

DESCRIPTION

Demonstration circuits 1514A feature the LT3579 in Boost Regulator configuration. The Boost is designed to convert a 5V to 10V input source to 12V at 1.75A. DC1514A is designed to survive output short circuit events with the external MOSFET installed at the input as default. The board includes an option to install the MOSFET at the output side. To use it, install Q3, R9 (6.8K) and D2 on the back of the board and refer to Figure 3 for other instructions. Additionally, the board includes footprints for easy conversion to SEPIC or CUK converter. Install power components as indicated in Figure 4 and choose feedback resistor as needed. In either SEPIC or CUK mode, the input MOSFET is not necessary and can be removed. The LT3579 includes a 42V Master and Slave switch combination with 6A total current and can be used in

many configurations such as Boost, SEPIC, Cuk and Flyback. It has a 2.5V to 16V operating input range, UVLO, soft-start, programmable switching frequency and many other popular features. The LT3579 is suitable for many applications, such as Local Bias Supplies, VFD, TFT-LCD Supplies and Automotive Engine Control Power. The LT3579 datasheet gives a complete description of the part, its operation and application information. The datasheet must be read in conjunction with this quick start guide for working on or modifying the demo circuit 1514A.

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

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PERFORMANCE SUMMARY DC1514A

Specifications are at $T_A = 25^\circ\text{C}$

SYMBOL	PARAMETER FOR BOOST CONVERTER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{IN}	Input Supply Range		5		10	V
V_{OUT}	Output Voltage Accuracy	$V_{IN} = 5\text{V to } 10\text{V}, I_{LOAD} = 1.75\text{A}$	11.60	12	12.30	V
Efficiency		$V_{IN} = 5\text{V}, I_{LOAD} = 1.75\text{A}$		87		%
Ripple		$V_{IN} = 5\text{V}, I_{LOAD} = 1.75\text{A}$		150		mV
F_s	Switching Frequency			1		MHz

QUICK START PROCEDURE

Demonstration circuit 1514A is easy to set up to evaluate the performance of the LT3579. Refer to Figures 1 and 2 for proper measurement equipment setup and follow the procedure below:

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 Vin or Vout and GND terminals. See Figure 2 for proper scope probe technique.

1. Place jumper in the following position:

JP1 On

2. With power off, connect the input power supply to Vin and GND.

Apply 5V to input.

Check for the proper output voltages.

NOTE. If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

Once the proper output voltage is established, adjust the load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

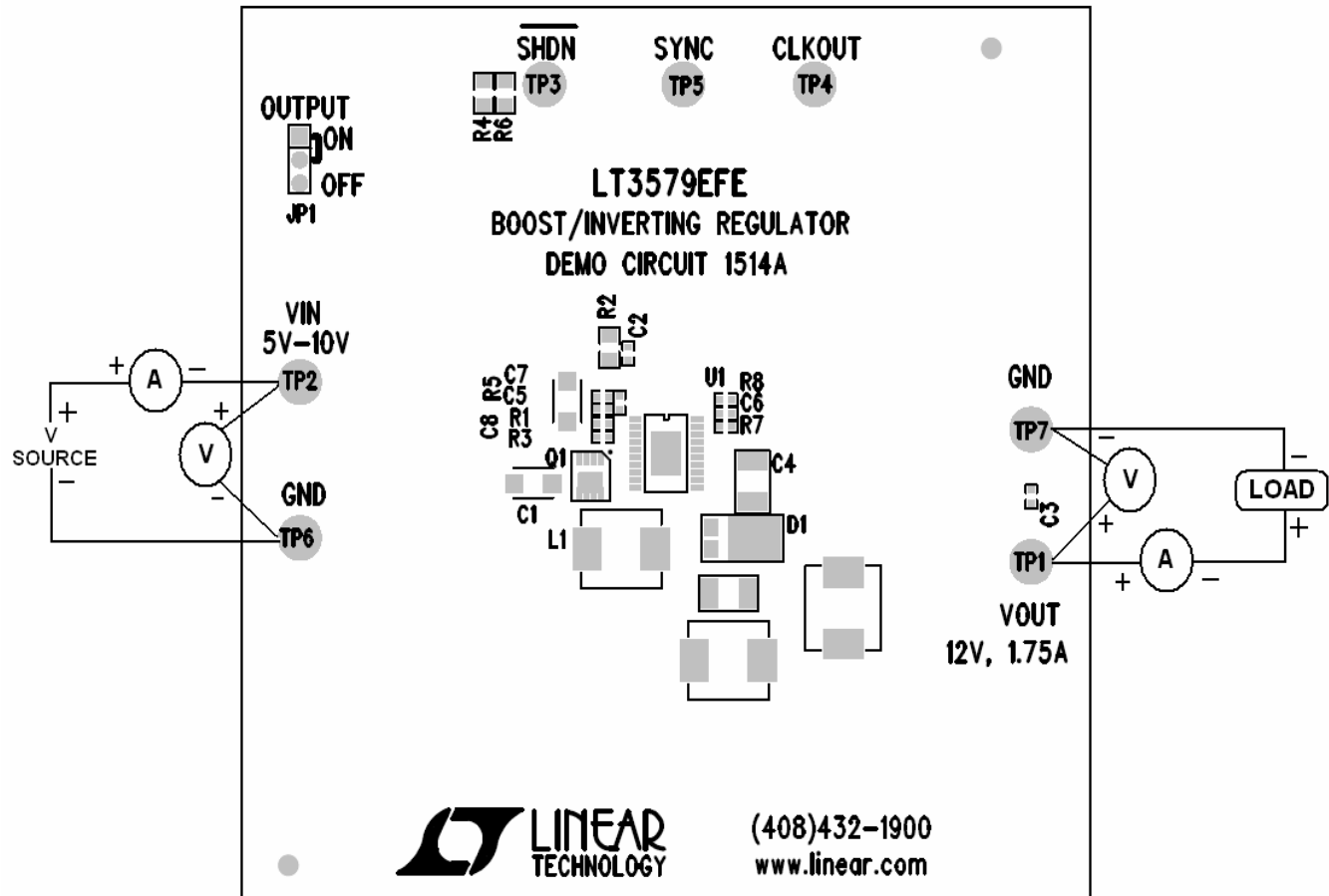


Figure 1. DC1514A Proper Equipment Setup

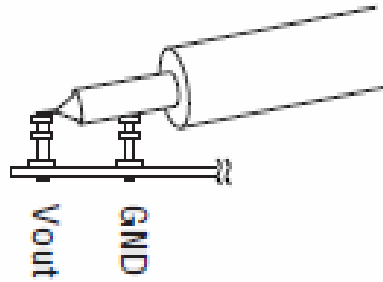


Figure 2. Proper Input/Output Ripple Measurement Technique

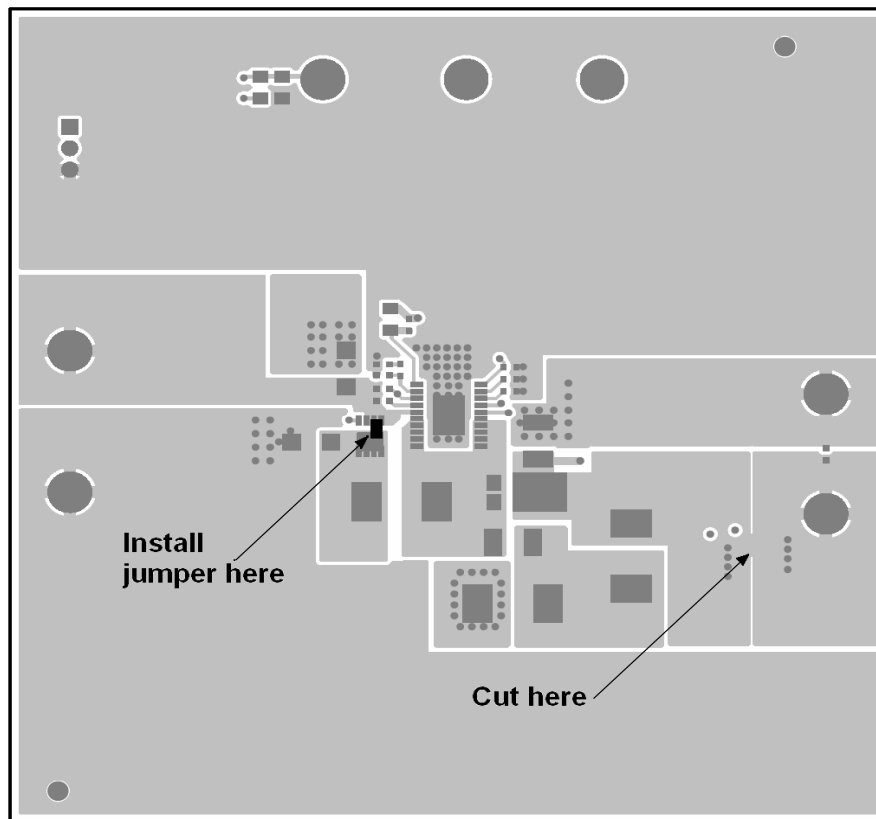


Figure 3. Instructions for using Disconnect MOSFET at the Output Side

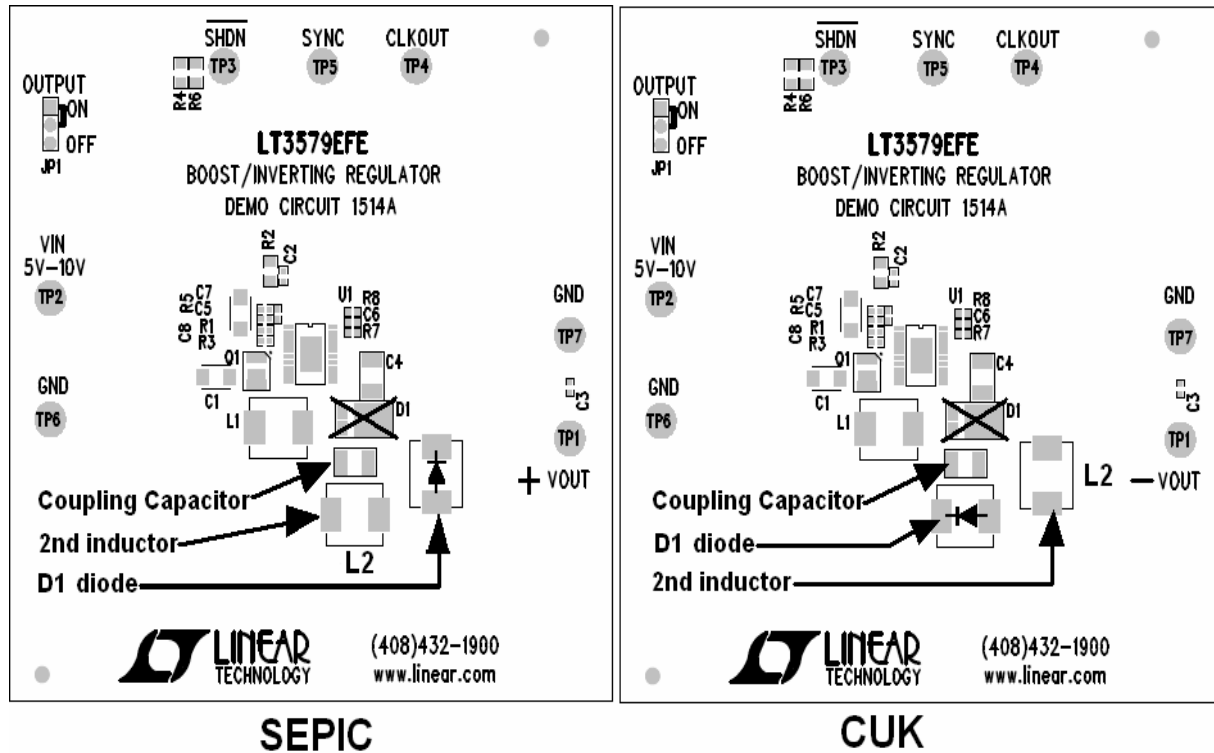
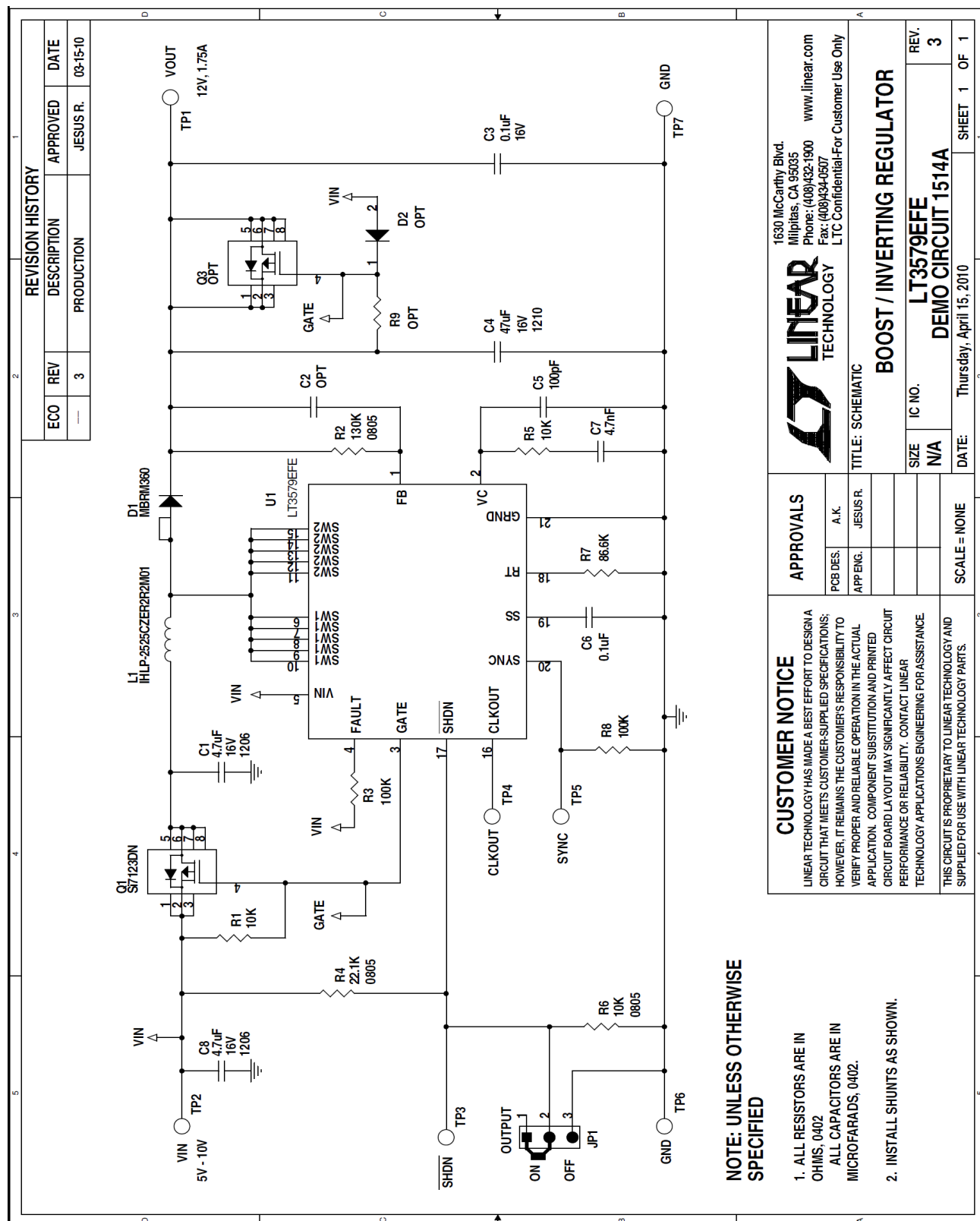


Figure 4. SEPIC or CUK Conversion Instructions



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