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## DESCRIPTION

Demonstration circuit 447 is a step-down converter featuring the LTC3728EUH regulator. The PolyPhase™ dual output controller LTC3728EUH drives two high current synchronous buck converters. Input is 5V–14V, output 1 is 2.5V with loads up to 13A and output 2 is 1.8V with loads up to 13A.

For applications with input voltage less than 5V, DC447 includes a circuit footprint on the bottom side to provide a 5V bias power supply.

**Design files for this circuit board are available. Call the LTC factory.**

**Table 1. Performance Summary**

PARAMETER	CONDITION	VALUE
Minimum Input Voltage		5V
Maximum Input Voltage		14V
V <sub>OUT1</sub>	V <sub>IN</sub> = 5V to 14V, I <sub>OUT1</sub> = 0A to 13A	2.5V
V <sub>OUT2</sub>	V <sub>IN</sub> = 5V to 14V, I <sub>OUT1</sub> = 0A to 13A	1.8V
Nominal Switching Frequency		450kHz

## QUICK START PROCEDURE

Demonstration circuit 447 is easy to set up to evaluate the performance of the LTC3728EUH. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

**NOTE:** When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the input or output and ground terminals. See Figure 2 for proper scope probe technique.

1. Before powering up, place the jumpers as shown in Figure 1.
2. Connect the loads at V<sub>OUT1</sub> and V<sub>OUT2</sub>. Set the load current to 0A.

3. With the power off, connect the input 5V–14V (recommended 12V) power supply to V<sub>IN</sub> and GND. V<sub>OUT1</sub> should be within 2.5V ±0.1V and V<sub>OUT2</sub> should be 1.8V ±0.1V.
4. Increase the load at V<sub>OUT1</sub> to 13A. With a 12V input, the input current should be less than 3.5A. Slowly decrease the input voltage to 5V. At 5V input voltage, the input current should be less than 8A.
5. Decrease the load at V<sub>OUT1</sub> to 0A. Increase the input voltage to 12V.
6. Increase the load on V<sub>OUT2</sub> to 13A. With a 12V input, the input current should be less than 2.5A. Slowly decrease the input voltage to 5V. At 5V input, the input current should be less than 6A.

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 447

## 2-PHASE DUAL OUTPUT POWER SUPPLY

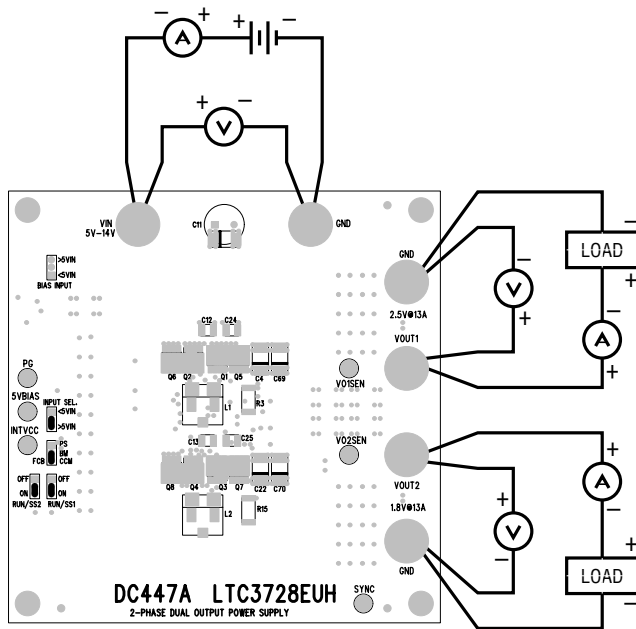


Figure 1. Proper Measurement Equipment Setup

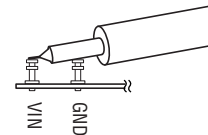
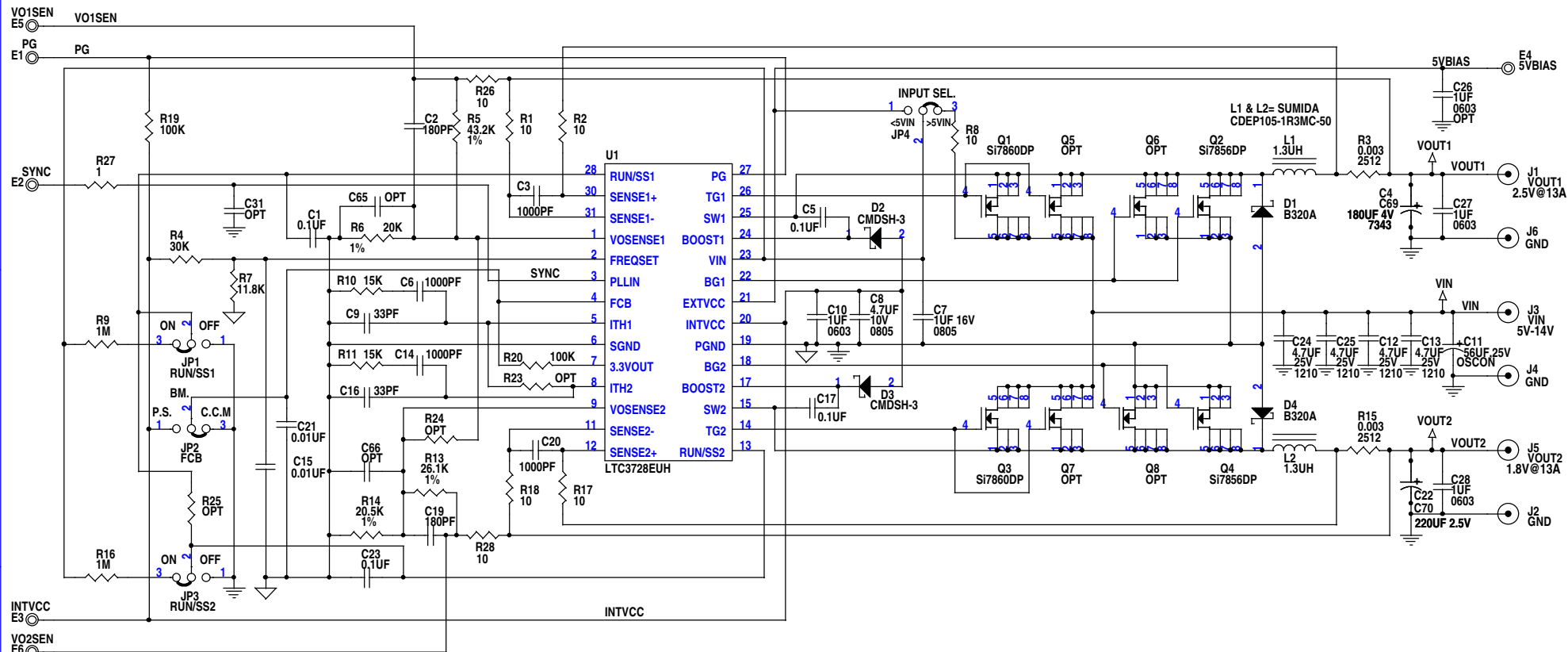
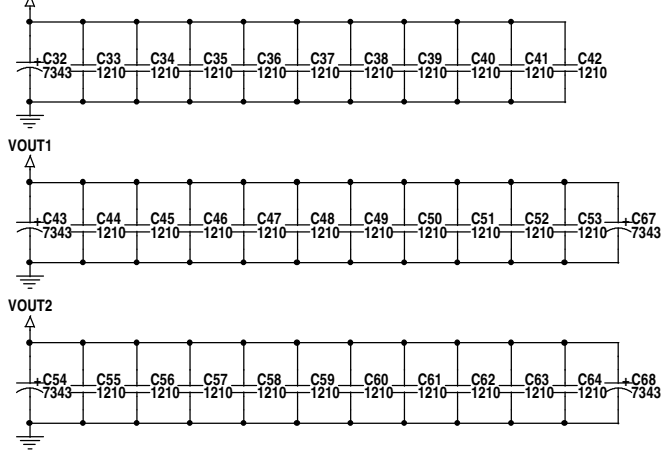


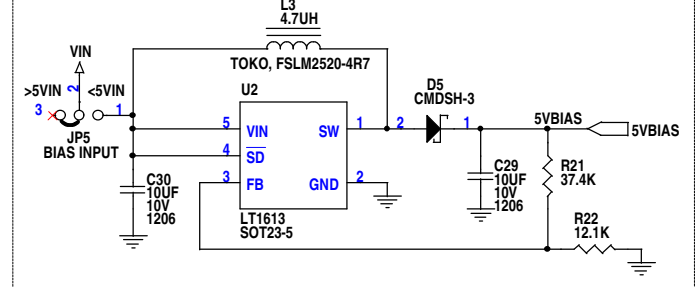
Figure 2. Scope Probe Placement for Measuring Input or Output Ripple



### OPTIONAL DISTRIBUTED CAPS



### OPTIONAL BIAS CIRCUIT



### NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE IN OHMS, 0603.
2. R23=R24=R25=0 OHM WILL B E ASSEMBLED ONLY IF TWO OUTPUTS ARE TIED TOGETHER FOR HIGH CURRENT OUTPUT.
3. INSTALL SHUN TS ON JP1-JP5 PIN 2 AND 3. IF VIN<5V, INST ALL SHUNTS ON JP4 AND JP5 PIN 1 AND 2.

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APPROVALS				
DRAWN: KIM T.	TITLE: <b>2-PHASE DUAL OUTPUT POWER SUPPLY</b>			
CHECKED:	SIZE: A	DWG NO. DC447A-1 * LTC37 28EUH	REV: A	
APPROVED:	DATE: Friday, August 02, 2002			SHEET 1 OF 1
ENGINEER: WEI C.				
DESIGNER:				