

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 878

## 1MHZ SYNCHRONOUS STEP-UP DC/DC CONVERTER

### LTC3458LEDE

## DESCRIPTION

Demonstration circuit 878 is a 1MHz Synchronous Step-Up DC/DC Converter featuring the LTC®3458LEDE. The demo board demonstrates a DC/DC boost converter, with a 1.7A switch, providing 5V at 300mA to 900mA depending on input voltage. The circuit demonstrates the advantages of output disconnect and inrush current limiting. Small circuit size and low component count make the LTC3458L suitable for use in many space-conscious applications such as handheld instruments, point-of-load

converters, USB VBUS Power and OLED displays. Other integrated features include externally programmable burst mode threshold, peak current limit, soft-start, antiringing control and thermal shutdown.

**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)**

PARAMETERS	CONDITION	VALUE
Minimum Input Voltage		2.0V
Maximum Input Voltage		5V
Output Voltage V <sub>OUT</sub>	V <sub>IN</sub> = 2V, I <sub>OUT</sub> = 300mA	5V ±3%
Output Voltage V <sub>OUT</sub>	V <sub>IN</sub> = 2.7V, I <sub>OUT</sub> = 450mA	5V ±3%
Output Voltage V <sub>OUT</sub>	V <sub>IN</sub> = 3.3V, I <sub>OUT</sub> = 650mA	5V ±3%
Output Voltage V <sub>OUT</sub>	V <sub>IN</sub> = 4.2V, I <sub>OUT</sub> = 900mA	5V ±3%
Typical Output Ripple V <sub>OUT</sub>	V <sub>IN</sub> = 3.3V, I <sub>OUT</sub> = 650mA	30mV <sub>P-P</sub>
Typical efficiency	V <sub>IN</sub> = 4.2V, I <sub>OUT</sub> = 900mA	86%

C9 used only when operating supply with long inductive input leads.

## QUICK START PROCEDURE

Demonstration circuit 878 is easy to set up to evaluate the performance of the LTC3458LEDE. 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.

- Place jumpers in the following positions:  
**JP1 Run, JP2 Auto on.**
- With power off, connect the input power supply to Vin and GND.
- Turn on the power at the input.  
**NOTE:** Make sure that the input voltage does not exceed 6V.
- Check for the proper output voltages.

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

**NOTE:** 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.

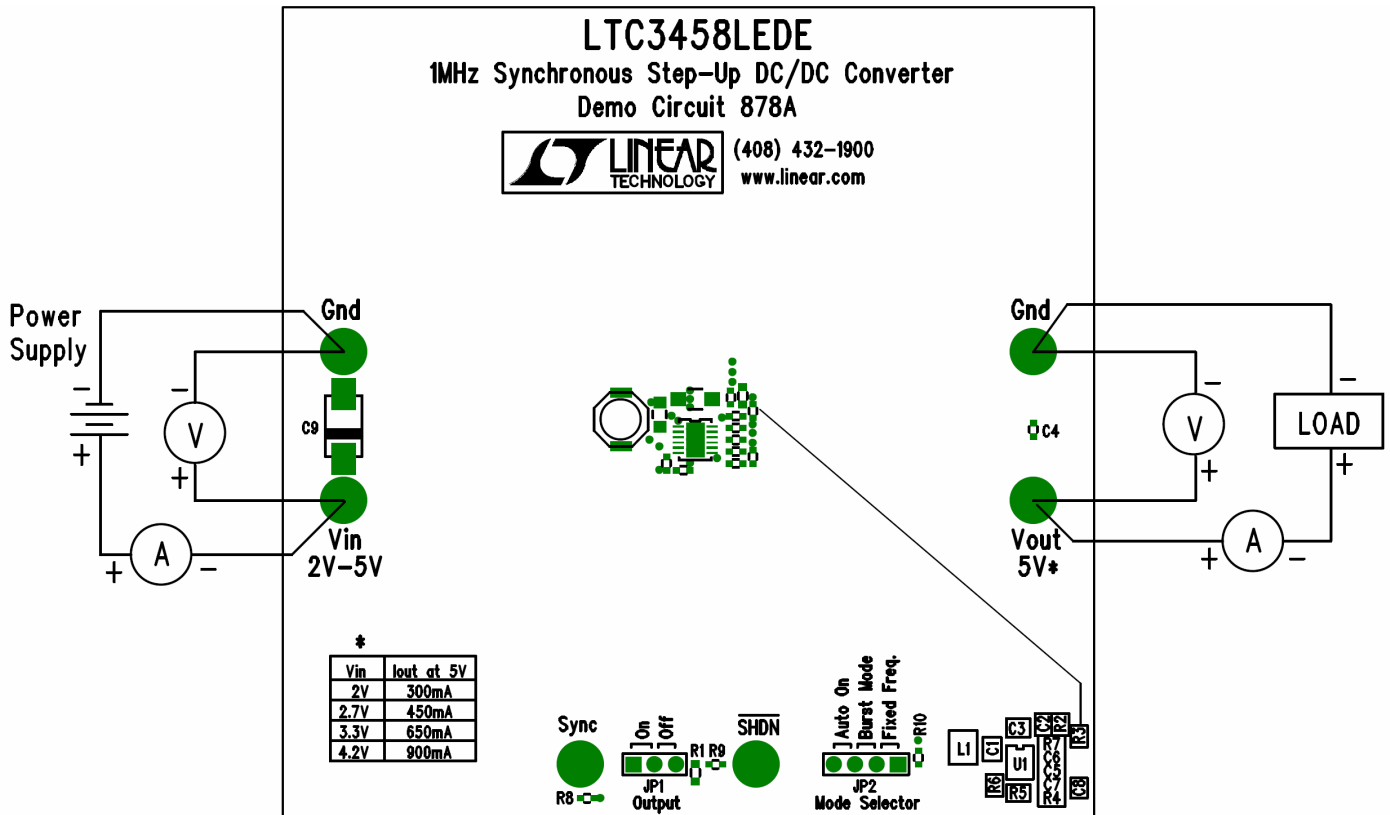


Figure 1. Proper Measurement Equipment Setup

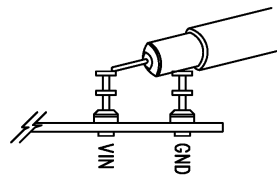
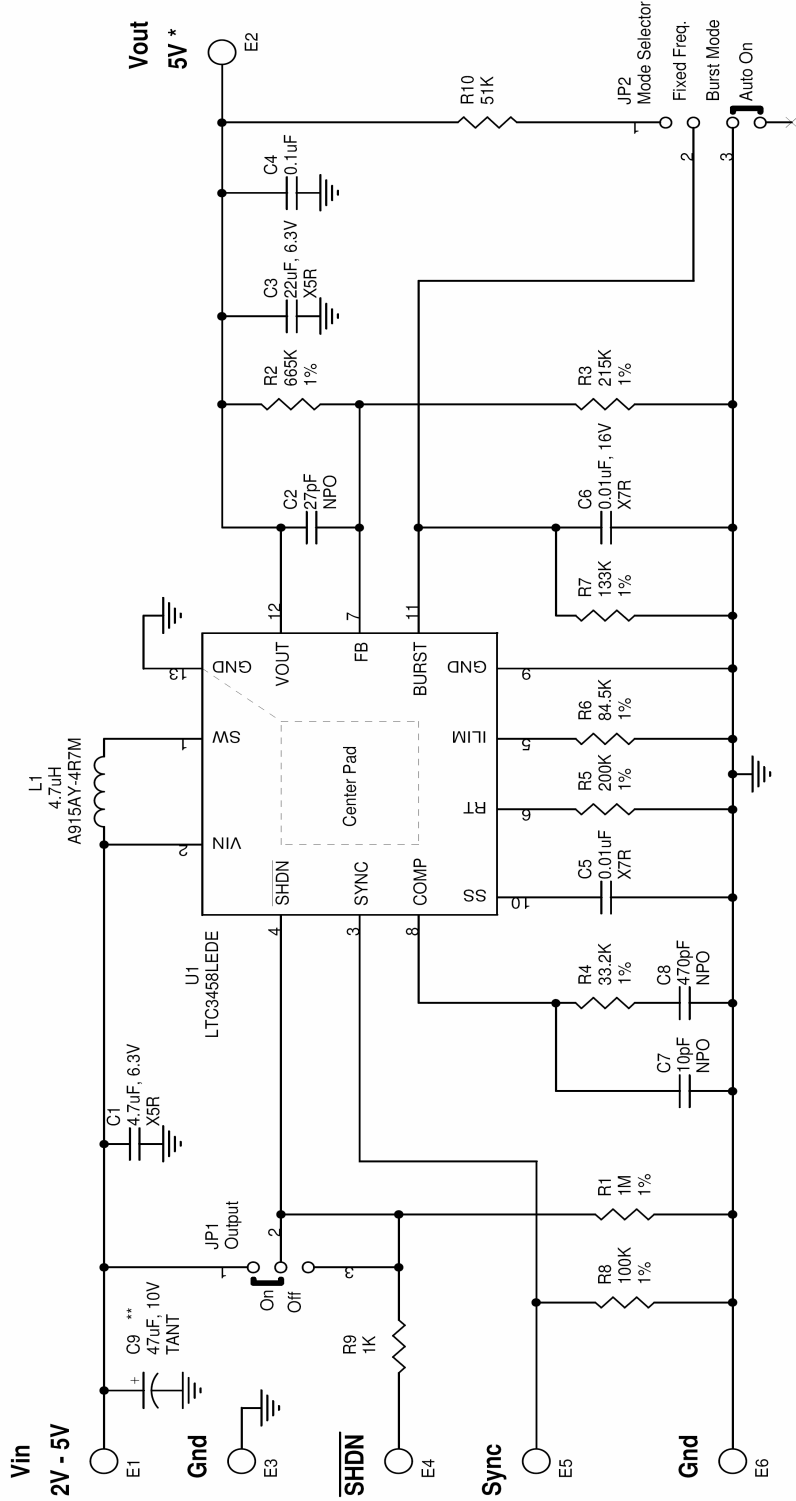


Figure 2. Measuring Input or Output Ripple

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NOTES: UNLESS OTHERWISE SPECIFIED



\*\* C9 Used Only When Operating Supply With Long Inductive Input Leads.

\*

Vin	Iout at 5V
2V	300mA
2.7V	450mA
3.3V	650mA
4.2V	900mA

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### 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 Technology Applications Engineering For Assistance. This Circuit Is Proprietary To Linear Technology And Supplied For Use With Linear Technology Parts.

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1MHz Synchronous Step-Up DC/DC Converter

Size	Document Number	Rev
	Demo Circuit 878A	LTC3458LEDE
Date:	Wednesday, April 06, 2005	Sheet 1 of 1

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