



EVHF300-J-00A

High-Frequency, Flyback Ideal Clamping Controller Evaluation Board

DESCRIPTION

The EVHF300-J-00A is an evaluation board designed to demonstrate the capabilities of the HF300, an ideal clamping controller.

The HF300 is an intelligent, high-frequency flyback ideal clamping controller that can be used to replace the passive RCD snubber in a flyback circuit to clamp the drain-to-source voltage spike that is caused by the leakage inductance (L_{LK}) after the primary main switch (e.g. MOSFET) turns off. The HF300 is compatible with many flyback operating modes, such as continuous conduction mode (CCM), discontinuous conduction mode (DCM), quasi-resonant (QR) operation and zero-voltage

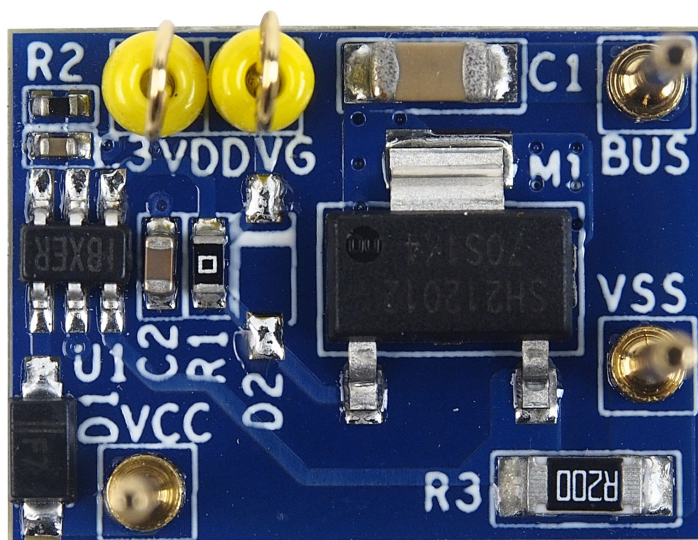
switching (ZVS) operation. It can also support up to 300kHz flyback applications, and can simultaneously improve flyback circuit efficiency.

The HF300 is the ideal substitute for a traditional RCD passive snubber, without significantly increasing the complexity or cost of the system.

The HF300 offers full protection features and flexible parameter settings, which ensures safe operation of the flyback circuit.

The HF300 is available in a space-saving TSOT23-6 package.

EVALUATION BOARD



LxW (1.9cmx1.4cm)

Board Number	MPS IC Number
EVHF300-J-00A	HF300GJ

QUICK START GUIDE

The EVHF300-J-00A evaluation board is easy to set up and use to evaluate the performance of the HF300. For proper measurement equipment set-up, refer to Figure 1 and follow the steps below:

1. Remove the RCD snubber on the flyback circuit's primary side.
2. Connect the EVHF300-J-00A's VSS and BUS terminals to the flyback circuit.
3. Connect the EVHF300-J-00A's VCC terminal to the primary controller's VCC supply capacitor.
4. Turn on the power supply. The IC should start up automatically, and actively clamp the drain-to-source spike.
5. Use differential probes to measure the HF300's signals (such as VG and VDD) if necessary.

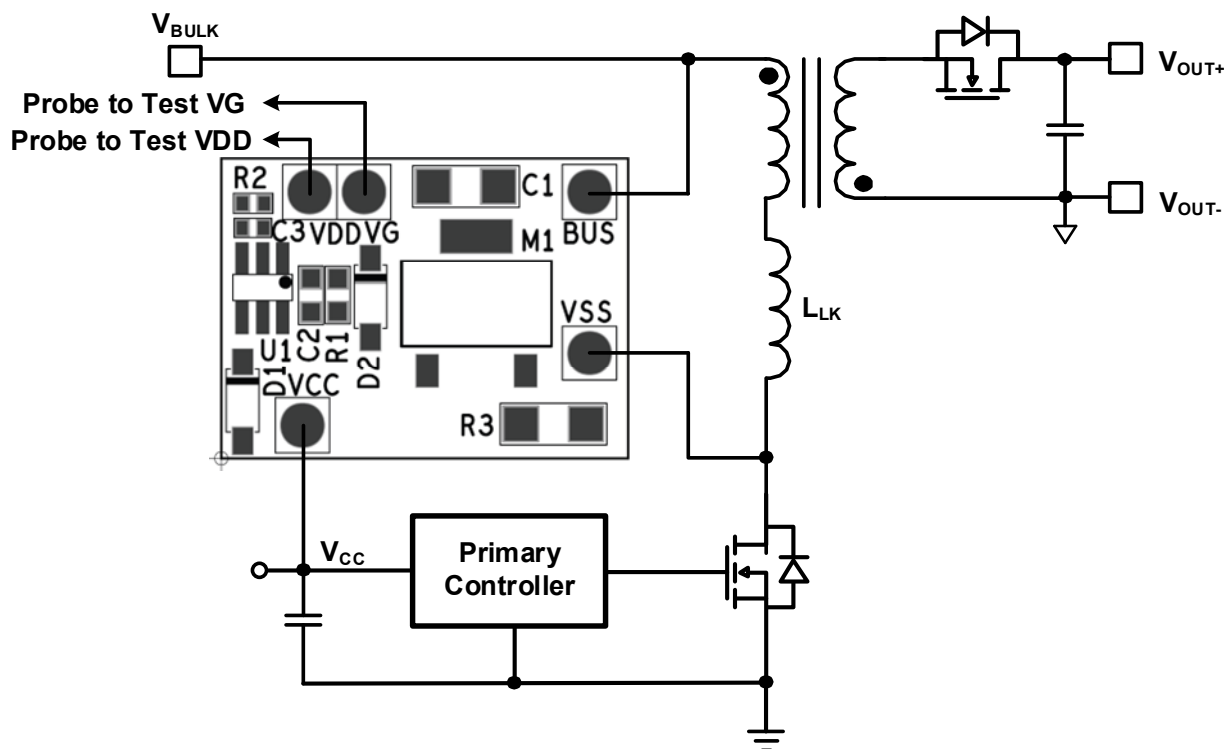


Figure 1: Measurement Equipment Set-Up

EVALUATION BOARD SCHEMATIC

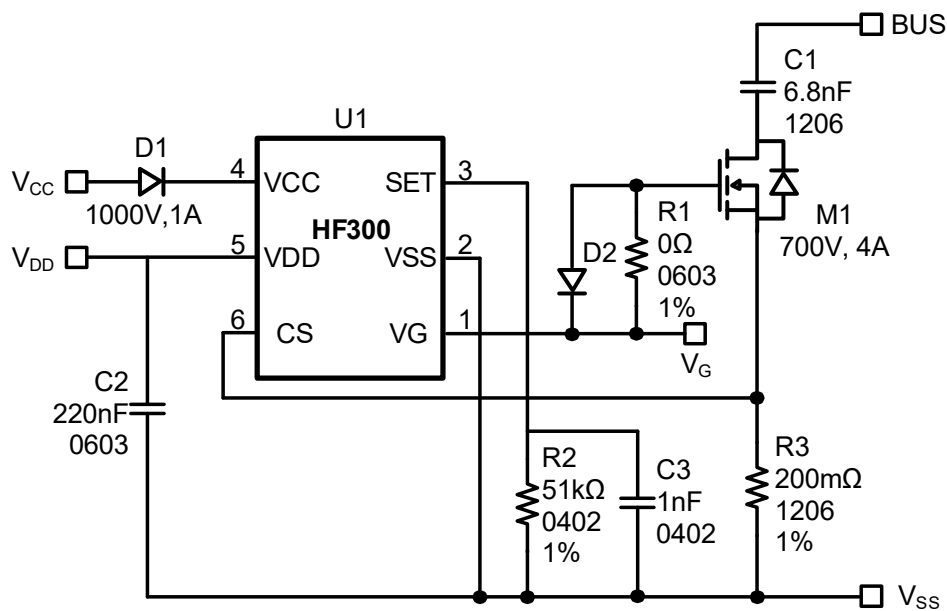


Figure 2: Evaluation Board Schematic

EVHF300-J-00A BILL OF MATERIALS

Qty	Ref	Value	Description	Package	Manufacturer	Manufacturer PN
1	C1	6.8nF	Capacitor, 630V, X7R	1206	Murata	GRM31BR72J682KW01
1	C2	220nf	Capacitor, 16V, X7R	0603	Murata	GRM188R71C224KA01D
1	C3	1nF	Capacitor, 16V, X7R	0402	Murata	GRM155R71C102KA01D
1	D1	1A	Diode, 1000V	SOD-123	MSV	FR107
1	D2	NC				
1	M1	700V	N-channel MOSFET, 4A	PG-SOT223	Infineon	IPN70R1K4P7S
1	R1	0Ω	Film resistor, 1%	0603	Yageo	RC0603FR-070RL
1	R2	51kΩ	Film resistor, 1%	0402	Yageo	RC0402FR-0751KL
1	R3	200mΩ	Film resistor, 1%	1206	Yageo	RL1206FR-070R2L
3	VSS, BUS, VCC	1mm	1mm connector pin	1mm	Any	
2	VG, VDD	1mm	1mm test point	1mm	Any	
1	U1	HF300	High-frequency, flyback ideal clamping controller	TSOT23-6	MPS	HF300GJ

PCB LAYOUT

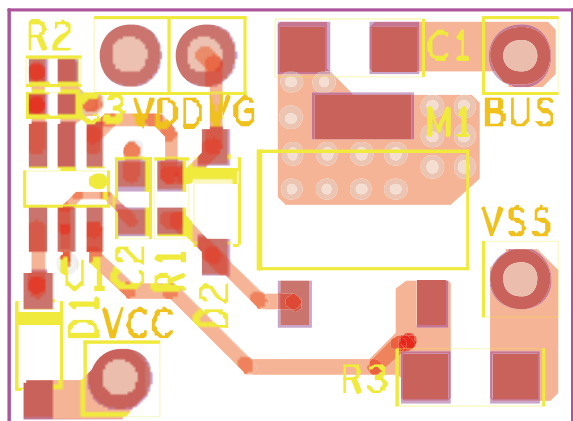


Figure 3: Top Layer

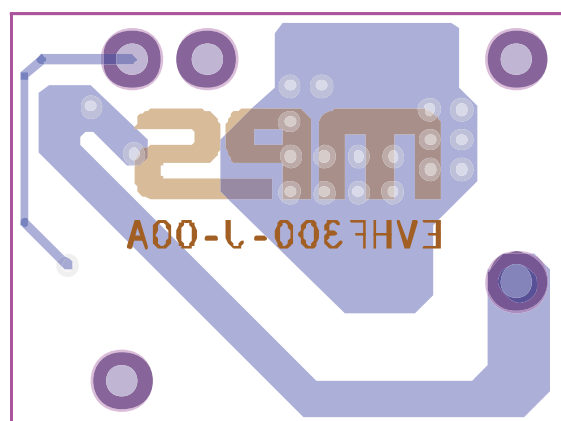


Figure 4: Bottom Layer



REVISION HISTORY

Revision #	Revision Date	Description	Pages Updated
1.0	3/1/2024	Initial Release	-

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