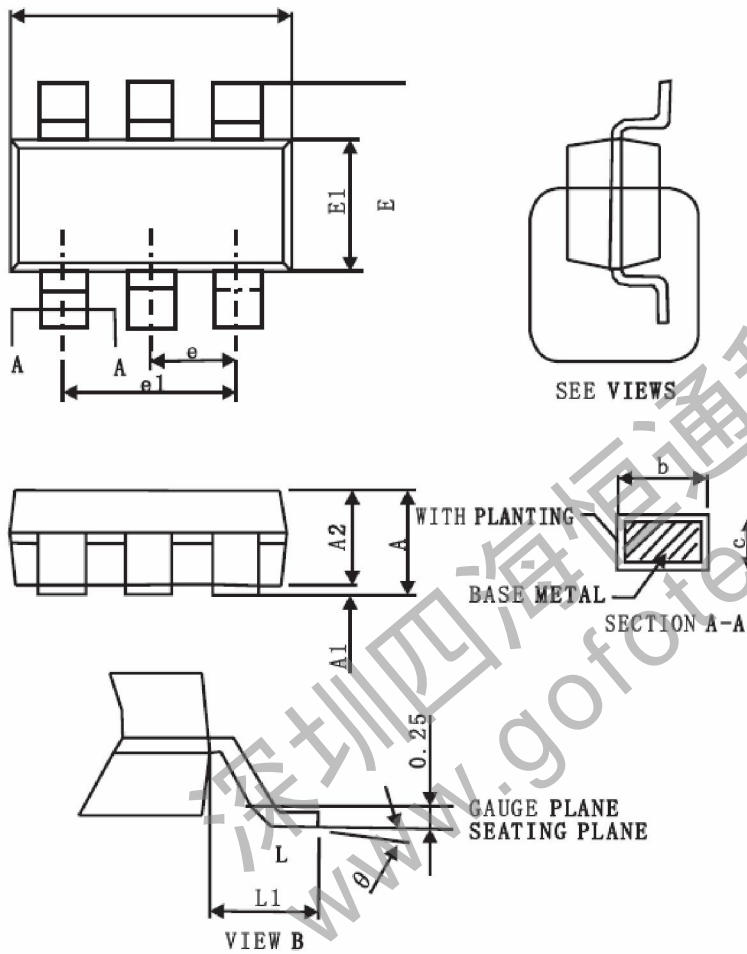


4. Feedback Voltage vs Input Voltage (I_{LED} = 750mA @ V_F = 3.7V)



Outline Dimension

SOT-23-6



Symbol	A	A1	A2	b	c	D	E
Spec	1.20±0.25	0.10±0.05	1.10±0.2	0.40±0.1	0.15±0.0.7	2.90±0.1	2.80±0.2
Symbol	E11	e	e1	L	L1	θ	
Spec	1.60±0.1	0.95BSC	1.90BSC	0.55±0.25	0.60REF	4°±4°	

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