

### DESCRIPTION

The EV3388EY-00A is an evaluation board for the MP3388EY, a step-up converter designed for large liquid-crystal displays that employ an array of LEDs as the light source. It can drive up to 8 strings in parallel and 10 LEDs per string.

The MP3388 uses internal switch current mode, fixed frequency architecture and includes current ballast in each string terminal, which achieves  $\pm 3\%$  current regulation accuracy between strings. Low feedback voltage at each LED string help reduce power loss and improve efficiency.

The MP3388 has multiple features to protect the converter from fault conditions, including under-voltage lockout, current limiting, over voltage, short LED, open LED and thermal shut-down protection.

### ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	5 – 25	V
LEDs #		8 string parallel and 10 LEDs each string	
LED Current	$I_{LED}$	20/string	mA

### FEATURES

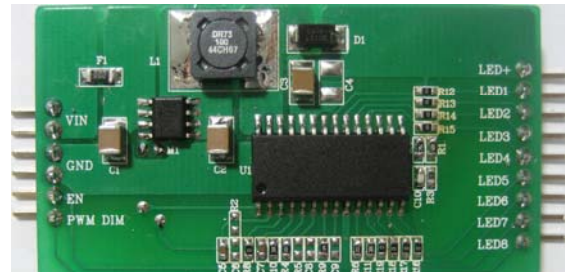
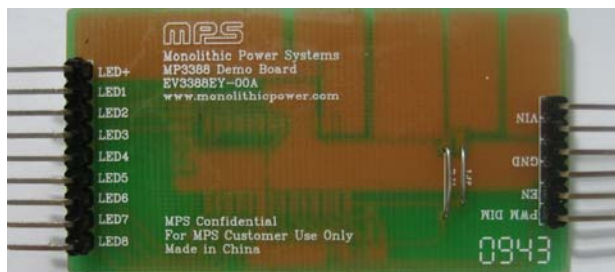
- 5V to 25V Input Voltage Range
- Up to 89% Efficiency
- Programmable Over Voltage Protection
- Drives up to 8 Strings Parallel and 10 LEDs in Series.
- 3% Current Regulation Accuracy Between Strings
- Selectable Switching Frequency: 1.25MHz and 625kHz
- Open and Short LED Load Protection
- Thermal Shutdown

### APPLICATIONS

- Notebook PC
- Small LCD TV
- Handy Terminals Display
- Automotive Systems and Tablet Computer

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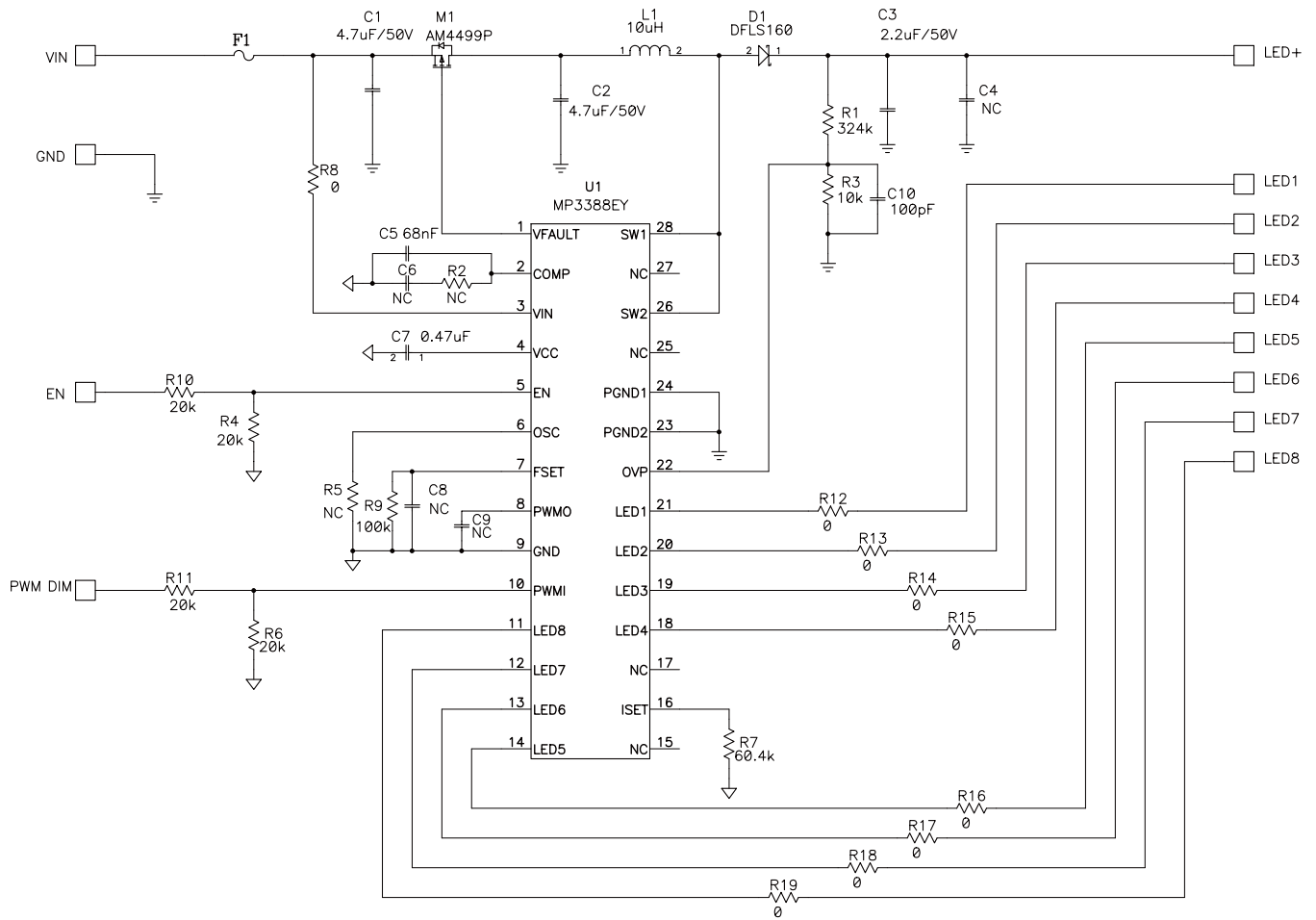
### EV3388EY-00A EVALUATION BOARD



(L x W x H) 6.0cm x 3.2cm x 1.0cm

Board Number	MPS IC Number
EV3388EY-00A	MP3388EY

EVALUATION BOARD SCHEMATIC



**EV3388EY-00A BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1,C2	4.7 $\mu$ F	Ceramic Capacitor, 50V, X7R	1210	Murata	GRM32ER71H475KA8
1	C3	2.2 $\mu$ F	Ceramic Capacitor, 50V, X7R	1210	Murata	GRM32ER72A225KA3
1	C4	NC		1210		
1	C5	68nF	Ceramic Capacitor, 50V, X7R	0603	Murata	GRM188R71H683KA0
3	C6, C8, C9	NC		0603		
1	C7	0.47 $\mu$ F	Ceramic Capacitor, 16V, X5R	0603	Murata	GRM21BR61C474KA8
1	C10	100pF	Ceramic Capacitor, 50V, X7R	0603	Murata	GRM188R71H101KA9
1	D1		Diode Schottky, 60V, 1A	SMA	Diodes Inc	DFLS160-F
1	F1	0 $\Omega$	Resistor, 5%	1206	Yageo	RC1206JR-070RL
1	L1	10 $\mu$ H	Inductor,2.47A	SMD	Cooper	DR73-100
		10 $\mu$ H	Inductor,2.5A	SMD	TDK	SLF10145T-100M2R5-H
1	M1		P- channel MOSFET	SO8		AM4499P
1	R1	324k $\Omega$	Resistor, 1%	0603	Yageo	RC0603FR-07324KL
2	R2, R5	NC		0603		
1	R3	10k $\Omega$	Resistor, 1%	0603	Yageo	RC0603FR-0710KL
4	R4, R6, R10, R11	20k $\Omega$	Resistor, 5%	0603	Yageo	RC0603JR-0720KL
1	R7	60.4k $\Omega$	Resistor, 1%	0603	Yageo	RC0603FR-0760K4L
9	R8, R12~R19	0 $\Omega$	Resistor, 5%	0603	Yageo	RC0603JR-070RL
1	R9	100k $\Omega$	Resistor, 5%	0603	Yageo	RC0603JR-07100KL
1	U1		LED Driver IC	SOIC28	MPS	MP3388EY

## PRINTED CIRCUIT BOARD LAYOUT

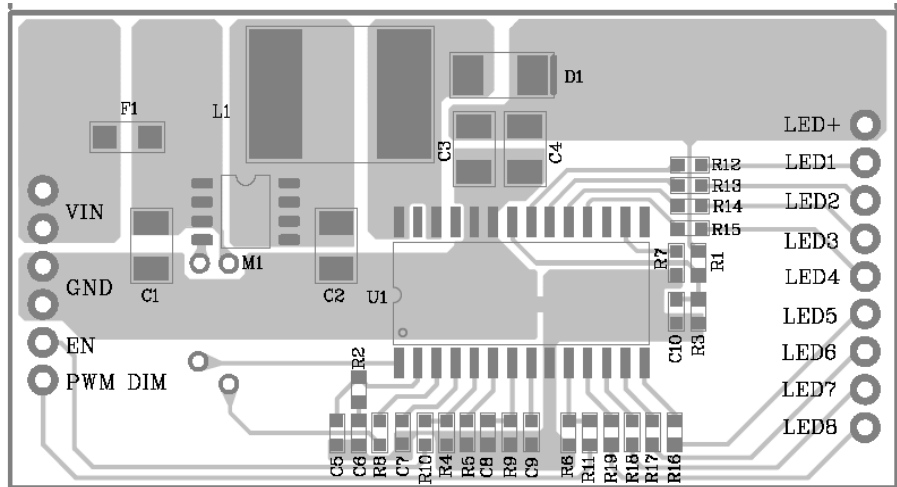


Figure 1—Top Layer

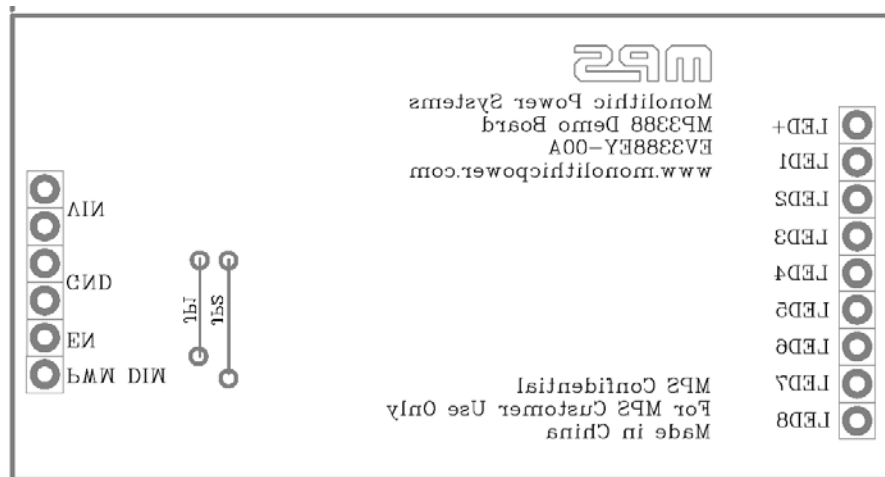


Figure 2—Bottom Layer

## QUICK START GUIDE

1. Connect the positive and negative terminals of the load panel (10 white LEDs in series, 8 strings paralleled) to the LED+ and LED1~8 pins on the EV board, respectively.
2. Connect the positive and negative terminals of the power supply (5V ~ 25V) to the VIN and GND pins on the EV board, respectively.
3. Drive EN pin high (5V) to enable the MP3388.
4. For PWM dimming, apply a PWM rectangular waveform with a minimum voltage less than 0.5V and a maximum greater than 5V on PWM DIM pin. The frequency of the PWM signal is recommended between 200Hz to 2kHz.

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