

## DESCRIPTION

Demonstration circuit 612 features the LT3464ETS8 in two boost converter circuits, one configured for small size and the other for high performance. The small size circuit demonstrates the LT3464's ability to operate with a small 10 $\mu$ H chip inductor and a 0.22 $\mu$ F output capacitor. The high performance circuit uses a 47 $\mu$ H inductor and 1.0 $\mu$ F output capacitor and provides higher output current and efficiency. Refer to Tables 1 and 2 for the performance summary. The Burst Mode Operation of the LT3464 allows the circuits to have a low input current at

no load and high efficiency over a broad current range making it an ideal part for LCD bias applications as well as cellular phones, digital cameras and handheld computers. In addition, the LT3464's integrated schottky reduces parts count, its integrated PNP disconnect switch removes the load from the input during shutdown and provides short circuit protection, and its CNTL pin allows the output voltage to be externally controlled.

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

**Table 1. Performance Summary for the Small Size Circuit**

PARAMETER	CONDITION	VALUE
Input Voltage Range		2.3V to 10.0V
V <sub>OUT</sub>	0mA to I <sub>OUT(MAX)</sub>	20.0V $\pm$ 4%
I <sub>OUT(MAX)</sub>	V <sub>IN</sub> = 3.6V	3mA
	V <sub>IN</sub> = 5.0V	4mA
	V <sub>IN</sub> = 8.4V	6mA
Typical output ripple	V <sub>IN</sub> = 3.6V, I <sub>OUT</sub> = 3mA	100mV p-p
Typical efficiency	V <sub>IN</sub> = 3.6V, I <sub>OUT</sub> = 3mA	60%
Typical no load input current	V <sub>IN</sub> = 3.6V, I <sub>OUT</sub> = 0mA	85 $\mu$ A

**Table 2. Performance Summary for the High Performance Circuit**

PARAMETER	CONDITION	VALUE
Input Voltage Range		2.3V to 10.0V
V <sub>OUT</sub>	0mA to I <sub>OUT(MAX)</sub>	15.0V $\pm$ 4%
I <sub>OUT(MAX)</sub>	V <sub>IN</sub> = 3.6V	9mA
	V <sub>IN</sub> = 5.0V	14mA
	V <sub>IN</sub> = 8.4V	25mA
Typical output ripple	V <sub>IN</sub> = 3.6V, I <sub>OUT</sub> = 9mA	100mV p-p
Typical efficiency	V <sub>IN</sub> = 3.6V, I <sub>OUT</sub> = 9mA	77%
Typical no load input current	V <sub>IN</sub> = 3.6V, I <sub>OUT</sub> = 0mA	60 $\mu$ A

## QUICK START PROCEDURE

Demonstration circuit 612 is easy to set up to evaluate the performance of the LT3464ETS8. 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. Make sure the SHDN jumper is in the ON position and the CNTL jumper is in the INT REF position.
2. Turn on the input voltage source and set it to 3.6V.
3. Monitor the output voltage. For the small size circuit, the output voltage should be 20.0V  $\pm$ 4% and for the

high performance circuit, the output voltage should be 15.0V  $\pm$ 4%.

4. Apply the full rated load to the output for an input voltage of 3.6V. For the small size circuit, this is 3mA and for the high performance circuit, this is 9mA. The output voltage should still be within regulation.
5. With full rated load applied and with the input voltage still at 3.6V, measure the input current. For the small size circuit, the input current should be less than 31.0mA. For the high performance circuit, the input current should be less than 54.0mA.
6. 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.

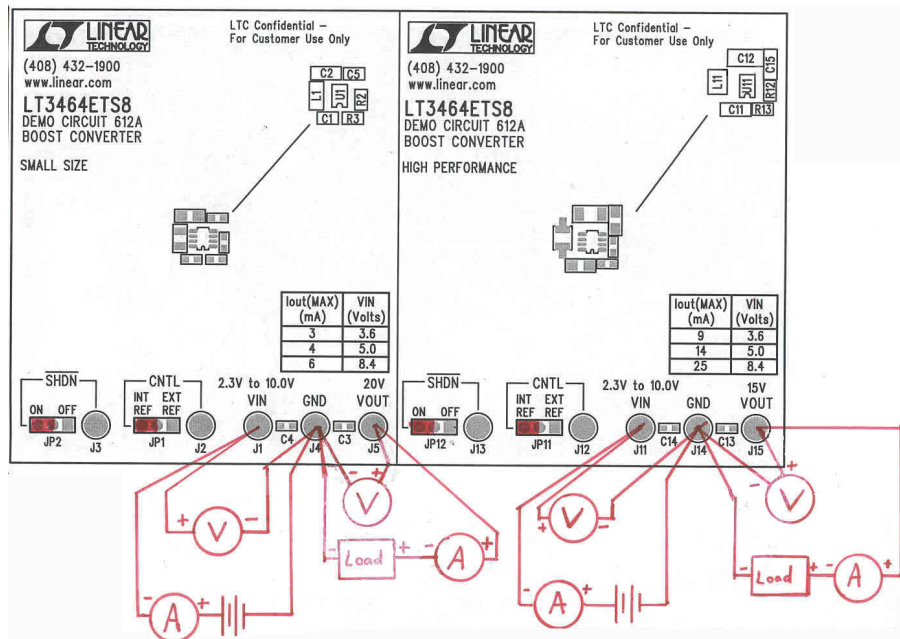


Figure 1. Proper Measurement Equipment Setup

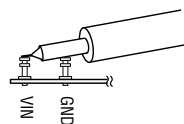
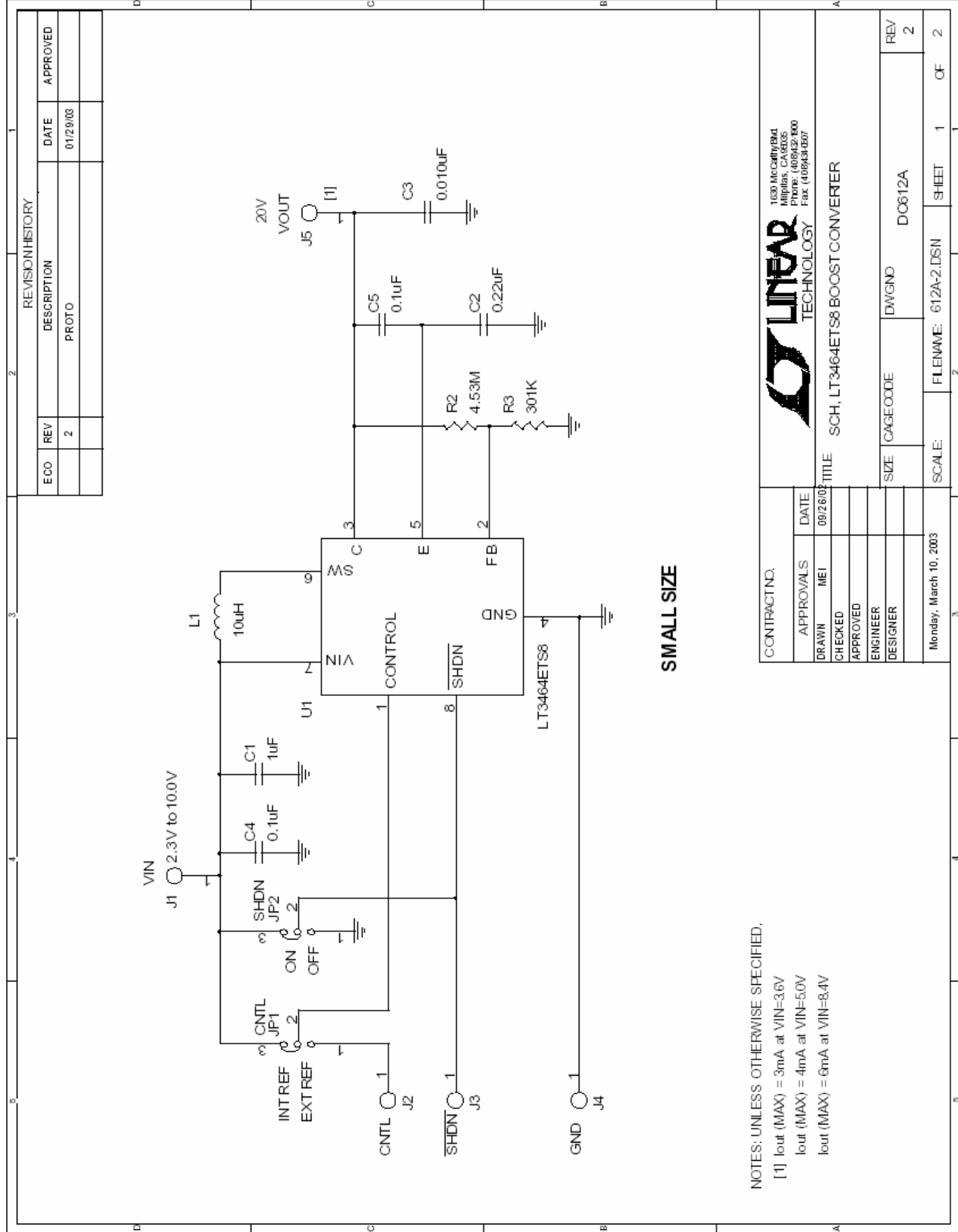


Figure 2. Measuring Input or Output Ripple

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 612 BOOST CONVERTER



**SMALL SIZE**

NOTES: UNLESS OTHERWISE SPECIFIED,

- [1] Iout (MAX) = 3mA at VIN=3.6V
- Iout (MAX) = 4mA at VIN=5.0V
- Iout (MAX) = 6mA at VIN=8.4V

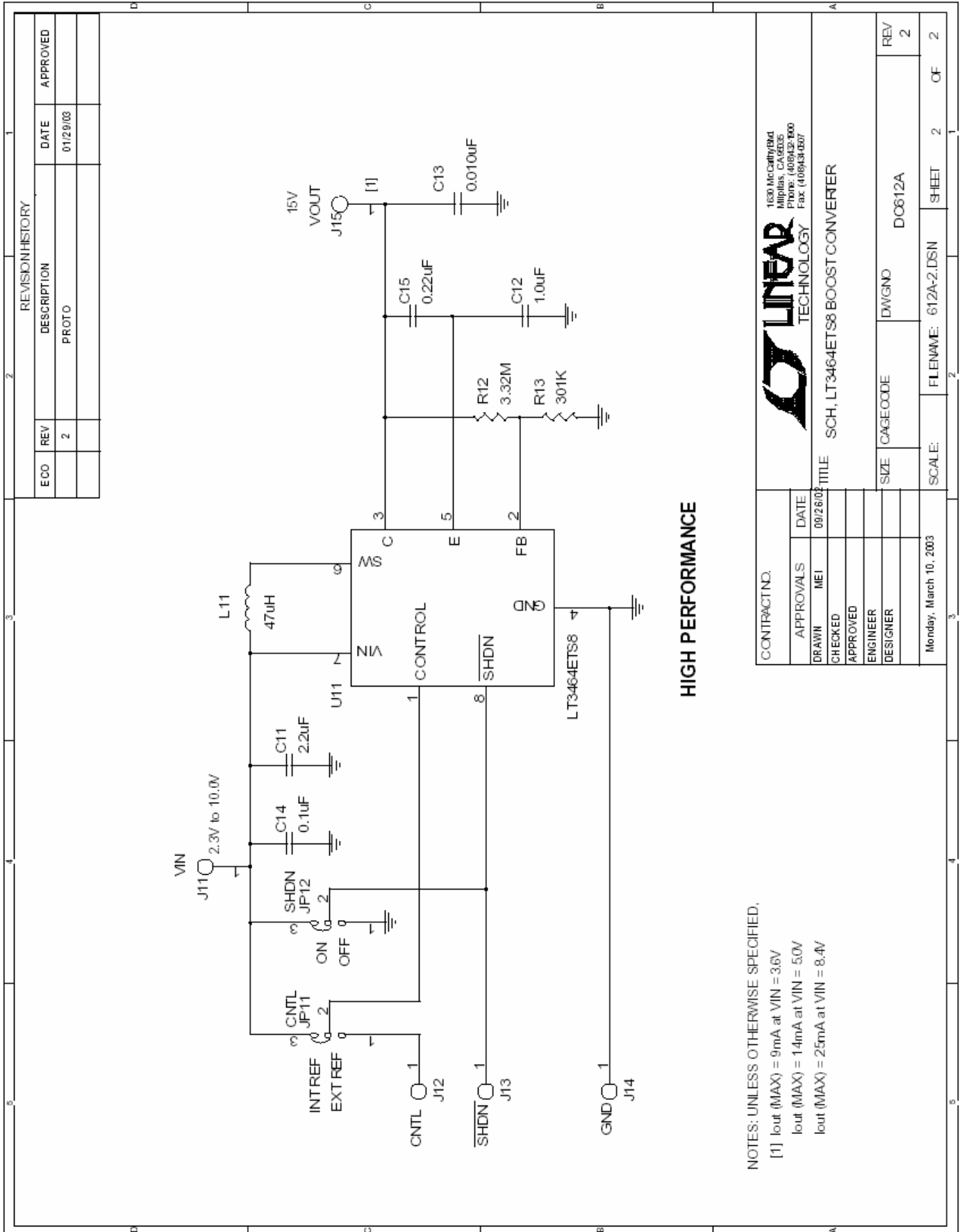
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		DATE
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CONTRACT NO.		DATE	
APPROVALS	MEI	08/26/02	
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ENGINEER			
DESIGNER			
Monday, March 10, 2003		3	
TITLE		SCH, LT3464ETS8 BOOST CONVERTER	
SIZE	CAGE CODE	DWG NO	REV
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# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 612 BOOST CONVERTER




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	2	PROTO	01/29/03	

## HIGH PERFORMANCE

NOTES: UNLESS OTHERWISE SPECIFIED,

- [1] I<sub>out</sub> (MAX) = 9mA at V<sub>IN</sub> = 3.6V
- I<sub>out</sub> (MAX) = 14mA at V<sub>IN</sub> = 5.0V
- I<sub>out</sub> (MAX) = 25mA at V<sub>IN</sub> = 8.4V

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