XT3175FA

DESCRIPTION

XT3175FA is a high precision linear LED driver with single segmental frame structure, which has no EMI problem. There is no magnetic component, such as inductor or transformer, and the whole system is simple in structure and low in cost.

XT3175FA uses special current control and compensation technology that the current accuracy can be controlled within 3%. The current can be set by the external resistor and the peak is 60mA, which can be increased by multi chip parallel.

XT3175FA built-in automatic drop current function under high temperature.

XT3175FA use ESOP-8 package.

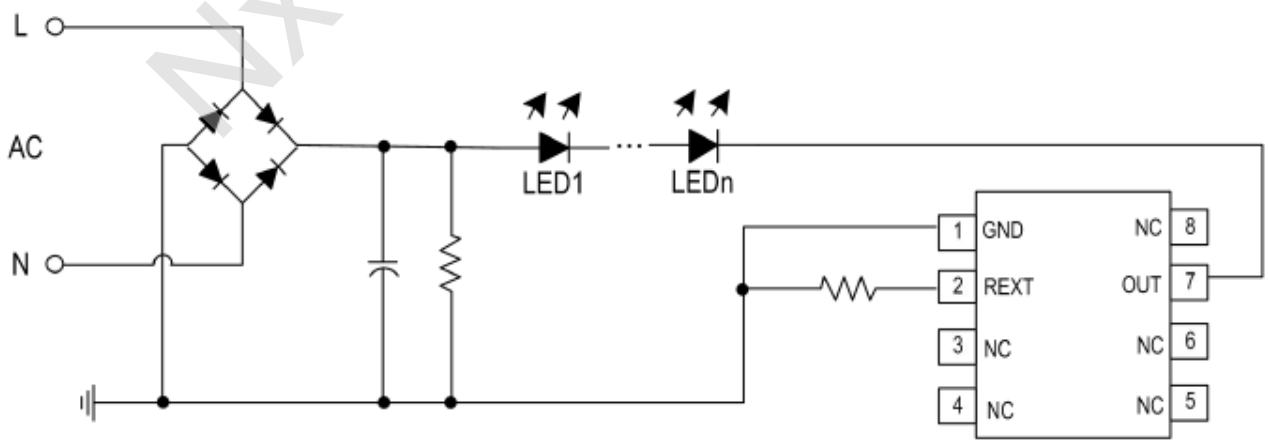
FEATURES

- Simple peripheral circuit without magnetic element.
- Integrated internal high voltage startup circuit.
- Adjusted LED output current and the maximum peak current is 60mA.
- Support multi chip parallel to increase the output current.
- ±3%LED output current accuracy.
- The excellent performance of EMI.
- Automatic drop current function under high temperature.
- Available ESOP-8 package.

Application Circuit

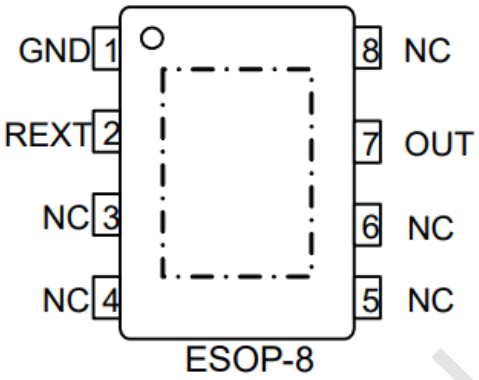
- LED candle lamp.
- LED bulb lamp / lamp.
- Other compact LED lighting products.

TYPICAL APPLICATION CIRCUIT



XT3175FA

PIN ASSIGNMENT



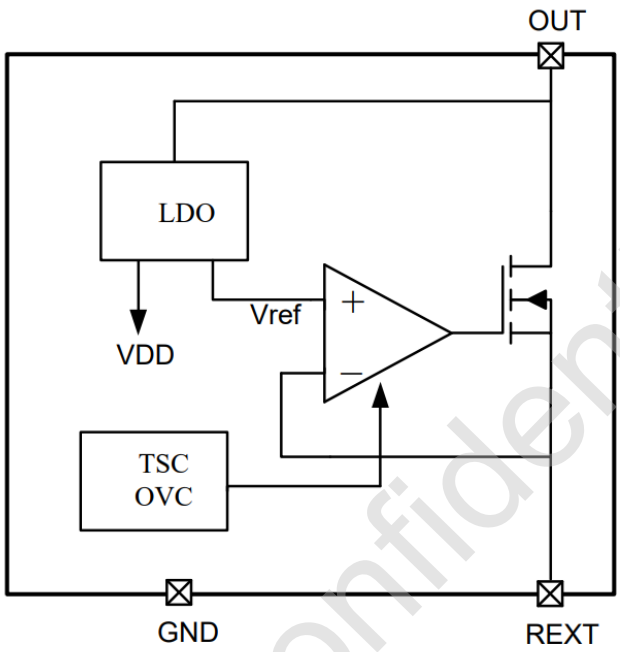
PIN DESCRIPTIONS

Pin No.(ESOP-8)	Pin Names	Description
7	OUT	Constant current output pin
1	GND	Ground pin
2	REXT	Output current setting pin
3, 4, 5, 6, 8	NC	No connect

RECOMMENDED OPERATING RANGE

SYM	Parameter	Value	Unit
I_{LED}	Input voltage 220Vac	<60	mA

SIMPLIFIED BLOCK DIAGRAM



ELECTRICAL OPERATING PARAMETERS (NOTE 3,4)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Out Minimum Voltage	V_{OUT_MIN}	I_{OUT}=30mA			6.5	V
Out withstand voltage	V_{OUT_BV}	I_{OUT}=0	700			V
Quiescent Current	I_{DD}	V_{OUT}=10V, REXT floating		150		μA
Output Current	I_{OUT}		5		60	mA
REXT Reference Voltage	V_{REXT}	VOUT=10V	582	600	618	mV
IOUT accuracy	dI_{OUT}	IOUT=20mA		±3		%
Temperature of Starting Compensating	T_{SC}			150		°C

OPERATION DESCRIPTION

XT3175FA is a high precision linear LED driver chip with single segmental structure, and there is no problem of EMI. There is no magnetic component, such as inductance or transformer, and the whole system is simple in structure and low in cost.

Operation Description

XT3175FA operating voltage is provided by the OUT pin. When the OUT pin voltage is higher than GND to the chip open voltage, the XT3175FA starts to work and realizes constant current control.

Constant Current Drive (OUT, REXT)

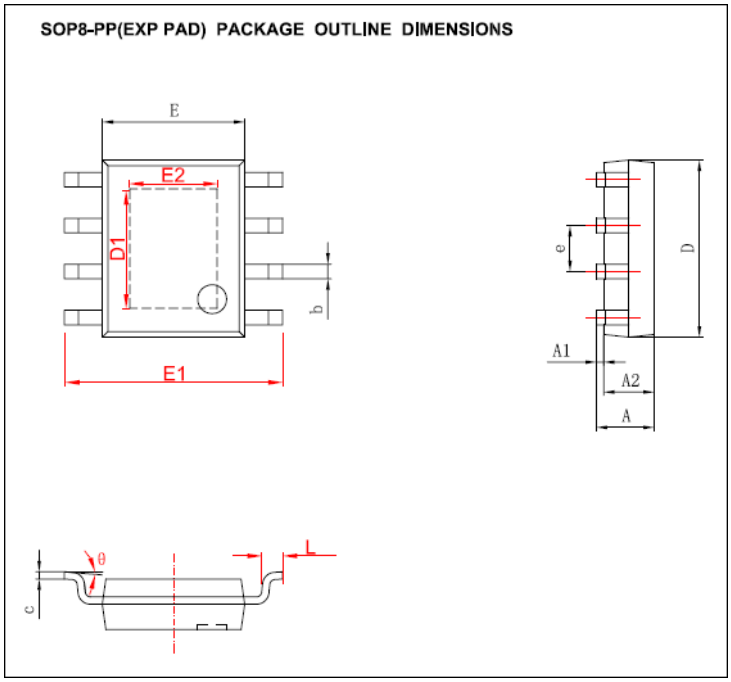
LED output current can be precisely set by REXT resistor.

$$I_{LED} = \frac{600mV}{R_{EXT}(\Omega)}(mA)$$

High Temperature Drop Current Function

XT3175FA has the function of thermal regulation, and the output current can be reduced at the time of the chip temperature(>Tsc typ.), so that the output power and temperature rise can be controlled and the chip temperature can be kept constant, so as to improve the reliability of the system. The system can detect the chiptemperature continuously, when the chip temperature drops below Tsc, the system current is returned to normal.

PACKAGE INFORMATION



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.050	0.150	0.002	0.006
A2	1.350	1.650	0.053	0.065
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.700	5.100	0.185	0.201
D1	2.750	3.402	0.108	0.134
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
E2	2.110	2.710	0.083	0.107
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.05
θ	0°	8°	0°	8°