

Parameters Subject to Change Without Notice

FEATURES

- Adaptive 100/120Hz current ripple remover
- 150V high voltage NMOSFET integrated
- Built-in zener diode for input voltage clamping
- VG output voltage high to 10V
- Programmable amplitude of LED current ripple
- Programmable maximum cathode voltage of LED
- Programmable maximum LED current
- Short protection
- Over temperature protection
- eSOP8 Package

APPLICATIONS

- LED lighting

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Unit
LED Voltage	VOUT	72	V
LED Current	IOUT	0.24	A

DESCRIPTION

JW1237, integrated with 150V NMOSFET, is used to drive a LED string(<100V), and remove the 100/120Hz LED current ripple on AC/DC power by a capacitor between VC and GND.

The adaptive technology ensures minimum power dissipation on JW1237 while removing LED current ripple.

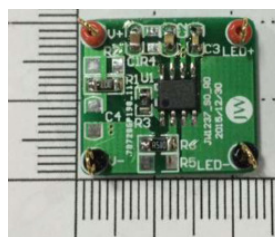
JW1237 clamps the input voltage on VIN pin by 31V. Only one resistor is needed when the output voltage of AC/DC power is higher than 31V.

JW1237 allows user to setup maximum LED current by the sensing resistor between VS pin and GND, which protects JW1237 from being damaged when LED short connected or hot-plug. By sensing the voltage of LED- pin via a resistor between LED- pin and VLMT pin, JW1237 allows user to setup the maximum cathode voltage of LED string, which could help limit the power dissipation on chip.

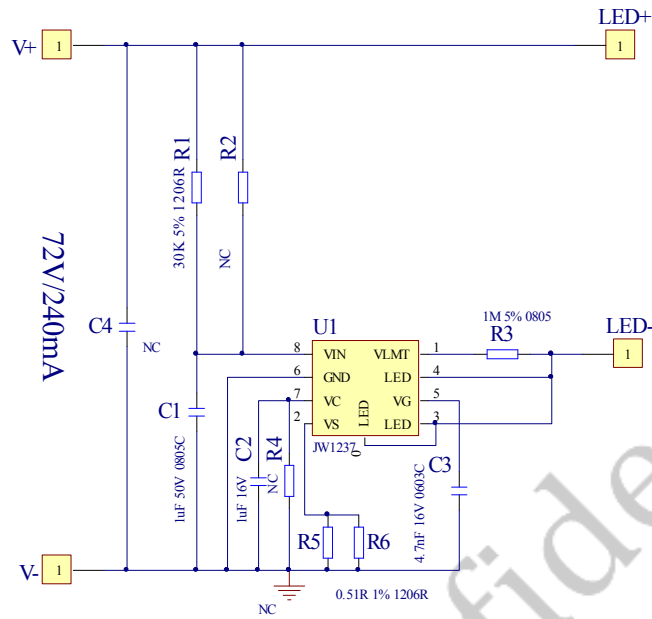
It is considered that LED is shorted when the cathode voltage of LED- is higher than short connecting threshold and remains over 180us JW1237 shuts down when LED is shorted and recovers after 12ms.

JW1237 provides over thermal protection. When the temperature of JW1237 exceed 135°C, OTP is triggered. JW1237 shuts down until the temperature decrease to 110°C.

TYPICAL APPLICATION



SCHEMATIC



BILL OF MATERIALS

Quantity	Designator	Comment	Description	Footprint	Manufacturer	Manufacturer P/N
1	C1	1uF 50V 0805C	Ceramic Cap,X7R	0805C		
1	C2	1uF 10V 0805C	Ceramic Cap,X7R	0805C		
1	C3	4.7nF 16V 0805C	Ceramic Cap,X7R	0805C		
0	C4	NC	Cap	1206C		
1	R1	30K 5% 1206R	Resistor	1206R		
0	R2	NC	Resistor	1206R		
1	R3	1M 5% 0805R	Resistor	0805R		
0	R4	NC	Resistor	0805R		
0	R5	NC	Resistor	1206R		
1	R6	0R51 1% 1206	Resistor	1206R		
1	U1	JW1237	IC	eSOP8	Joulwatt	JW1237

PRINTED CIRCUIT BOARD LAYEROUT

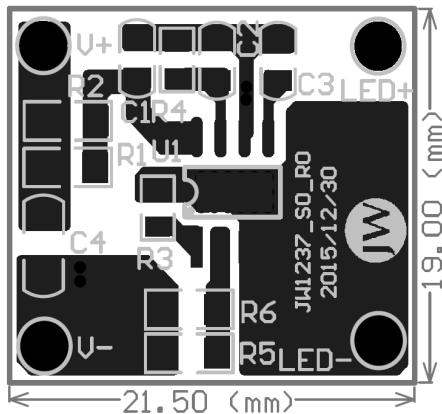


Figure1 Top Layer

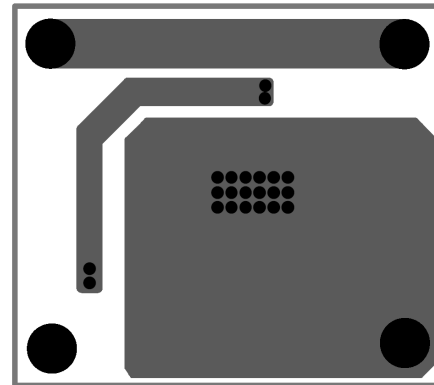


Figure2 Bottom Layer

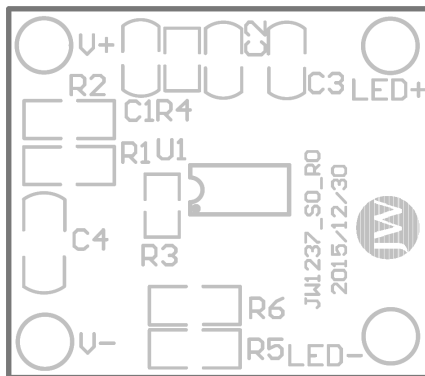


Figure3 Silk Layer

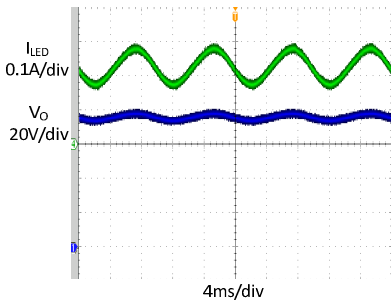
QUICK START GUIDE

1. Connect the V+&V- of the EVB to the output of the pre-driver and connect the positive terminal and negative terminal of the load to LED+&LED-, respectively.
2. The load must be LEDs when you test the characteristics of the EVB.
3. Turn on the power supply of the pre-driver, the evaluation board starts operating in normal condition.
4. The output current ripple is adjustable by varying the C2 on the evaluation board.
5. Any other parameters change, please refer to the datasheet of JW1237.
6. For more information, please refer to the datasheet of JW1237.

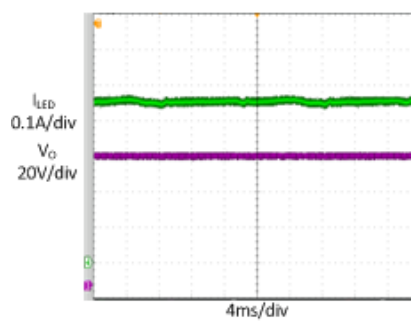
TYPICAL PERFORMANCE CHARACTERISTICS

$V_{IN} = 90\sim 264V_{AC}$, $V_{OUT} = 72V$, $I_{OUT} = 240mA$, $C_{OUT} = 100\mu F / 100V * 2$, $T_A = +25^{\circ}C$, unless otherwise noted

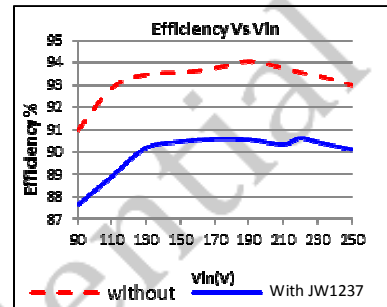
Pre-driver Output
Steady State



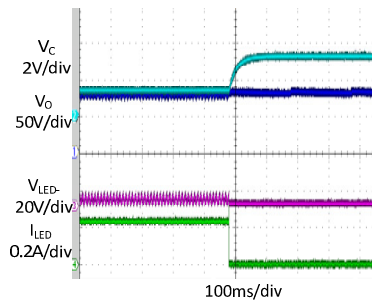
+JW1237 Output
Steady State



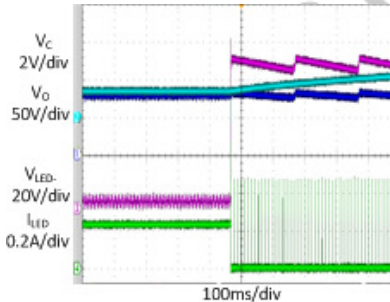
Efficiency comparison (with and without JW1237)



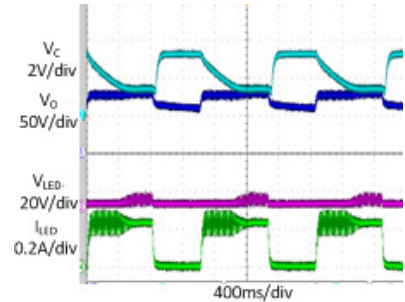
Open Circuit
protection Test



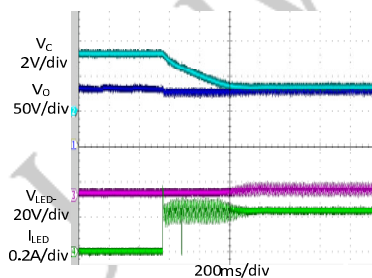
Short Circuit
Protection Test



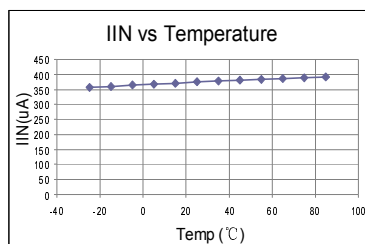
Continuous power
on/off test



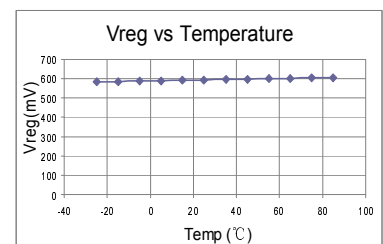
LED Hot plug



VIN Current VS Temperature



Regulated LED pin Voltage VS Temperature



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