EV3021DQ-00A

1x, 1.5x, 2x Auto-Adjust Charge Pump White LED Backlight Evaluation Board

NOT RECOMMENDED FOR NEW DESIGNS, REFER TO EV3320A-Q-00A

DESCRIPTION

The EV3021DQ-00A is the Evaluation Board for the MP3021, a WLED driver that can drive up to 4 backlight WLEDs at up to 30mA each. Backlight brightness can be adjusted with a 5-bit register plus one bit for precise low brightness control.

The MP3021 employs an efficient inductorless charge pump with 1x, 1.5x and 2x automatic mode control to achieve high efficiency power conversions.

Monolithic Power System's single wire MPC™ serial data link provides a simple and fast interface used to enable, disable and set current levels for each LED. In addition, soft-start limits the inrush current during startup and mode switching.

FEATURES

- Backlight: up to 4 WLEDs at 30mA Each
- Single Wire Serial Bus (MPC™ Serial Data Link)
  - Simple, Low Overhead Solution
  - Fast Data Transfer Rate
- Thermal Shutdown Protection
- Under-Voltage Protection
- Available in a 3mm x 3mm 16-Pin QFN Package

APPLICATIONS

- Cellular Phones
- PDA Phones
- PDAs

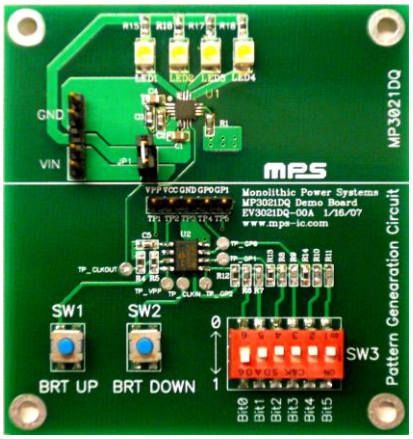
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ELECTRICAL SPECIFICATIONS

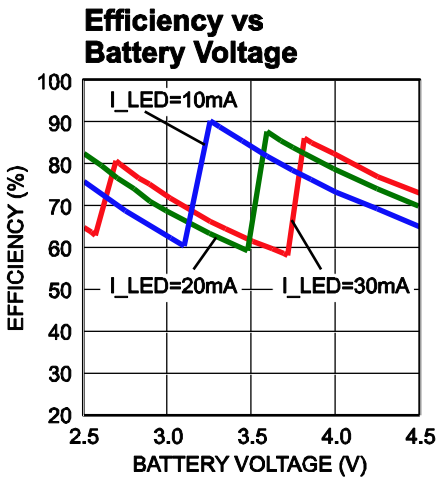
Parameter	Symbol	Value	Units
Input Voltage	V_{IN}	2.5 – 5.5	V
# of WLEDs		4	
LED Current	I_{LED}	30	mA

EV3021DQ-00A EVALUATION BOARD



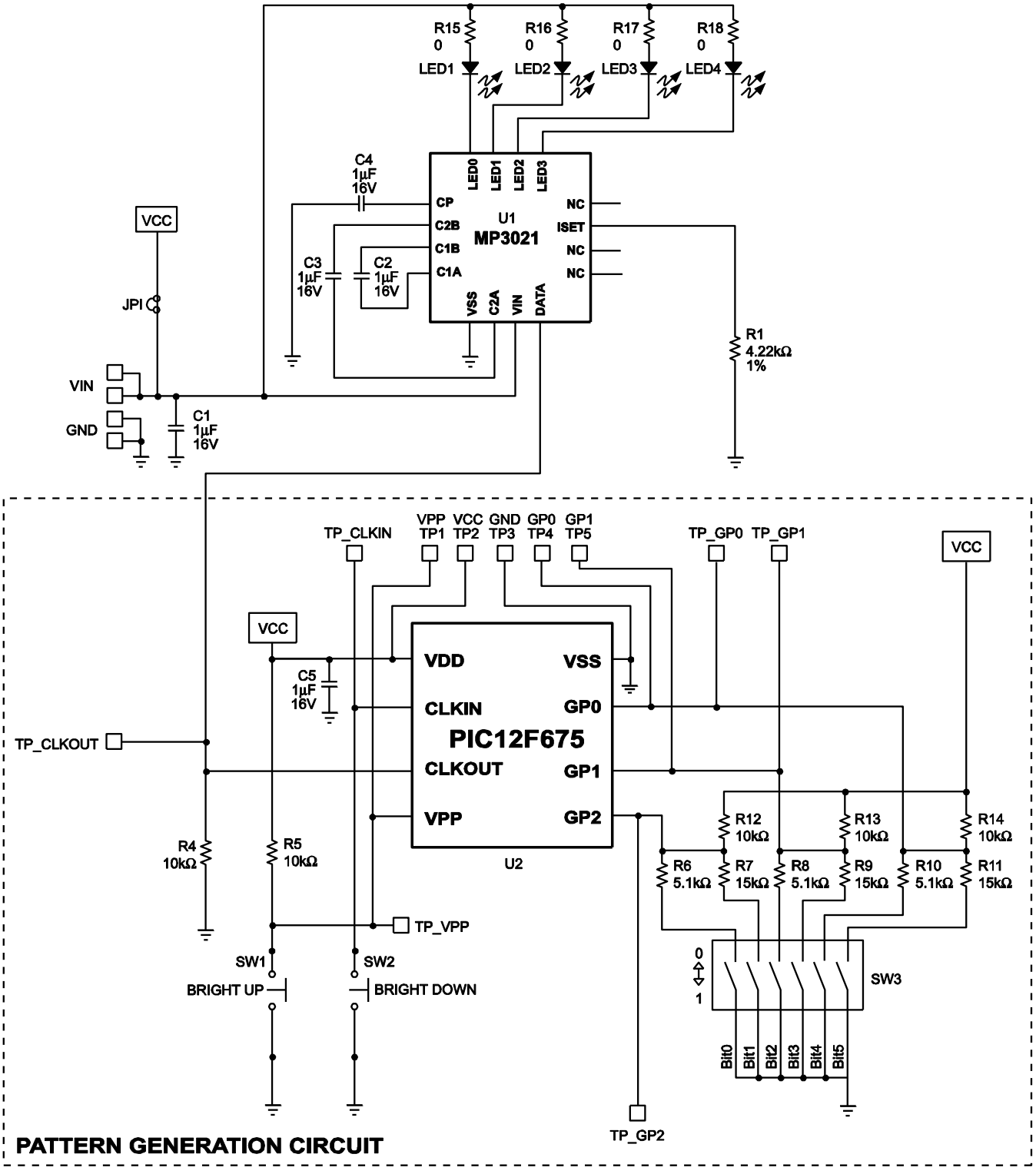
(L x W x H) 2.6" x 2.5" x 0.4"
(6.6cm x 6.4cm x 1.0cm)

Board Number	MPS IC Number
EV3021DQ-00A	MP3021DQ



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EVALUATION BOARD SCHEMATIC



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EV3021DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
4	C1,C2,C3,C4	1µF	16V/X7R Ceramic Cap.	SM0603	muRata	GRM188R71C105KA
4	LED1~LED4	NS	No Stuff			
1	R1	4.22kΩ	Film Res, 1%	603	Panasonic	ERJ-3EKF4221V
4	R15~R18	0Ω	Film Res, 5%	603	Panasonic	ERJ-3GEY0R00V
1	U1		White LED Driver	3x3 QFN16	MPS	MP3021DQ

EV3021DQ-00A PATTERN GENERATION CIRCUIT BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C5	1µF	16V/X7R Ceramic Cap.	SM0603	muRata	GRM188R71C105KA
1	SW3	6 POS	Top slide DIP switch	DIP 12	Digi-Key	CKN1290-ND
1	JP1		DIP Jumper		Digi-Key	WM18533-ND
3	R6,R8,R10	5.1kΩ	Film Res, 1%	603	Panasonic	ERJ-3EKF5111V
5	R4,R5,R12, R13,R14	10kΩ	Film Res, 1%	603	Panasonic	ERJ-3EKF1002V
3	R7,R9,R11	15kΩ	Film Res, 1%	603	Panasonic	ERJ-3EKF1502V
2	SW1,SW2	Switch	Push Switch	5mmx5mm	Digi-Key	CKN9020-ND
1	U2		Microcontroller	SO-8	Microchip	PIC12F675

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PRINTED CIRCUIT BOARD LAYOUT

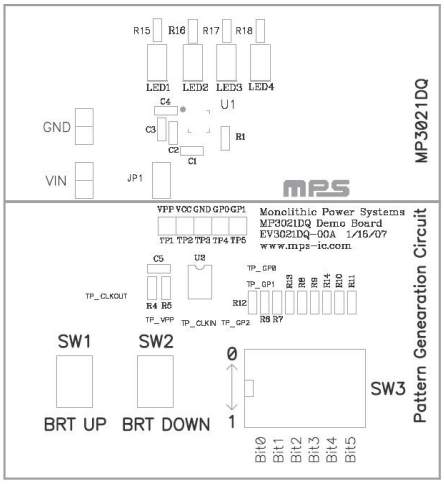


Figure 1—Top Silk Layer

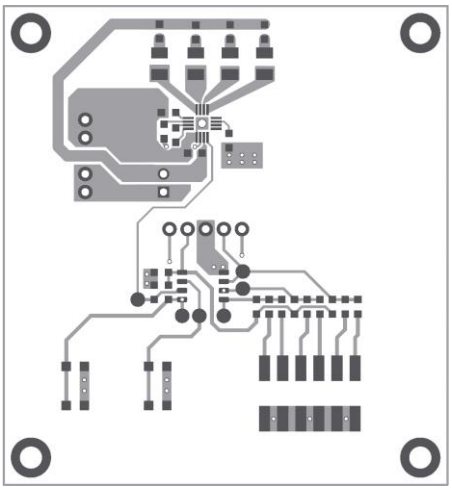


Figure 2—Top Layer

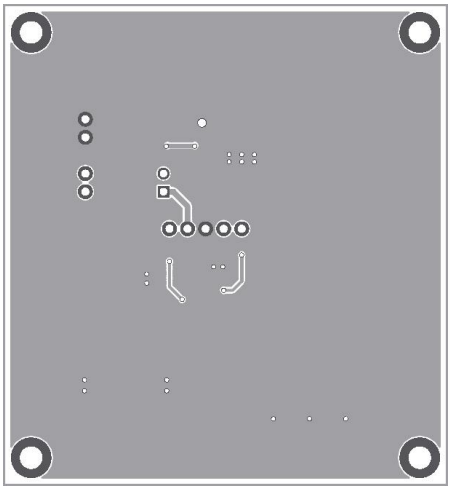
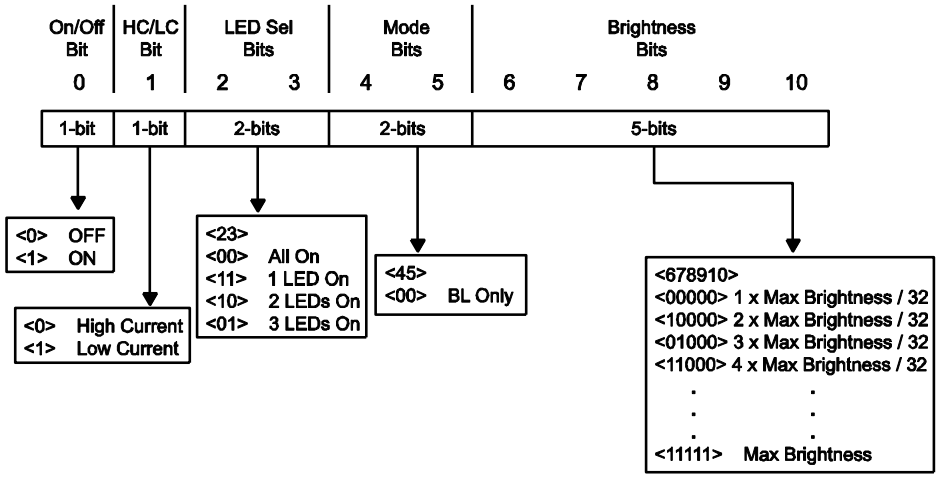


Figure 3—Bottom Layer

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QUICK START GUIDE

1. Solder LED1 – LED4, and Flash LED to the board if they are not populated.
2. Turn off the power supply.
3. Attach the positive terminal of the power supply (2.5V - 5.5V) to the VIN.
4. Attach the negative terminal of the power supply to GND pin.
5. Set the number of LEDs by SW3. See Table below and make sure it is in position. **Always set Mode bits to "00"**.



6. Turn on the power supply.
7. Push the "BRT UP" or "BRT DOWN" button to control the brightness of the LEDs. One push represents one level brightness change. Push and hold the button will continuously increase or decrease the brightness.

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