



The Future of Analog IC Technology®

# EV5002DQ-00A

Programmable Current 3.3V/1~3A  
Electronic Fuse Evaluation Board

## DESCRIPTION

The EV5002DQ-00A is the evaluation board for the MP5002DQ, a protection device designed to protect circuitry on the output (Vout) from transients on input (Vin). It also protects Vin from undesired shorts and transients coming from the source.

Besides the input capacitor and output capacitor, EV5002DQ-00A contains a low power resistor to set the current limit ( $I_{LIMIT}$ ) and an optional small capacitor to program the ramp up rate of output voltage (dv.dt).

The demo board defaults are for a 2.35 V turn on point and a 4.5V over voltage clamp. The trip current limit is set at 2.5A ,and hold current is set at 1.55A.

## ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	2.35-4.5	V
Output Voltage Clamp	$V_{OUT}$	4.5	V
Trip Current	$I_{TRIP}$	2.5	A
Hold Current	$I_{HOLD}$	1.55	A

## FEATURES

- Adjustable Slew Rate for Output Voltage
- 2.5A Trip Current and 1.55A Hold Current
- Integrated Power FET Thermal Protection
- Over Voltage Limit

## APPLICATIONS

- Hot Swap
- PC Cards
- Cell Phones
- Laptops

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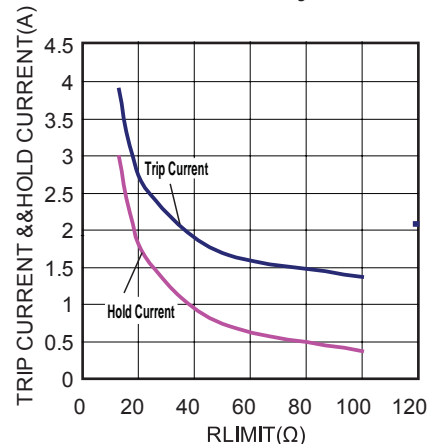
## EV5002DQ-00A EVALUATION BOARD



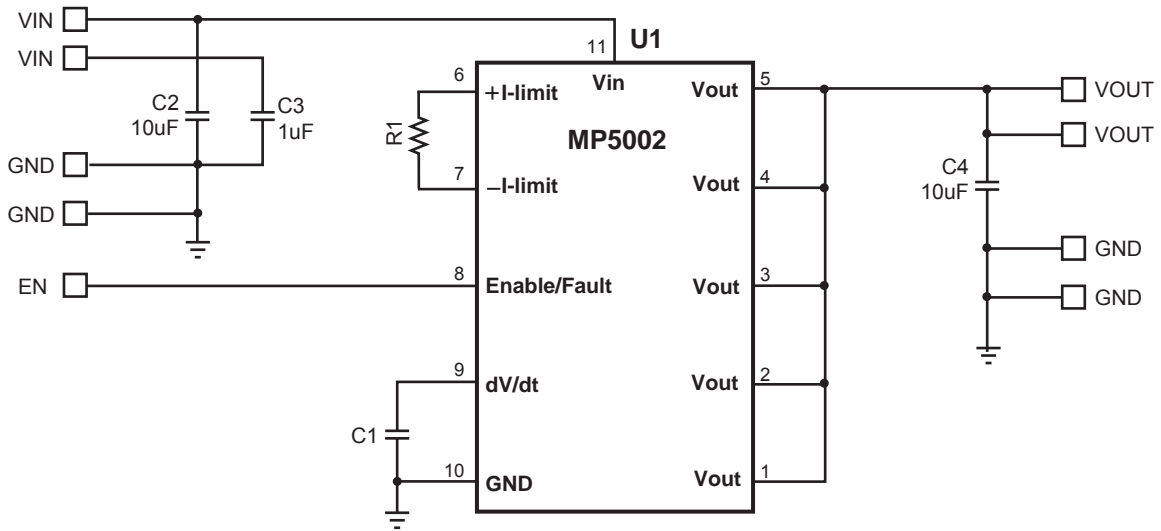
(L x W x H) 1.97" x 1.89" x 0.12"  
(5.0cm x 4.8cm x 0.3cm)

Board Number	MPS IC Number
EV5002DQ-00A	MP5002DQ

Current Limit Adjustment vs.  $R_{LIMIT}$



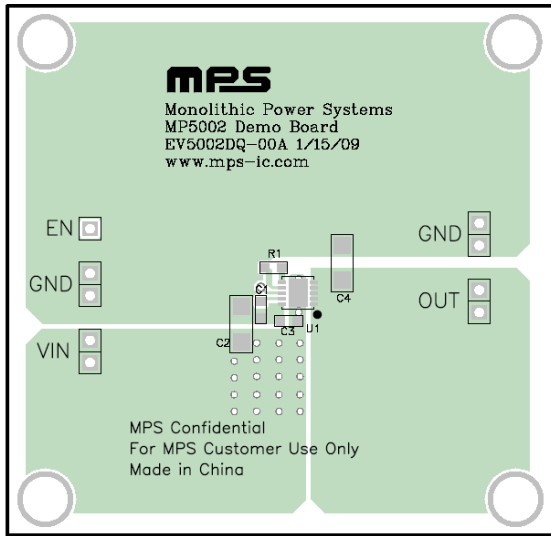
## EVALUATION BOARD SCHEMATIC



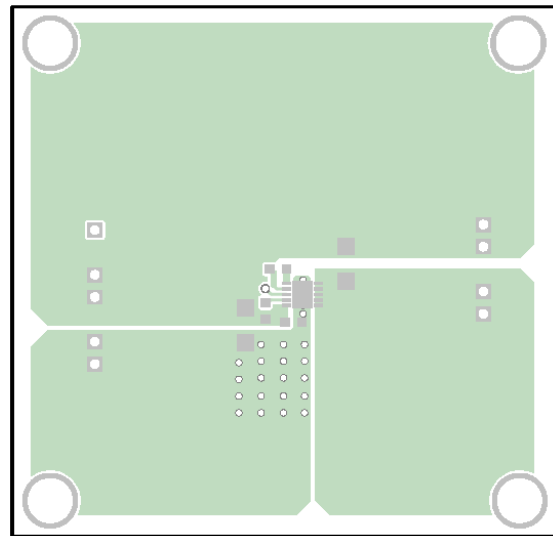
## EV5002DQ-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer P/N
1	C1	NS				
2	C2,C4	10uF	Ceramic Cap., X7R, 25V	1206	Murata	GRM32DR71E106KA12
1	C3	1uF	Ceramic Cap., X7R, 16V	0603	Murata	GRM188R71C105KA12D
1	R1	24Ω	Film Res., 1%	0603	Yageo	RC0603FR-0724RL
1	U1		Electronic Fuse	QFN-10	MPS	MP5002DQ

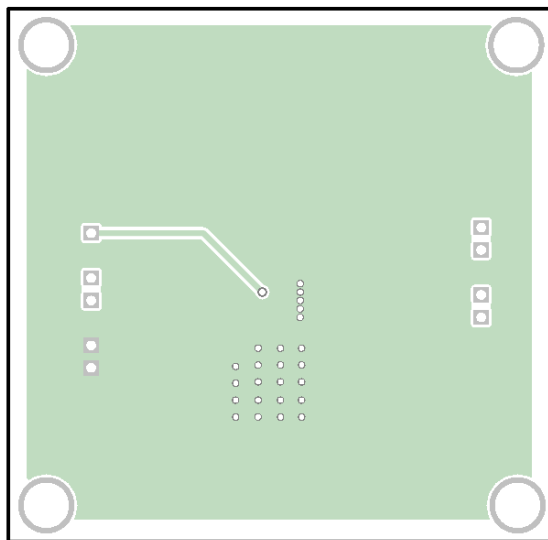
**PRINTED CIRCUIT BOARD LAYOUT**



**Figure 1—Top Silk Layer**



**Figure 2—Top Layer**



**Figure 3—Bottom Layer**

## QUICK START GUIDE

1. Connect the positive terminal of the load to VOUT pins, and the negative terminal of the load to GND pins.
2. Preset the power supply output to 2.35V-4.5V and turn off the power supply.
3. Connect the positive terminal of the power supply output to the VIN pin and the negative terminal of the power supply output to the GND pin.
4. Turn the power supply on. The MP5002DQ will automatically startup.
5. To use the Enable function, apply a digital input to EN pin. Drive EN higher than 2.5V to turn on the regulator, drive EN less than 0.5V to turn it off.
6. A thermal fault will cause a mid level on the enable pin, and will set the fault flag. Vin restart or a low voltage on EN/FAULT pin can clear fault flag.
7. The trip current of this board is set to 2.5A, the hold current is set to 1.55A, rated output current should be less than hold current. And the output voltage rising time is set to 1.4ms. Both of the two parameters can be programmed. For detailed application, please refer to the MP5002DQ datasheet.

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