EV3011DQ-00A

1x, 1.5x, 2x High Efficiency Charge Pump 2 White LED Driver Evaluation Board

The Future of Analog IC Technology™

DESCRIPTION

The EV3011DQ-00A is an evaluation board for the MP3011, a fully automatic driver for powering two white LEDs, with up to 4V forward voltage, from a single Li-Ion or three NiMH cells. The driver performs all of the sensing and control to run the LEDs at an optimum charge pump ratio for efficiency without an expensive inductor. The driver allows PWM operation to support brightness control.

The tiny 3mm x 3mm QFN16 package and small external capacitors allow for the most compact white LED solution available.

ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
# of WLEDs		2	
Input Voltage	V_{IN}	2.5 – 5.5	V
LED Current	I_{LED}	40	mA

FEATURES

- 2% LED Current Matching
- High Efficiency (>93%)
- Current Source Outputs
- No Ballast Resistors Required
- 1x, 1.5x and 2x Automatic Modes
- Constant Frequency Operation
- Automatic LED Detection
- High and Low Frequency PWM Capability
- 2.5V to 5.5V Operation
- Less than 1μA Leakage during Shutdown
- Detects Changes in Battery Level
- No External Schottky Diode Required
- Soft-Start and Soft Switching Operation

APPLICATIONS

- Cell Phones
- PDA or Hand Held Computers
- White LED Application at 3.6V Supply

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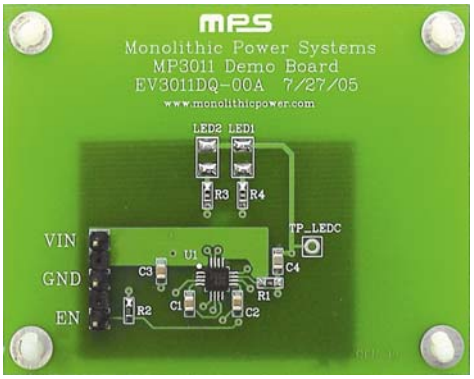
EV3011DQ-00A EVALUATION BOARD

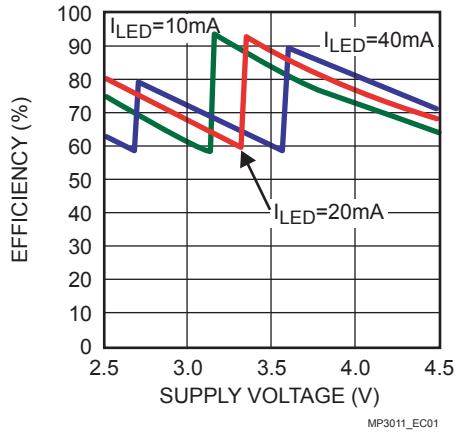


(L x W x H) 2.4" x 1.9" x 0.4"
(6.1cm x 4.8cm x 1.0cm)

Board Number	MPS IC Number
EV3011DQ-00A	MP3011DQ

Efficiency vs Supply Voltage

V_{LED} = 3.35V @ 40mA



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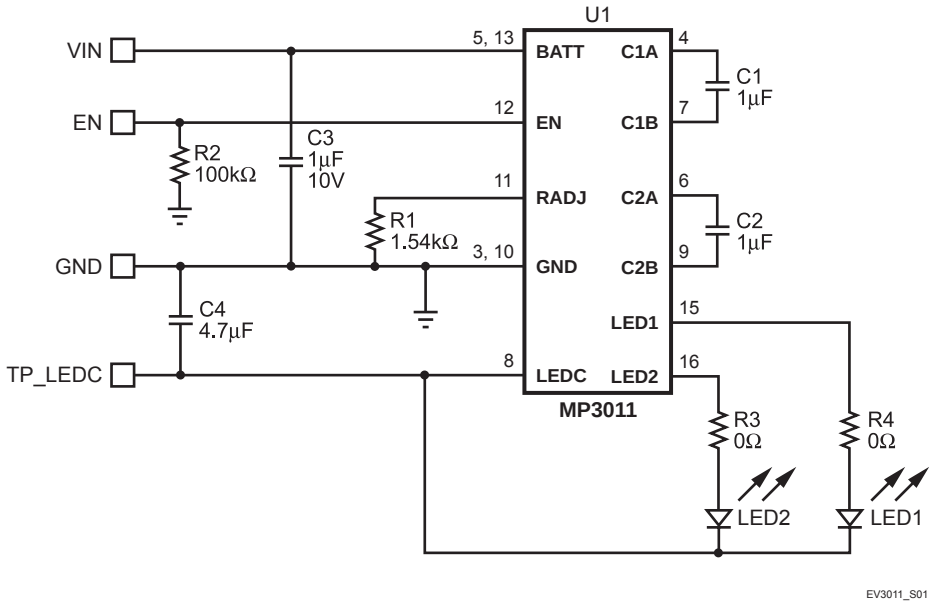
EVALUATION BOARD SCHEMATIC



EV3011DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer P/N	Distributor P/N
3	C1, C2, C3	1µF	Ceramic Cap., 10V, X7R	0805	TDK: C2012X7R1A105K	Digikey: 445-1359-1-ND
1	C4	4.7µF	Ceramic Cap., 6.3V, X5R	0805	TDK: C2012X5R0J475K	Digikey: 445-1421-1-ND
2	LED1, LED2		Not Stuffed			
1	R1	1.54kΩ	Resistor, 1%	0805	Panasonic: ERJ-6ENF1541V	Digikey: P1.54KCCT-ND
1	R2	100kΩ	Resistor, 5%	0805	Panasonic: ERJ-6GEYJ104V	Digikey: P100KACT-ND
2	R3, R4	0Ω	Resistor, 5%	0805	Yageo: 9C08052A0R00JLHFT	Digikey: 311-0.0ACT-ND
1	U1		White LED Driver	QFN16	MPS: MP3011DQ	

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PRINTED CIRCUIT BOARD LAYOUT

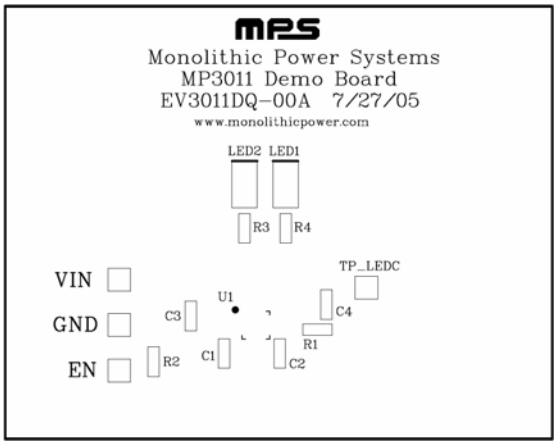

Figure 1—Top Silk Layer

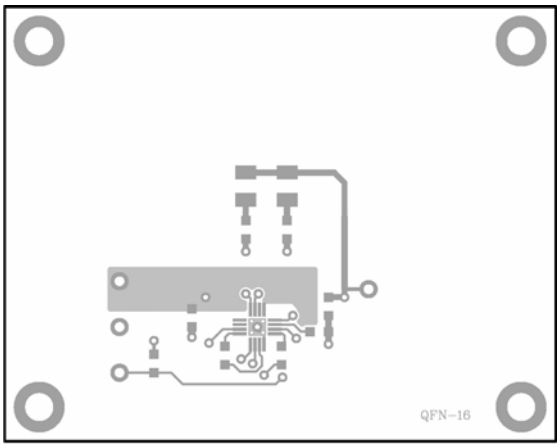

Figure 2—Top Layer

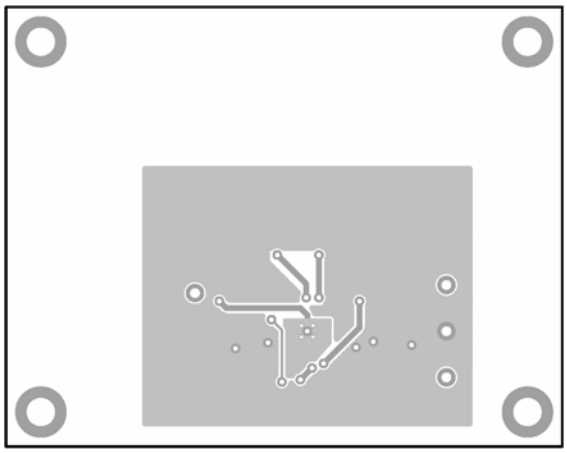

Figure 3—Bottom Layer

QUICK START GUIDE

1. Solder LED1 – LED2 to the board.
2. Attach the positive and negatives terminals of the power supply (2.5V – 5.5V) to the VIN and GND pins, respectively.
3. Drive EN high to enable the MP3011. Leave EN disconnected to disable the MP3011.
4. To use burst mode brightness control, drive EN with a PWM signal.

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