



The Future of Analog IC Technology®

EV2489DQ-01A

Step-Down White LED Driver Evaluation Board

DESCRIPTION

The EV2489DQ-01A is an evaluation board for the MP2489DQ, a step-down converter designed in continuous current mode for driving the high brightness light emitting diodes (LEDs) from wide input voltage 8V-36V. If higher input voltage (up to 60V) is required, use B190 instead of B140 in D1-D5.

The MP2489 employs hysteretic control architecture to regulate a high accuracy LED current, which is measured through an external high-side current sensing resistor. Moreover, this control scheme provides optimized circuit stabilization and very quick response time without the loop compensation. Its low 200mV average feedback voltage reduces power loss and improves the converter efficiency.

The MP2489 implements PWM and Analog Dimming with DIM pin. The MP2489 includes under-voltage lockout function, thermal overload protection preventing damage in the event of an output overload.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V _{IN}	8 – 36	V
Output Voltage	V _{out}	<V _{in} -3V	
LED Current	I _{LED}	350	mA

FEATURES

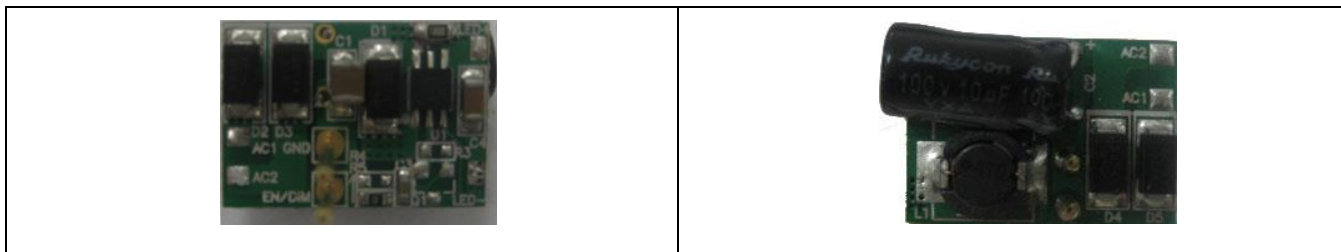
- Internal 65V MOSFET
- Wide 8V to 60V Input Range
- High Efficiency (Up to 97%)
- Hysteretic Control
- PWM & Analog Dimming
- 1000:1 PWM Dimming Resolution
- UVLO, Thermal Shutdown

APPLICATIONS

- Low Voltage Halogen Replacement
- Low Voltage General Illumination
- Automotive/Decorative LED Lighting
- Signs/Emergency Lighting
- LED Backlighting

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Quality Assurance. "MPS" and "The Future of Analog IC Technology" are Registered Trademarks of Monolithic Power Systems, Inc.

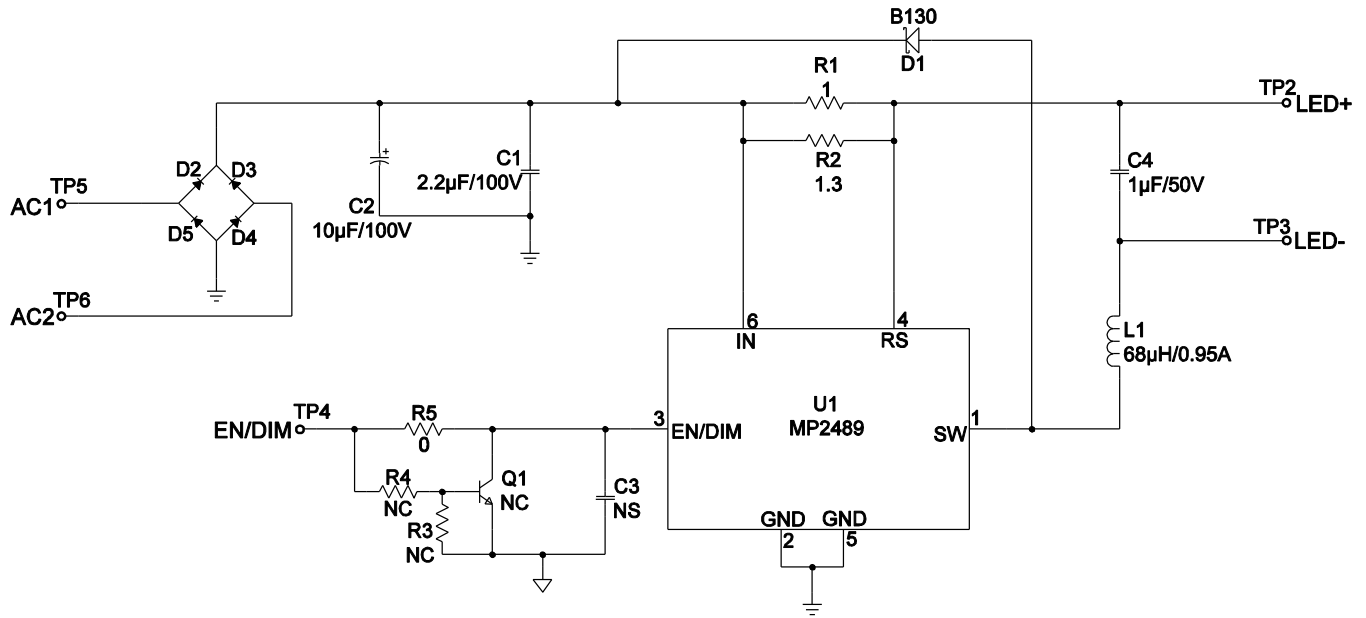
EV2489DQ-00A EVALUATION BOARD



(2x 1.4 x 1) cm xcm x cm

Board Number	MPS IC Number
EV2489DQ-01A	MP2489DQ

EVALUATION BOARD SCHEMATIC



EV2489DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1	2.2µF	Ceramic Capacitor,50V,X7R	1210	muRata	GRM32ER71H225KA88L
1	C2	10µF	Electrolytic Capacitor,100V	DIP	Panasonic	10µF/100V
1	C3	1nF	Ceramic Capacitor,50V,COG	603	muRata	GRM188R71H102KA01D
1	C4	1µF	Ceramic Capacitor,50V,COG	1206	muRata	GRM31MR71H105KA88L
5	D1-D5	B140	Diode Schottky	SMA	Diodes Inc.	B140
1	L1	68µH	Inductor 0.95A	SMD	Wurth	744777168
1	R1	1Ω	0.01	805	Yageo	RC0805FR-07R5L
1	R2	1.3Ω	0.01	805	Yageo	RC0805FR-071R3L
1	R3	NC				
1	R4	NC				
1	R5	0Ω	0.05	603	Yageo	RC0603JR-070RL
1	Q1		NPN Transistor		On Semi	MMBT3904LT1
1	U1	MP2489DQ	MPS WLED Driver	QFN6	MPS	MP2489DQ-R1

PRINTED CIRCUIT BOARD LAYOUT

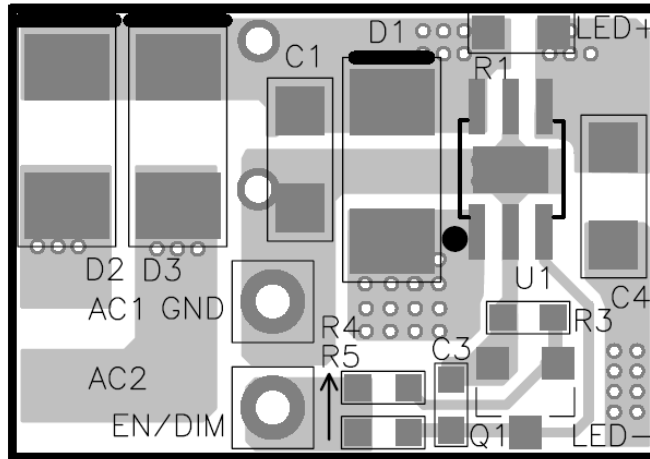


Figure 1—Top Layer

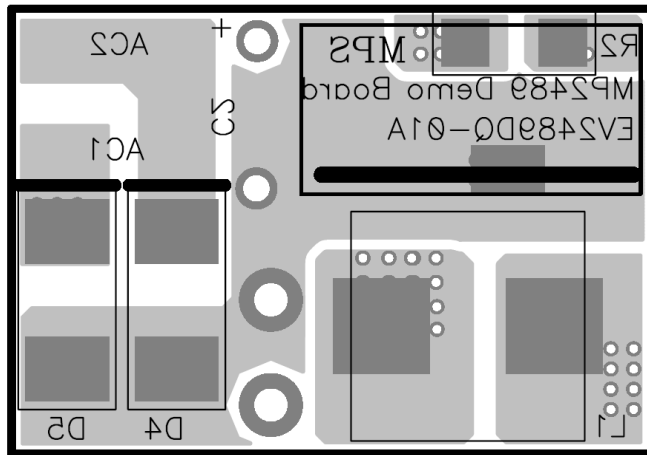


Figure 2—Bottom Layer