

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 670

## LT3462ES6 / LT3462AES6 INVERTING DC/DC CONVERTERS

### LT3462ES6 and LT3462AES6

## DESCRIPTION

Demonstration circuit 670 features two high frequency, monolithic LT<sup>®</sup>3462 and LT3462A inverting converters. Both circuits have 5V input voltage and -5V output voltage with 100mA maximum output current. Negative SEPIC converter topology is used to minimize the input and output voltage ripple. The LT3462 circuit is optimized for best efficiency with the 1.2MHz switching frequency. The LT3462A circuit is optimized for minimum circuit size and profile with the 2.7MHz switching frequency. Both circuits have small footprint size because of the integrated Schottky diode inside the ICs.

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

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**Table 1. Performance Summary (T<sub>A</sub> = 25°C)**

PARAMETER	CONDITION	VALUE
Input Voltage		5V ± 10%
Output Voltage V <sub>OUT</sub>	I <sub>OUT</sub> = 0A to 100mA	-5V ± 3%
Maximum Output Current		100mA
Typical Output Ripple Voltage	I <sub>OUT</sub> = 50mA , 20MHz BW	10mV <sub>p-p</sub>
Nominal Switching Frequency	LT3462ES6	1.2MHz
	LT3462AES6	2.7MHz
Efficiency	LT3462ES6, V <sub>IN</sub> = 5V, I <sub>OUT</sub> = 100mA	71% Typical
	LT3462AES6, V <sub>IN</sub> = 5V, I <sub>OUT</sub> = 100mA	61% Typical

## QUICK START PROCEDURE

Demonstration circuit 670 is easy to set up to evaluate the performance of the LT3462 and LT3462A. 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 Vin or Vout and GND terminals. See Figure 2 for proper scope probe technique.

1. Place both ON/OFF jumpers in the ON position.
2. With power off, connect the 5V input power supply to VIN and GND. Connect the load between VOUT and GND. Preset the load current at 0A (minimum).
3. Turn on the power at the input.

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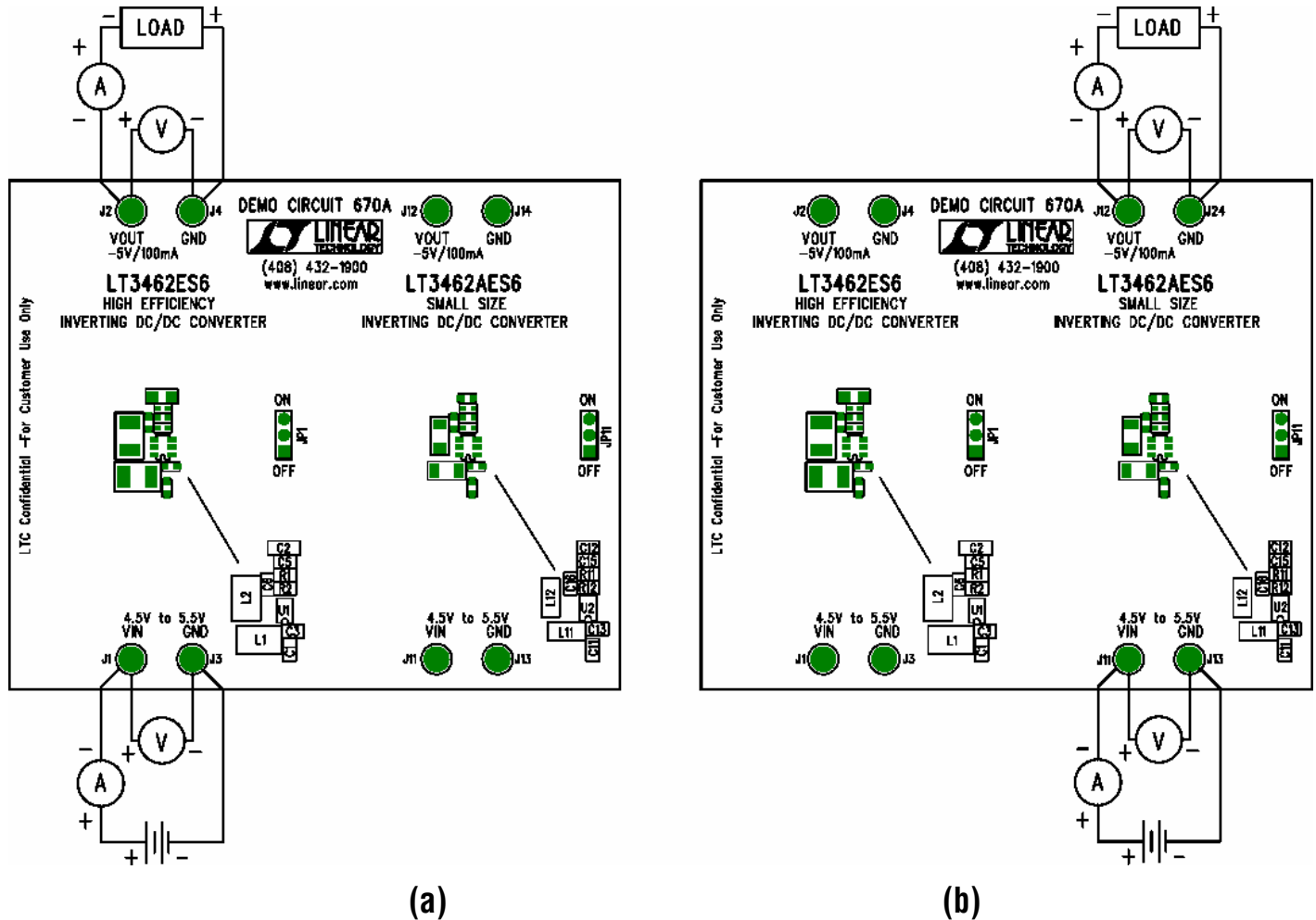
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**NOTE:** Make sure that the input voltage does not exceed 5.5V.

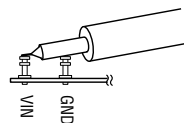
- Check for the proper output voltages.  $V_{out} = -4.85V$  to  $-5.15V$ .

**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 voltages are established, adjust the loads within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.



**Figure 1. Proper Measurement Equipment Setup**  
 (a) LT3462ES6 test setup, (b) LT3462AES6 test setup



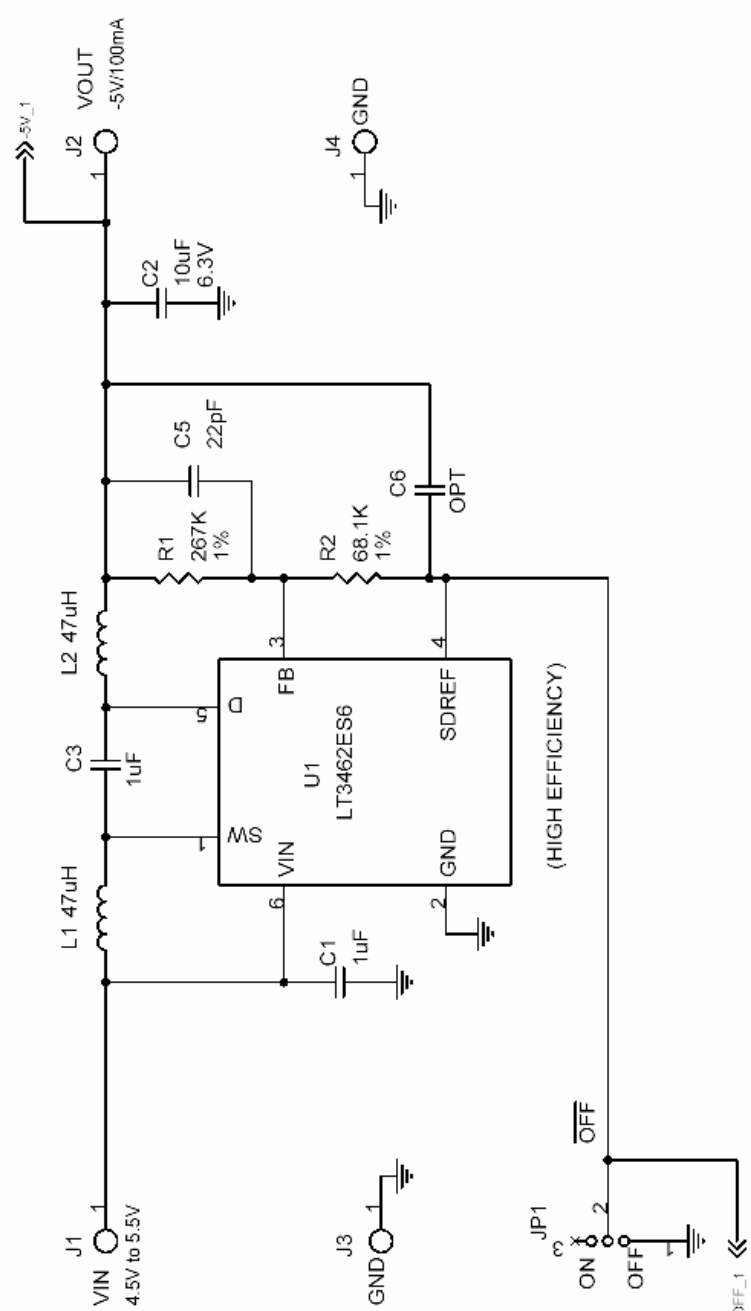
**Figure 2. Measuring Input or Output Ripple**



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This circuit is proprietary to Linear Technology and supplied for use with Linear Technology parts.  
**Customer Notice:** Linear Technology has made a best effort to design a circuit that meets customer-supplied specifications; however, it remains the customer's responsibility to verify proper and reliable operation in the actual application. Component substitution and printed circuit board layout may significantly affect circuit performance or reliability. Contact Linear Applications Engineering for assistance.



### REVISION HISTORY

ECO	REV	DESCRIPTION	DATE	APPROVED
	2	PROTO	01/22/04	

CONTRACT NO.		APPROVALS	DATE
		MEI	03/28/03
		CHECKED	
		APPROVED	
		ENGINEER	
		DESIGNER	
Monday, May 17, 2004			

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		TITLE SCH. 1, LT3462ES6/LT3462AES6 INVERTING DC/DC CONVERTER	
SIZE	CAGE CODE	DWG NO	REV
		DC670A	2
SCALE:	FILENAME: 670A-2.DSN	SHEET	OF
		1	2

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