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, Rs, connected between the feedback pin (FB) and ground. A low 95mV feedback voltage reduces the power loss in the Rs for better efficiency. During the shutdown mode, the feedback resistor Rs and the load are completely disconnected and the current consumption is reduced to less than 1uA.

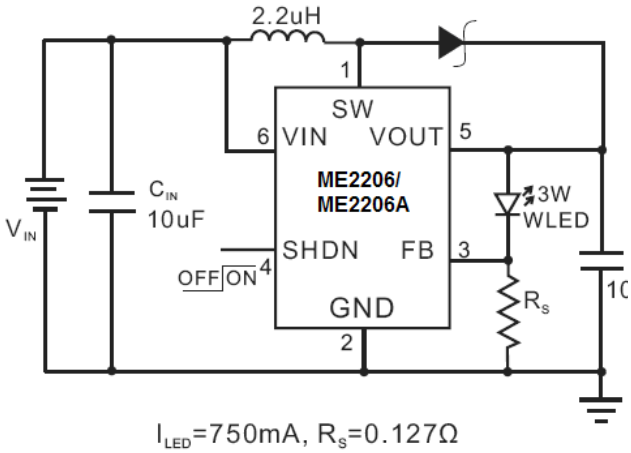
Features：

- LED Power Efficiency: up to 90%
- Current Accuracy: ±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) : 100mΩ (TYP.)
- Open LED Protection
- Over Temperature Protection
- Packages: SOT-23-6,SOT89-5
- 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：



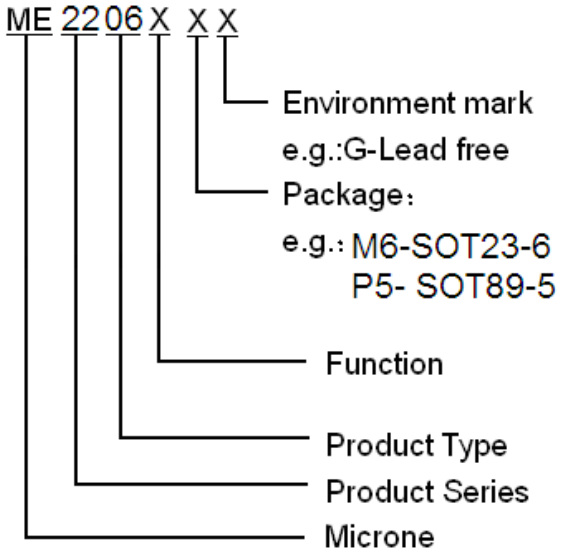
I_{LED}=750mA, R_S=0.127Ω

Rs Resistor Value Selection：

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

CS05FTGR127N (0805，1%，TCR300,127 mΩ)
CS05FTGR270 (0805，1%，TCR300,270 mΩ)

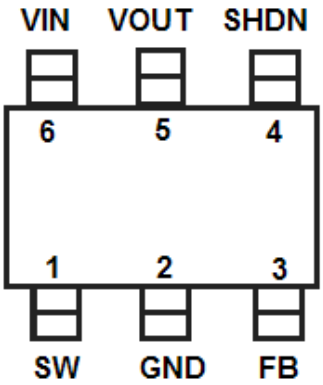
Selection Guide



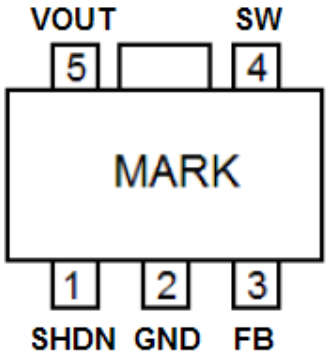
Precautions:

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



SOT-89-5

Pin information:

Pin Number		Name	Function
SOT23-6	SOT89-5		
1	4	SW	Switch
2	2	GND	Ground
3	3	FB	Feedback
4	1	SHDN	Shut Down
5	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
	SOT89-5	P_D	500	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	Vin		0.9		V_F-0.2	V
Feedback Voltage	V_{FB}		85	95	105	mV
Start-up Voltage	V_{START}	Vin：0V～3V I_{LED} ＝270mA		0.9		V
Hold Voltage	V_{HOLD}	Vin：3V～0V I_{LED} ＝750mA～200mA		0.75		V
Oscillator Frequency	F_{OSC}			1		MHz
SHDN Input High	V_{SH}	Vin＝1.8V	1.0			V
SHDN Input Low	V_{SL}	Vin＝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，Vout＝3.4V，Device Switch at 1MHz		1	3	mA
Shutdown Current	I_{SD}	Shutdown mode			1	uA
Switch on Resistance	R_{DSON}	Vout＝3.4V		0.1		Ω

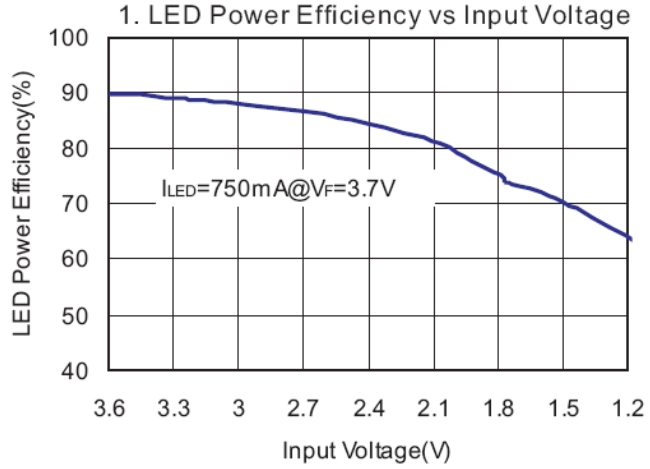
Current Limit	I_{LIM}	Vout＝3.4V	2			A
Efficiency	η	I_{LED} ＝750mA		90		%

Note1：V_F---LED Forward Voltage

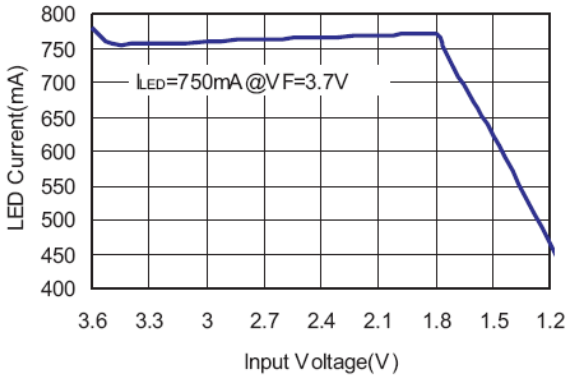
Typical Performance Characteristics

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

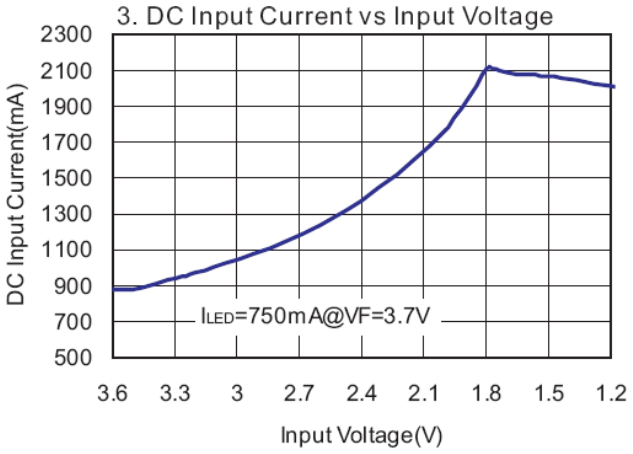
1. LED Power Efficiency vs Input Voltage



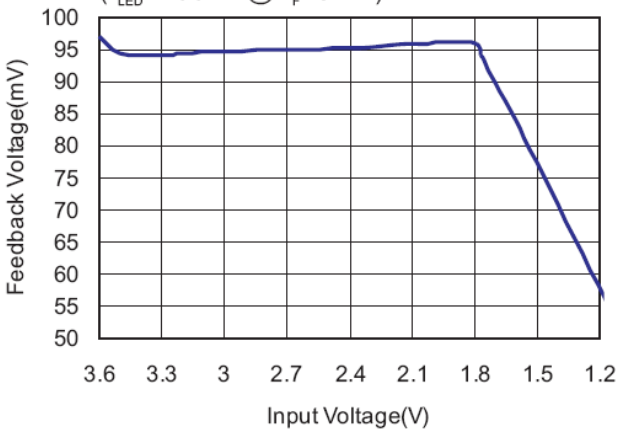
2. LED Current vs Input Voltage



3. DC Input Current vs Input Voltage

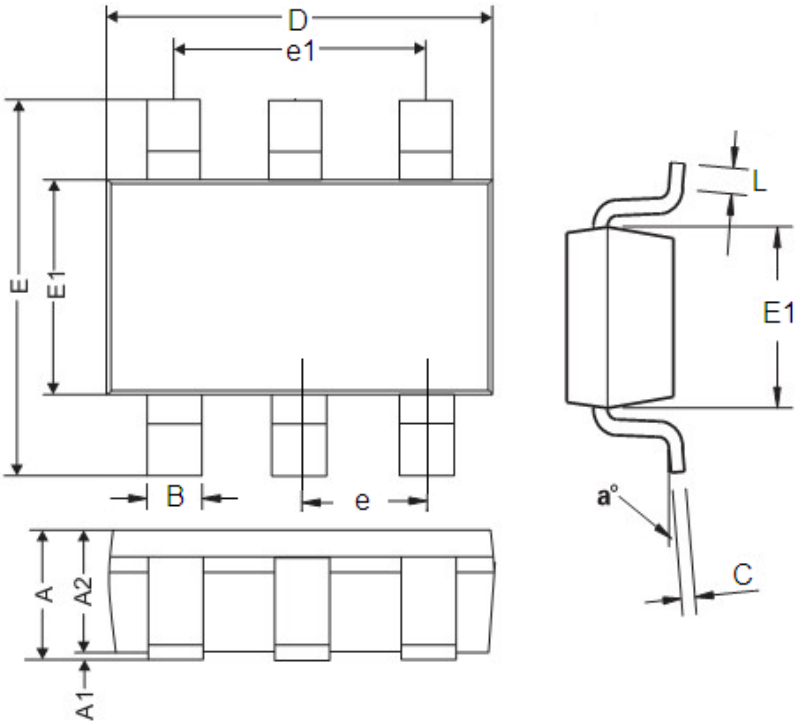


4. Feedback Voltage vs Input Voltage (I_{LED}=750mA@V_F=3.7V)



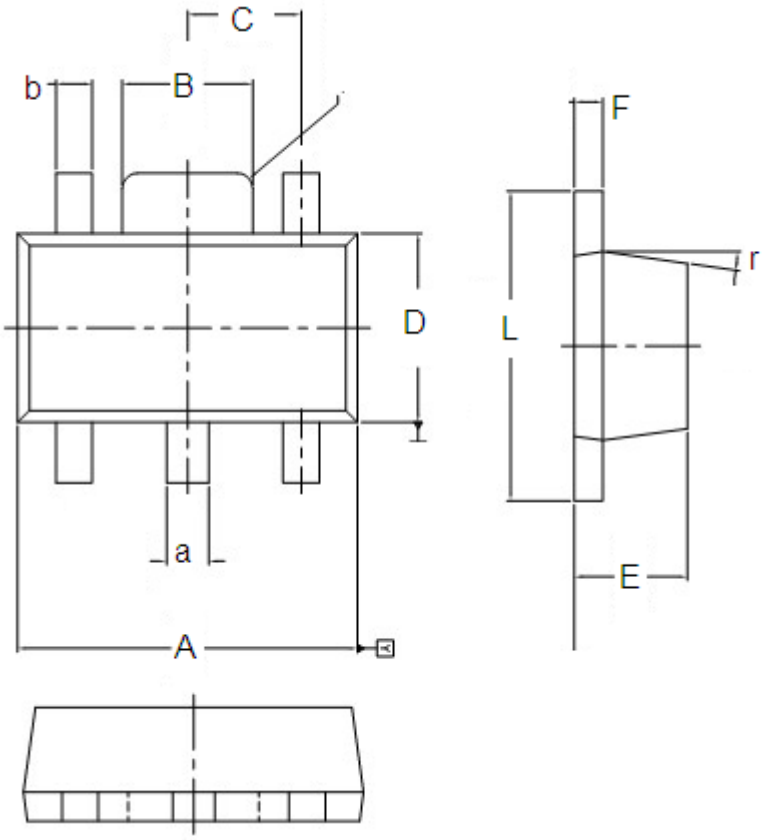
Package Information

- SOT23-6 **Unit: mm(inch)**



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.9	1.45	0.0354	0.0570
A1	0	0.15	0	0.0059
A2	0.9	1.3	0.0354	0.0511
B	0.2	0.5	0.0078	0.0196
C	0.09	0.26	0.0035	0.0102
D	2.7	3.10	0.1062	0.1220
E	2.2	3.2	0.0866	0.1181
E1	1.30	1.80	0.0511	0.0708
e	0.95REF		0.0374REF	
e1	1.90REF		0.0748REF	
L	0.10	0.60	0.0039	0.0236
a^0	0^0	30^0	0^0	30^0

● SOT89-5



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	4.4	4.6	0.173	0.181
a	0.5	0.62	0.02	0.024
B	1.63	1.83	0.064	0.072
b	0.44	0.54	0.017	0.021
C	Type:1.5		Type:0.059	
D	2.4	2.6	0.094	0.102
E	1.4	1.6	0.054	0.063
F	0.35	0.43	0.013	0.017
L	3.95	4.25	0.155	0.167
r	Type:8^0		Type:8^0	

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