Programmable Linear Constant Current LED Driver

■ General Description

XT2100 is a programmable constant current LED driver chip, which uses ultra-compact TSOT-23-5 to ensure that high-density packaging.

The XT2100 internal linear temperature protection to ensure the safe use of the IC.XT2100 dimming function can also be achieved by an external PWM signal can be explosive flash function.

■ Package

- TSOT-23-5

■ Application

- Flashlight / Flash drive
- LED lighting

■ Application

- Programmable constant-current
- Automatic linear temperature protection
- PWM dimming feature
- Ultra-low internal resistance

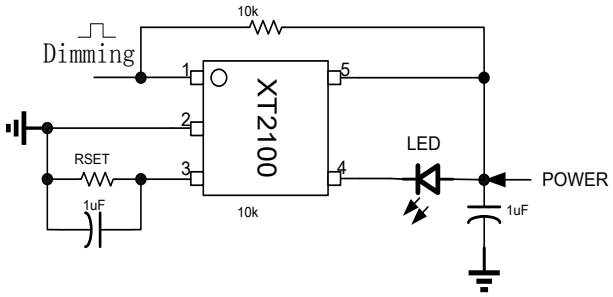
■ Ordering Information

XT2100 ①②③

Designator	Symbol	Description
①	D	Package Type:TSOT-23-5
②	R	Embossed Tape :Standard Feed
	L	Embossed Tape :Reverse Feed

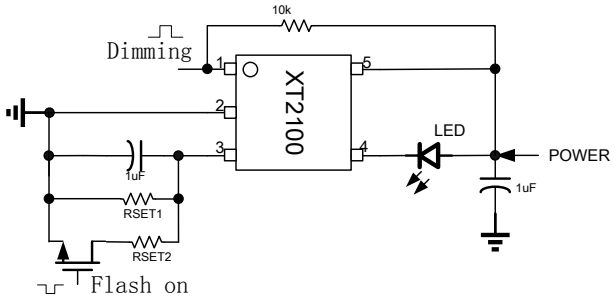
■ Typical Application Circuit

- **Application circuit 1**



Single IO dimming or FLASH control applications

- **Application circuit 2**

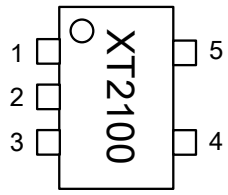


Two IO port control DIMMING and FLASH

- **Comparison of program**

Project	Circuit 1	Circuit 2
The number of MCU or DSP IO	One	Two
Safety and suitability	Using only one programming resistor, FLASH and LED lighting current can not be seprated	Using two programming resistors,FLASH and LED lighting current separation.

■ Functional Pin Description

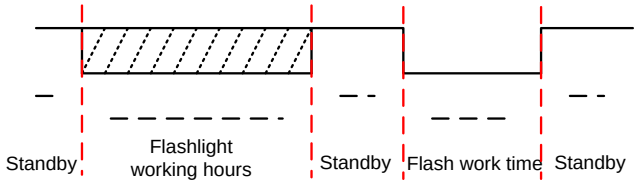


Pin Number	Pin Name	Description
1	DIM	PWM dimming port, active low
2	GND	Ground
3	ISET	Output current set port
4	IOUT	The current output port
5	VIN	Power input

■ Application Information

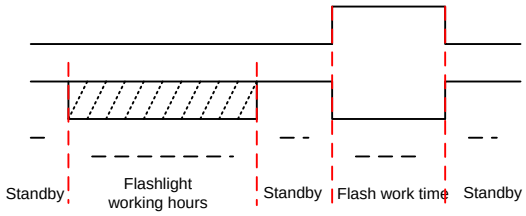
- The current settings: IOUT=80000/RSET
- PWM dimming frequency: maximum frequency of not more than 20KHz
- Typical application circuit one explained:

(See typical application circuit 1) As a result of a resistor for current programming, this current can be defined for the current FLASH, for example a 64K resistor , the current is about 1.2A. Thus , when used as a flashlight, the PWM control signal to adjust the output current. Output current is linear with the PWM duty cycle. As a flash application, the exposure time is the PWM control signal. The low length is the theory of custody time.



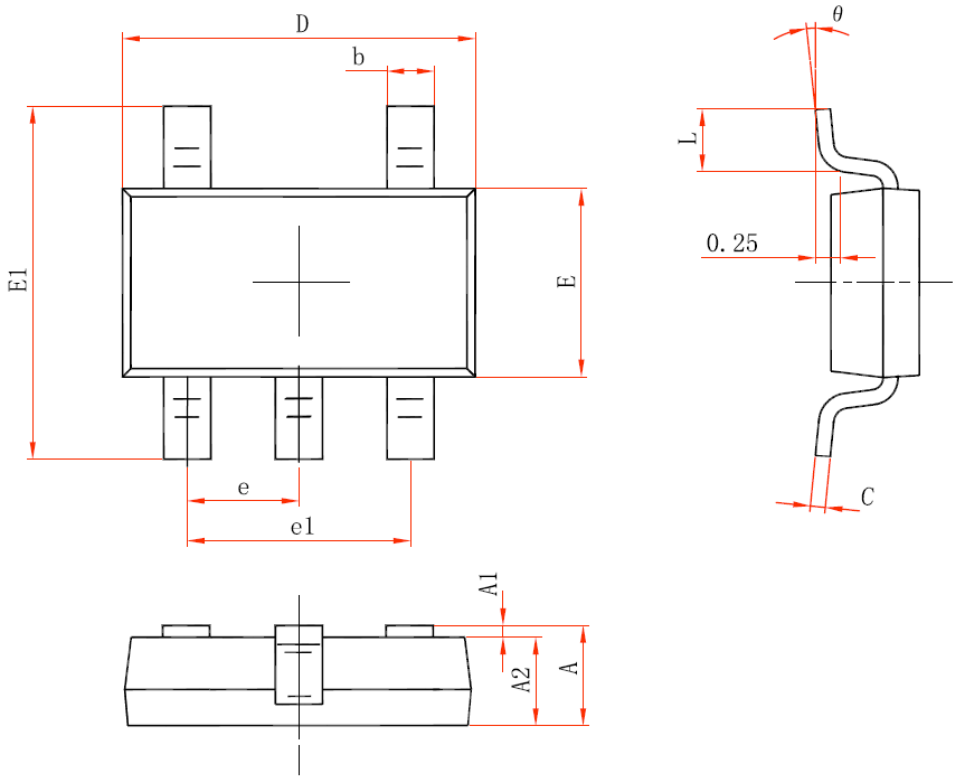
- Typical application circuit two explained:

(See typical application circuit 2) As a result of the two resistors for current programming. Therefore, when used as a flashlight, the current is determined by the RESET1. As the use of FLASH, the current can be determined by RESET1,and RESET2 function.PWM signal can be thought that fully duty cycle range of the signal.



■ Package Information

- **TSOT23-5**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b	0.350	0.500	0.014	0.020
c	0.080	0.200	0.003	0.008
D	2.820	3.020	0.111	0.119
E	1.600	1.700	0.063	0.067
E1	2.650	2.950	0.104	0.116
e	0.95（BSC）		0.037(BSC)	
e1	1.90（BSC）		0.075(BSC)	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°