EV24895-J-00A

Step-Down White LED Driver Evaluation Board

The Future of Analog IC Technology

DESCRIPTION

The EV24895-J-00A is an evaluation board for the MP24895GJ, a step-down converter designed in hysteretic current control mode for driving the high brightness LEDs from wide input voltage of 9V to 30V.

The MP24895 employs hysteretic control architecture to regulate LED current. Moreover, this control scheme provides optimal circuit stabilization and a very quick response time without loop compensation. The highly accurate LED current is measured through an external high-side current-sense resistor. Its low 100mV average feedback voltage reduces power loss and improves the efficiency.

The MP24895 implements PWM and analog dimming together on the EN/DIM pin. The MP24895 includes under-voltage lockout, and thermal overload protection to prevent damage in the event of an output overload.

FEATURES

- Internal 36V MOSFET
- Wide 9V to 30V Input Range
- 750mA Output LED Current
- High Efficiency
- Hysteretic Control
- PWM and 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

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	9 to 30	V
Output Voltage	V_{OUT}	<V_{IN}-3	V
LED Current	I_{LED}	750	mA

All MPS parts are lead-free and adhere to the RoHS directive. For MPS green status, please visit MPS website under Quality Assurance.

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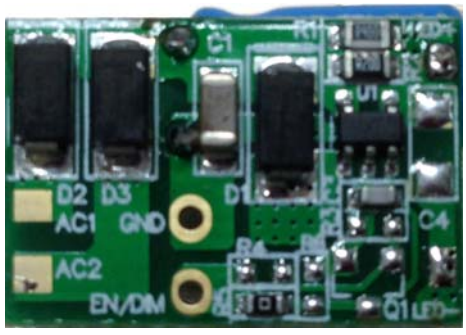
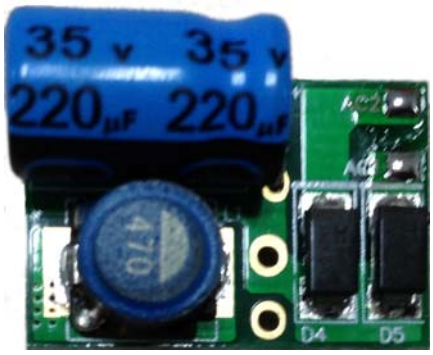
EV24895-J-00A EVALUATION BOARD





(L x W x H) 20mm x 14mm x 11mm

Board Number	MPS IC Number
EV24895-J-00A	MP24895GJ

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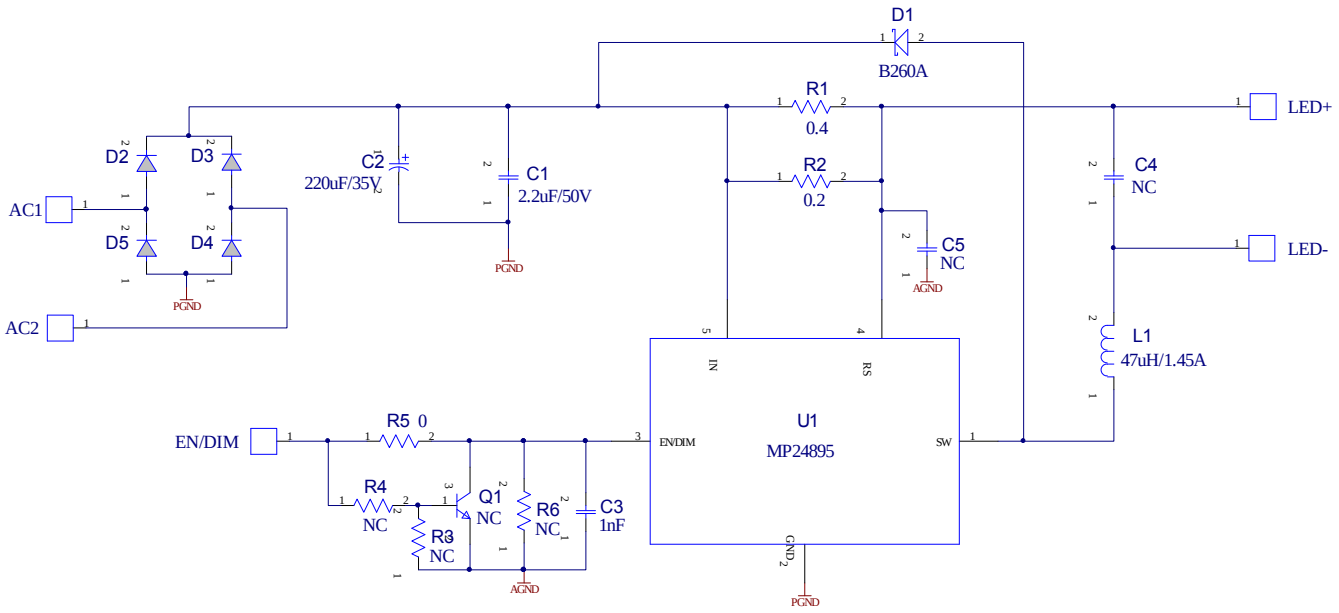
EVALUATION BOARD SCHEMATIC



EV24895-J-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
1	C1	2.2μF/50V	Ceramic Capacitor, 50V, X7R	1206	muRata	GRM31CR71H225KA88L
1	C2	220μF/35V	Electrolytic Capacitor, 35V	DIP	Sanyo	220μF/35V
1	C3	1nF/25V	Ceramic Capacitor, 25V, C0G	0603	muRata	GRM1885C1E102JA01D
2	C4, C5	NC				
5	D1 to D5	B260A	Schottky Diode	SMA	Diodes	B260A
1	L1	47μH	Inductor, 1.2A	SMD	TDK	SLF7055T-470M1R2-3PF
1	R1	0.4Ω	Film Resistor, 1%	0805	Royalohm	0805F400LT5E
1	R2	0.2Ω	Film Resistor, 1%	0805	Yageo	RL0805FR-070R2L
3	R3, R4, R6	NC				
1	R5	0Ω	Film Resistor, 5%	0603	Yageo	RC0603JR-070RL
1	Q1	NC				
1	U1	MP24895	MPS WLED Driver	TSOT23-5	MPS	MP24895GJ-Z

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PRINTED CIRCUIT BOARD LAYOUT

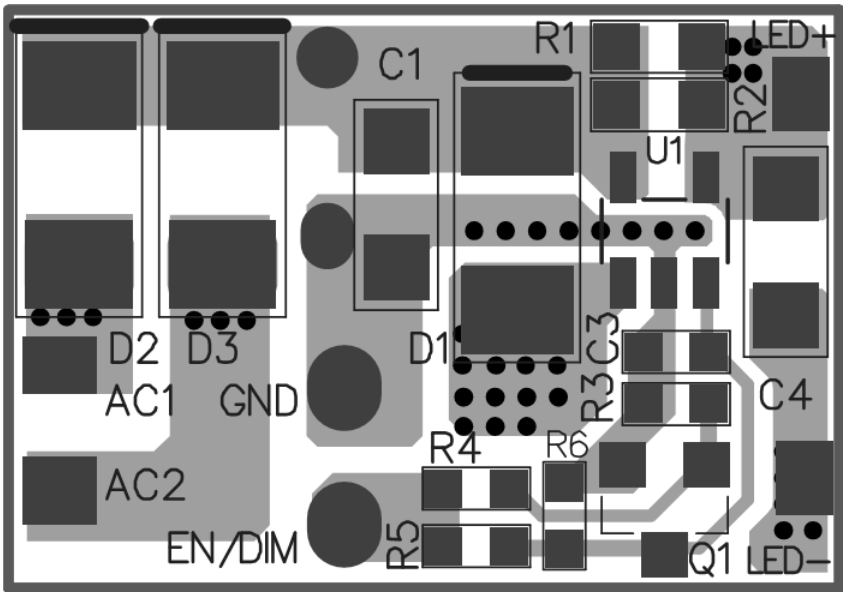

Figure 1—Top Layer

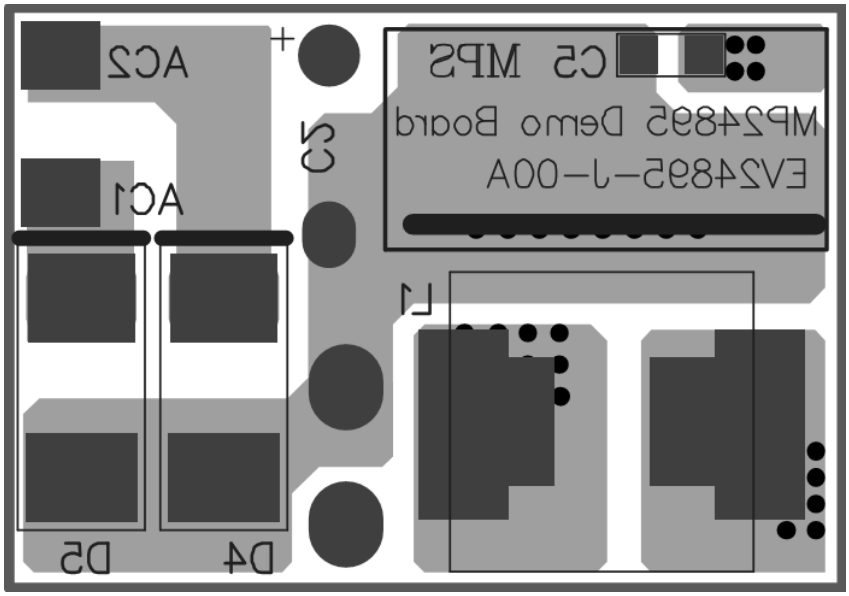

Figure 2—Bottom Layer

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QUICK START GUIDE

1. Connect the positive and negative terminals of the load to the LED+ and LED- pins on the EV board, respectively.
2. Connect the positive and negative terminals of the 24V AC power supply to the AC1 and AC2. If apply a DC power supply, please connect + and – to AC1 and AC2. Turn the power supply on.
3. If PWM dimming is required, provide a 200Hz to 2kHz PWM signal to EN/DIM pin. Remove R5 and put a 1kΩ resistor on R4.
4. If analog dimming is required, please open R4 and short R5, then provide a 0.3V to 2.5V DC voltage to the EN/DIM pin.
5. The LED current is adjustable by set current sense resistor R1//R2 as below formula,

$$R1//R2=100mV/I_{LED}$$

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