



The Future of Analog IC Technology®

EV6519-Q-00A

5A, 28V

H-Bridge Current Regulator  
Evaluation Board

## DESCRIPTION

The EV6519-Q-00A is an evaluation board for the MP6519, a monolithic, step-down, current-source driver. It operates from a supply voltage of up to 28V and can deliver current up to 5A.

The four integrated MOSFET H-bridge control provide a fast dynamic load response and an ultra-high efficiency solution. For ease of use, the output polarity can be controlled by pulling MODE high or low.

Full Protection features include load open, load-short protection, OCP, OTP, OVP.

## ELECTRICAL SPECIFICATIONS

Parameter	Symbol	Value	Units
Input Voltage	$V_{IN}$	2.5 – 28	V
Maximum Output Current	$I_{OUT-L}$	5	A

## FEATURES

- Wide 2.5V to 28V Input Voltage Range
- Up to 5A Output Peak Current
- $\pm 2\%$  Accuracy at Full-Scale Reference
- $65m\Omega$   $R_{DS(ON)}$  for Each MOSFET of H-Bridge
- 30kHz to 300kHz Programmable Switching Frequency
- 20k-100kHz PWM Input for Current Regulation
- Programmable Full-Scale Current
- Selectable Current Polarity Mode
- Open-Load Protection, OCP, OTP, OVP

## APPLICATIONS

- Current Regulators
- DC Motors
- Solenoid/Actuators

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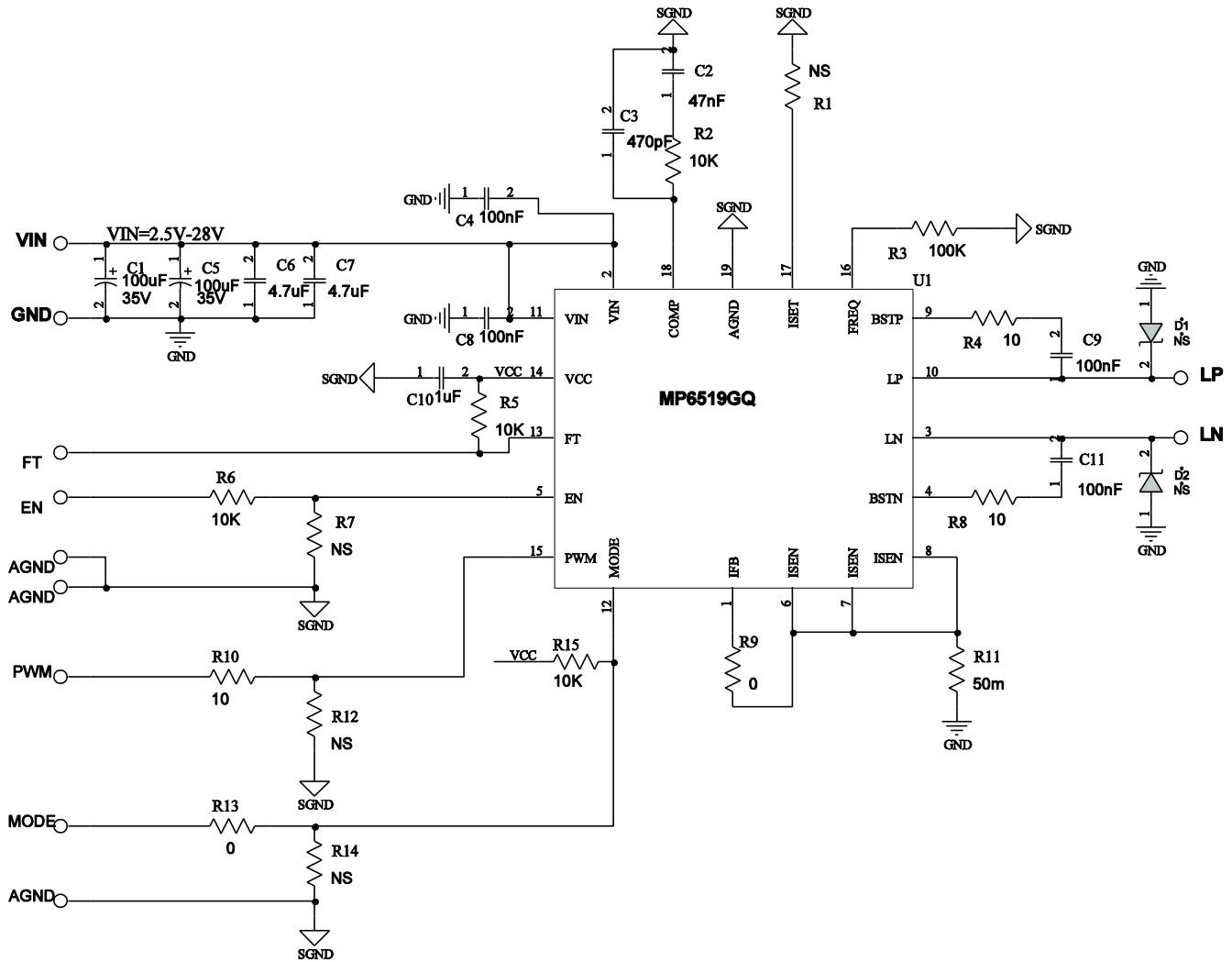
## EV6519-Q-00A EVALUATION BOARD



(L x W x H) 3.25" x 3.25" x 0.4"  
(8.13cm x 8.13cm x 1cm)

Board Number	MPS IC Number
EV6519-Q-00A	MP6519

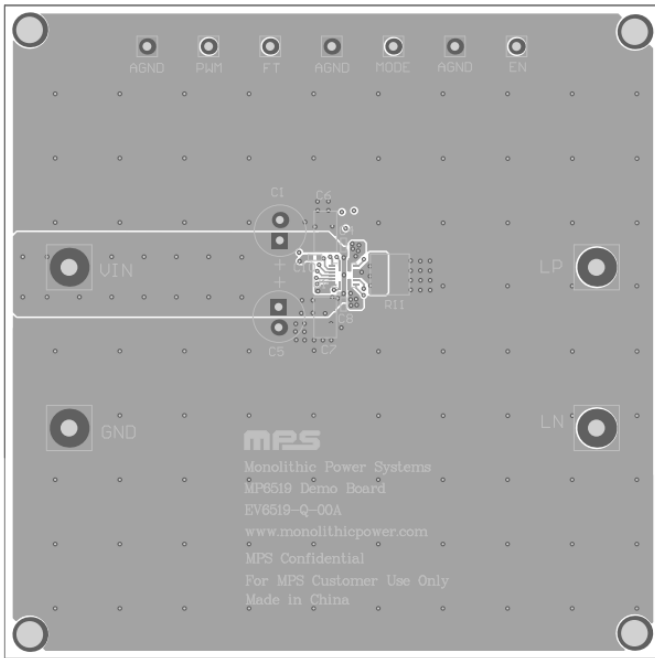
**EVALUATION BOARD SCHEMATIC**



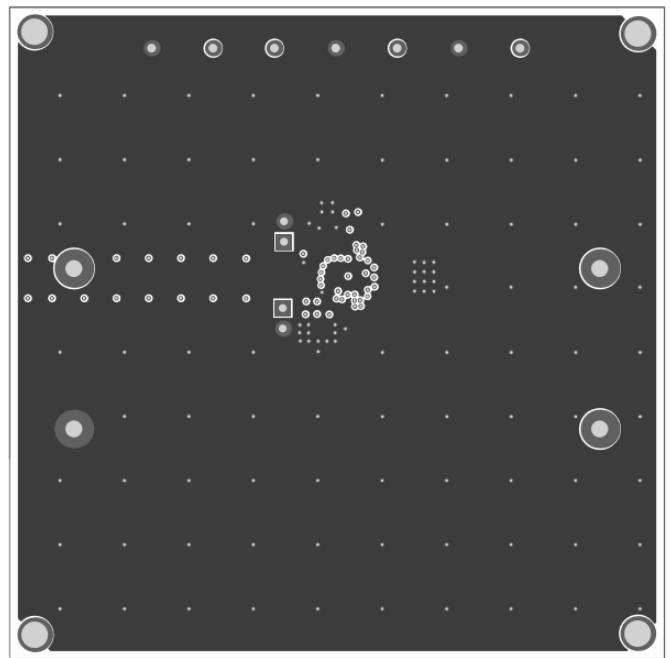
**EV6519-Q-00A BILL OF MATERIALS**

Qty	Ref	Value	Description	Package	Manufacturer	Part Number
2	C1, C5	100µF	Electrolytic Capacitor; 35V;Electrolytic	DIP	Jianghai	CD287-35V100
1	C2	47nF	Ceramic Capacitor; 50V;X7R;0402	0402	TDK	C1608X7R1H473K
1	C3	470pF	Ceramic Capacitor; 50V;X7R;0402	0402	muRata	GRM188R71H471KA01D
4	C4, C8, C9,C11	100nF	Ceramic Capacitor; 50V;X7R;0402	0402	TDK	C1005X7R1H104K
2	C6, C7	4.7µF	Ceramic Capacitor; 50V;X7R;1210;	1210	muRata	GRM32ER71H475KA88L
1	C10	1µF	Ceramic Capacitor; 25V;X7R;0402	0402	muRata	GRM155R61E105KA12
2	D1, D2	NS				
4	R1, R7, R12,R14	NS				
4	R2, R5, R6, R15	10k	Film Resistor;1%	0402	Yageo	RC0402FR-0710KL
1	R3	100k	Film Resistor;1%	0402	Yageo	RC0402FR-07100KL
3	R4, R8, R10	10	Film Resistor;1%	0402	Yageo	RC0402FR-0710RL
2	R9, R13	0	Film Resistor;1%	0402	Yageo	RC0402FR-070RL
1	R11	50m	Film Resistor;1%	3720	CYNTEC	RL3720WT-R050-FN
4	VIN, GND, LP, LN		Connector; 2MM			
7	AGND, PWM, FT, MODE, EN		Test point			
1	U1	MP6519GQ	Step down current driver	QFN-19 (3mmx3mm)	MPS	MP6519GQ-R2

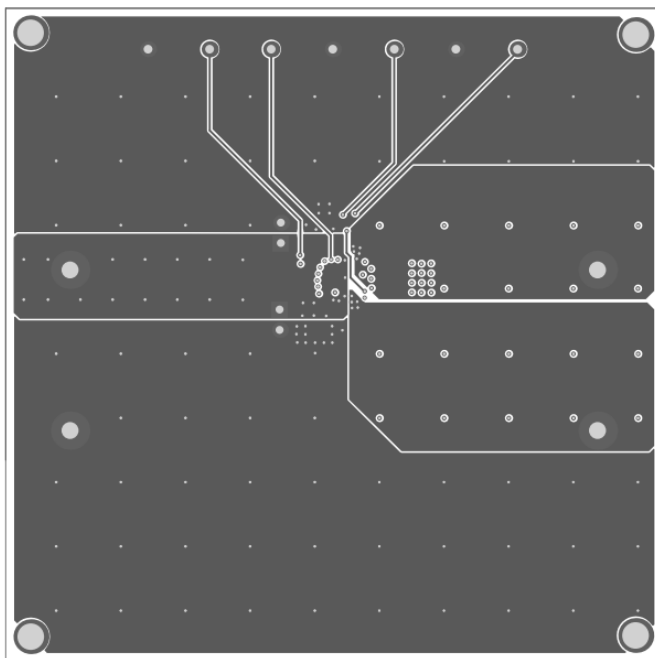
**PRINTED CIRCUIT BOARD LAYOUT**



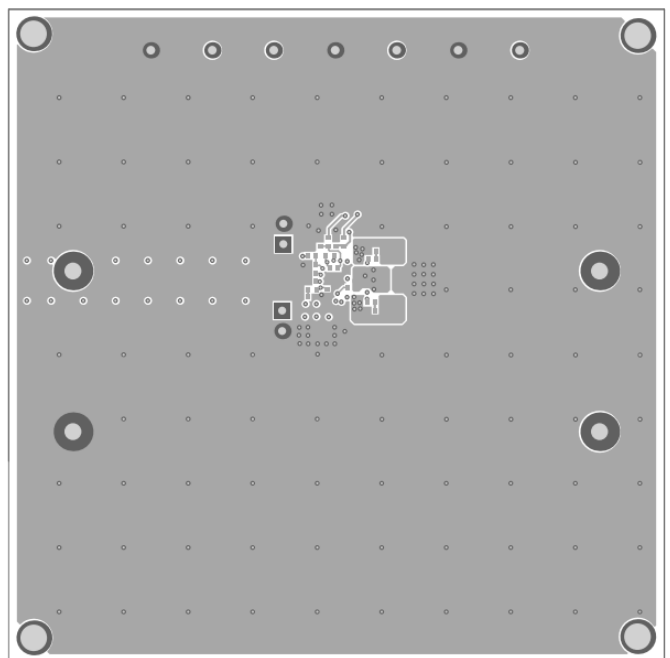
**Figure 1—Top Layer**



**Figure 2—Mid Layer 1**



**Figure 3—Mid Layer 2**



**Figure 4—Bottom Layer**

## QUICK START GUIDE

### 1. Power Requirements

- a. Power supply range: 2.5V to 28V, 5A Max.

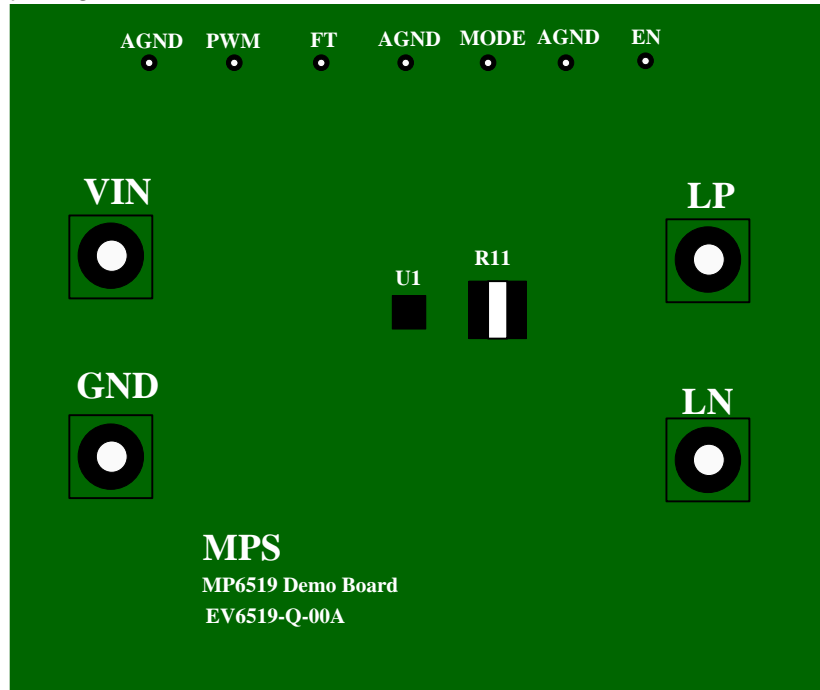


Figure 5 — EV6519-Q-00A Bird's-eye View

### 2. Setup Condition

- a. Adjust the power supply VIN with recommended operating range (2.5V to 28V).
- b. Connect proper load to LN and LP terminals.
- c. Apply external PWM signal with frequency range, 20kHz to 100kHz.
- d. Apply EN voltage (5V or 3.3V tolerance).
- e. Current direction is controlled by MODE pin, L=reverse, H=forward. MODE=H as default.
- f. The full-scale current reference value is set by R11. If the full-scale current reference is set, the actual output current sent to the error amplifier can be further controlled by applying a PWM input signal to PWM. Refer to the DS for details.

### 3. Monitors

- a. FT on the evaluation board indicates Over Temperature Protection and Over Current Protection. This is an open drain output with onboard 10k ohm pull-up resistor.

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