

Parameters Subject to Change Without Notice

FEATURES

- No auxiliary winding
- Supplied from line voltage directly
- High voltage power MOSFET integrated
- High current accuracy of line and load regulation
- High power factor with low output current-ripple
- Critical conduction mode
- High efficiency over wide operating range
- Cycle-by-cycle current limit
- LED open protection
- Over-temperature protection
- Compact SOP7 package

APPLICATIONS

- Non-isolation Offline LED driver

ELECTRICAL SPECIFICATIONS

Parameters	Symbol	Value	Unit
Input voltage	V_{IN}	90~264	V
Output voltage	V_O	72	V
Output current	I_o	0.24	A

DESCRIPTION

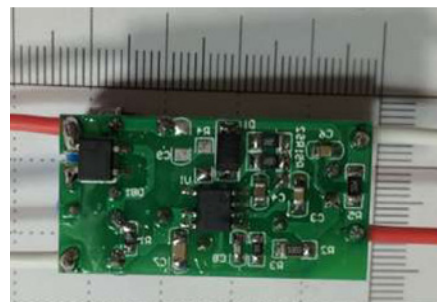
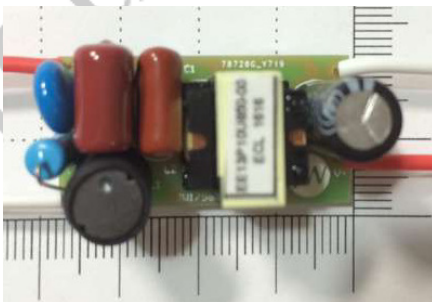
EV1758B is a 72V/240mA LED driver EVB based on JW1758B.

The JW1758B is a constant current LED regulator with high current accuracy which applies to single stage step-down power factor corrected LED drivers. High voltage power MOS is integrated, which can significantly simplify the design of LED lighting system.

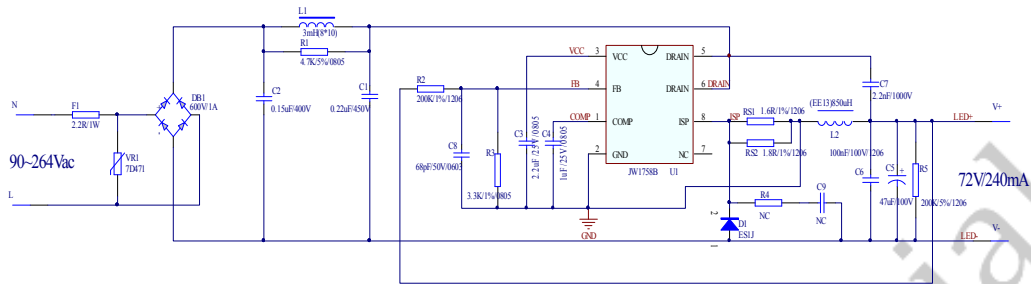
High accuracy of output current is achieved by sampling the output current directly. Critical conduction mode operation reduces the switching losses and largely increases the efficiency. JW1758B is supplied from line voltage directly, and auxiliary winding is not needed.

JW1758B has multi-protection functions which largely enhance the safety and reliability of the system, including VCC over-voltage protection, VCC UVLO, LED open protection, cycle-by-cycle current limit, inductor short protection and over-temperature protection.

EVALUATION BOARD



SCHEMATIC



BILL OF MATERIALS

Quantity	Designator	Comment	Description	Footprint	Manufacturer	Manufacturer P/N
1	C1	0.22uF 450V	CBB	RAD-0.4		
1	C2	0.15uF 400V	CBB	RAD-0.4		
1	C3	2.2uF/25V	CAP	0805		
1	C4	1uF25V	CAP	0805		
1	C5	47uF/100V	CAP_POL	RB.2/.4		
1	C6	100nF/100V	CAP	0805		
1	C7	2.2nF/1000V	CAP	1206		
1	C8	68pF/50V	CAP	0603		
0	C9	NC	CAP	1206		
1	D1	ES1J	DIODE	SMA		
1	DB1	HD06	BRIDGE_HD06	BRIDGE-MB10		
1	F1	2.2R/1W	FUSE	R2W		
1	L1	3mH	INDUCTOR	L(8*10)		
1	L2	850uH	INDUCTOR	EE13		
1	R1	4.7K/5%	RES	0805		
1	R2	200K/1%	RES	1206		
1	R3	3.3K/1%	RES	0805		
0	R4	NC	RES	1206		
1	R5	200K/5%	RES	1206		
1	RS1	1.6R/1%	RES	1206		
1	RS2	1.8R/1%	RES	1206		
1	U1	JW1758B	JW1758	SOP7	Joulwatt	JW1758B

Quantity	Designator	Comment	Description	Footprint	Manufacturer	Manufacturer P/N
1	VR1	320VAC	VARISTOR	7D471		

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PRINTED CIRCUIT BOARD LAYEROUT

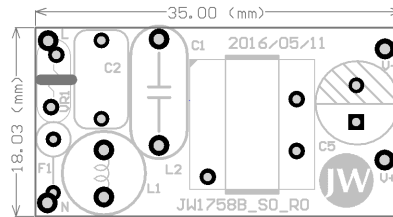


Figure1—Top Layer

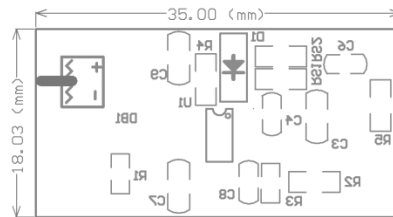


Figure2—Top Silk Layer

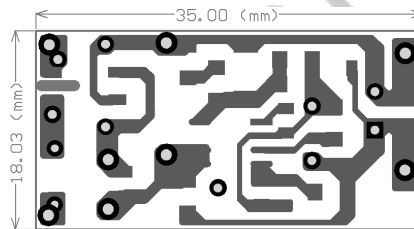


Figure3—Bottom Layer

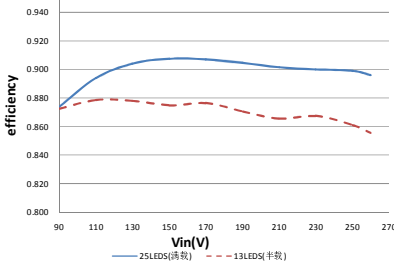
QUICK START

1. Connect the anode of the load 24LEDs whose VF falls between (3~3.3V) to “LED+” marked on the EVB, and cathode to “LED-”.
2. Set the AC source to 90V ~264V, turn off the source.
3. Connect the “Line” of AC source to the “L”, and “neutral” to “N”.
4. Turn on the AC source; the evaluation board starts operating in normal condition.
5. Change Rs1 and Rs2 if you want another output current.
6. Please refer to the datasheet of JW1758B to get more information.

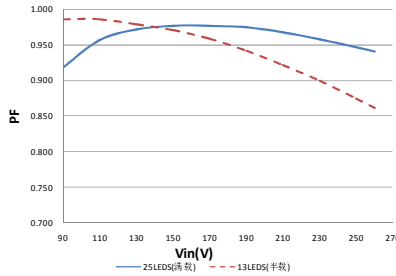
TYPICAL PERFORMANCE CHARACTERISTICS

$V_{IN}=90VAC\sim 264VAC$, $V_{OUT}=72V$, $I_o=240mA$, , unless otherwise noted

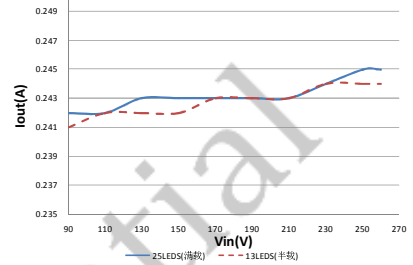
Efficiency VS Vin@different load



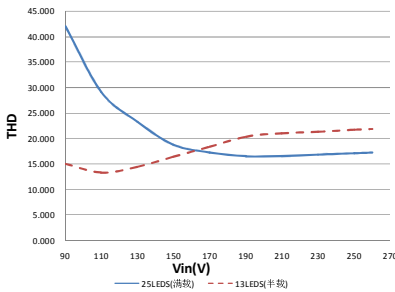
PF VS Vin



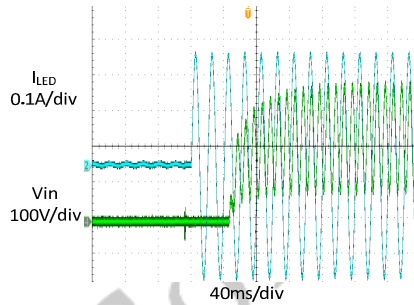
Line regulation



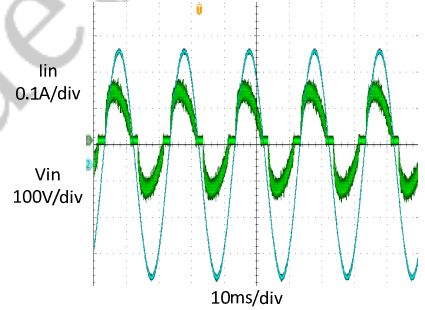
THD VS Vin



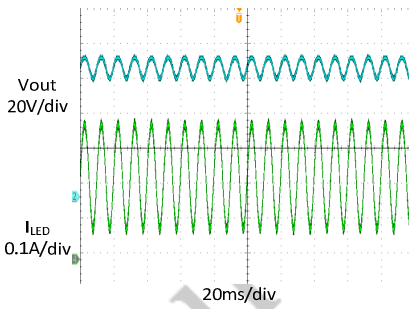
Start State



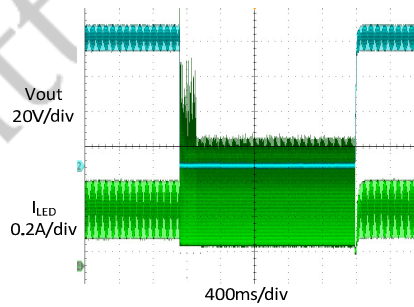
Steady State (Input)



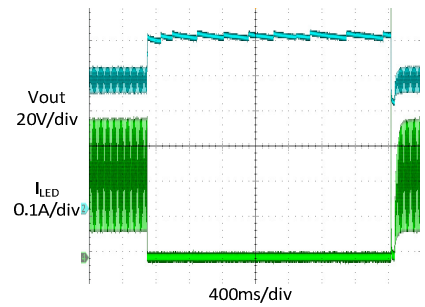
Steady State (Output)



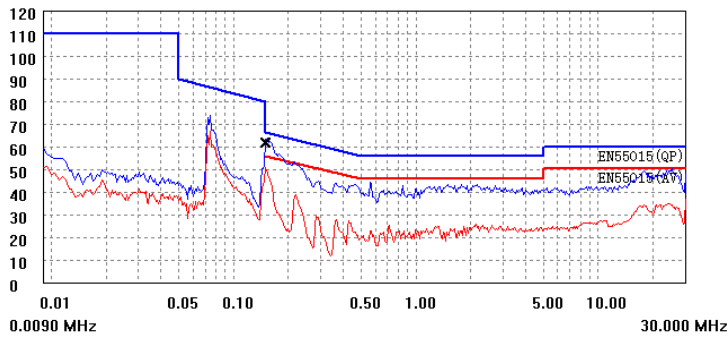
Short Circuit Protection



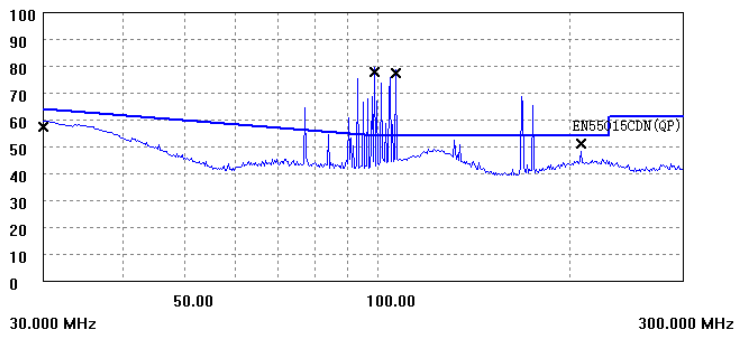
Open Circuit Protection



Conduction:



Radiation:



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