

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 545

MICROPOWER STEP-UP SWITCHING REGULATOR IN SC-70

LT3460ESC6

DESCRIPTION

Demonstration circuit 545 features the LT3460, step-up DC/DC converter with 1.3MHz constant frequency in a SC70 package. There are two switching regulator circuits in DC545. The 12V output boost converter (upper circuit) is designed to convert 5V input to 12V output at 70mA of load current and the SEPIC converter (lower circuit) is designed to convert 10V ~ 16V input to 12V at 50mA.

Each circuit has a jumper for testing SHDN mode operation. Placing the jumper (JP1 & JP2) to “Hi” enables LT3460 operation and placing the jumper to “Lo” disables the LT3460 and the converter will turn off.

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

Table 1. Performance Summary

PARAMETER	CONDITION	VALUE
Input Voltage	Boost Converter	5V
	SEPIC Converter	10V ~ 16V
Maximum Output Current	Boost Converter	70mA
	SEPIC Converter	50mA
V _{OUT REG}	Boost Converter	≅ 250mV
	SEPIC Converter	≅ 200mV

QUICK START PROCEDURE

12V OUTPUT BOOST CONVERTER (UPPER CIRCUIT)

Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Connect the input power supply (set at 5V) to **Vin** and **GND** pins of the **boost converter**.
2. Turn on the input power supply and observe the output voltage, the output voltage should read $\cong 12V$
3. Turn on the load preset at **70mA**. The input current should read around $\cong 200mA$ and the output voltage should be $12.1V \pm 0.25V$.
4. Check the output ripple using the oscilloscope (refer to Figure 3). The output ripple should not be greater than 60mV. Also check the switching frequency, it should be $\cong 1.3MHz$.

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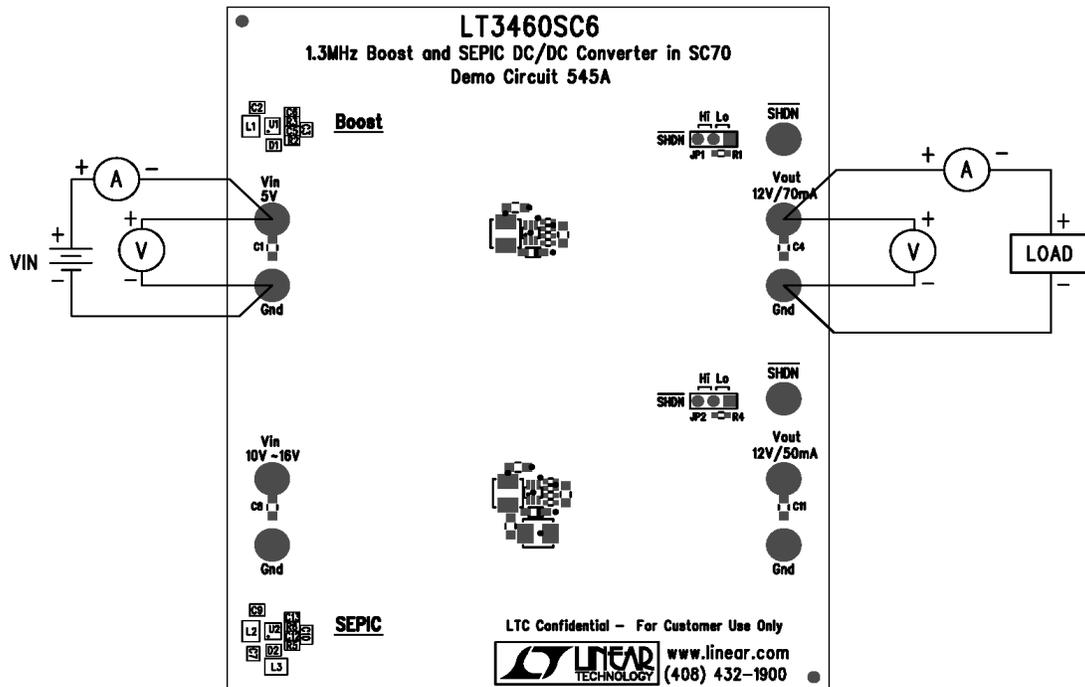


Figure 1. Proper Measurement Equipment Setup

12V OUTPUT SEPIC CONVERTER (LOWER CIRCUIT)

Refer to Figure 2 for proper measurement equipment setup and follow the procedure below:

1. Connect the input power supply (set at 10V) to the **Vin** and **GND** pins of the **SEPIC converter**.
2. Turn on the input power supply. The output voltages should read 0V.
3. Turn on the load box preset at 50mA. The input current should read around $\approx 75\text{mA}$ and the output voltage should now read $12.1\text{V} \pm 0.20\text{V}$.
4. Slowly change the input power supply voltage from 10V to 16V while observing the output voltage. The output should stay within $12.1\text{V} \pm 0.20\text{V}$.
5. Observe the input current at 16V, it should read around 50mA.
6. Change the input power supply back to 10V and check the output ripple using the oscilloscope (refer to Figure 3). The output ripple should not be greater than 60mV. Also check the switching frequency, it should be $\approx 1.3\text{MHz}$.

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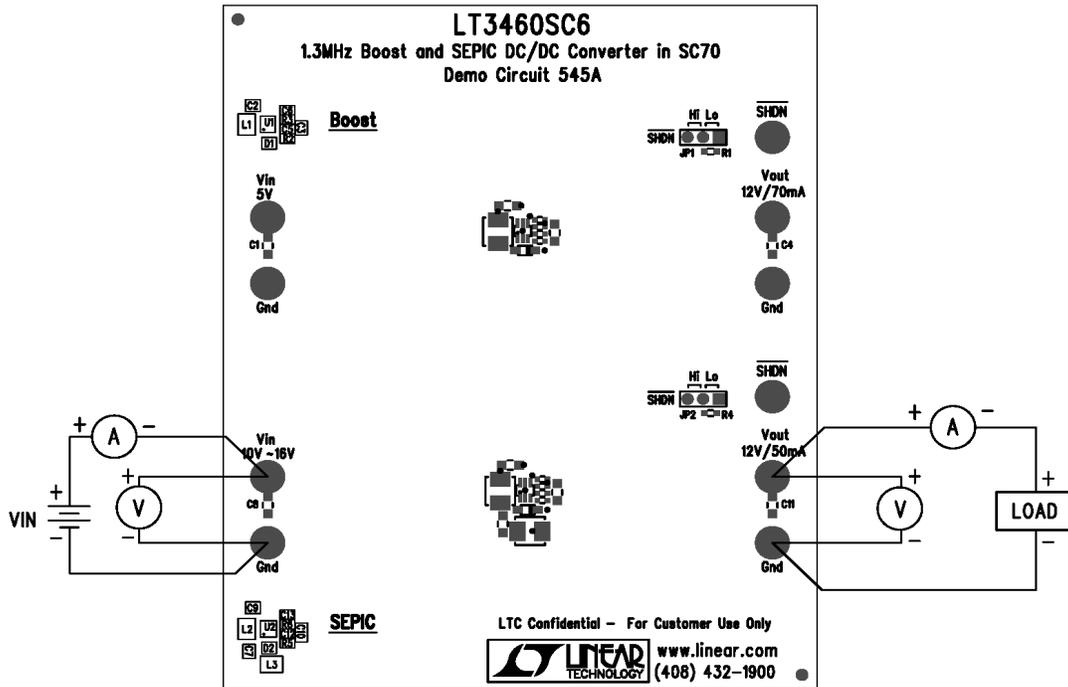


Figure 2. Proper Measurement Equipment Setup

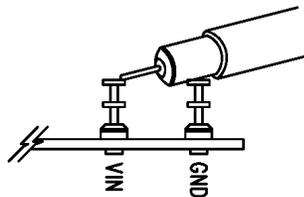
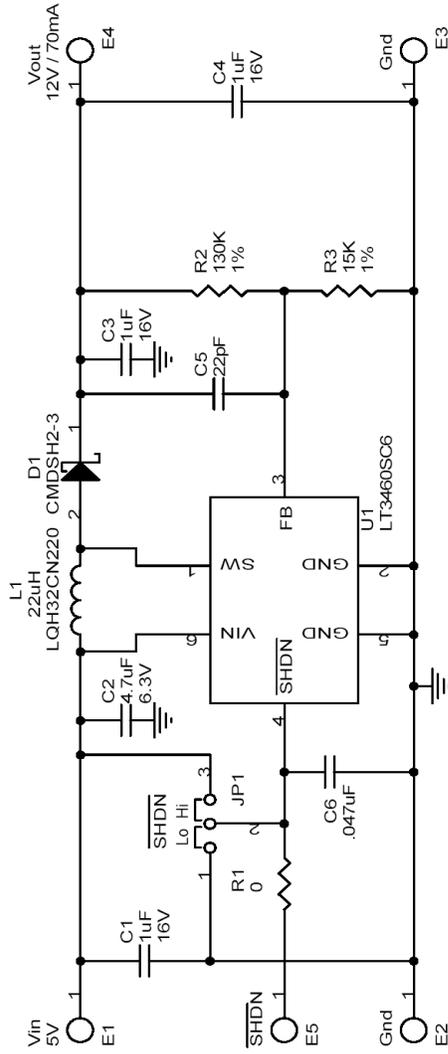


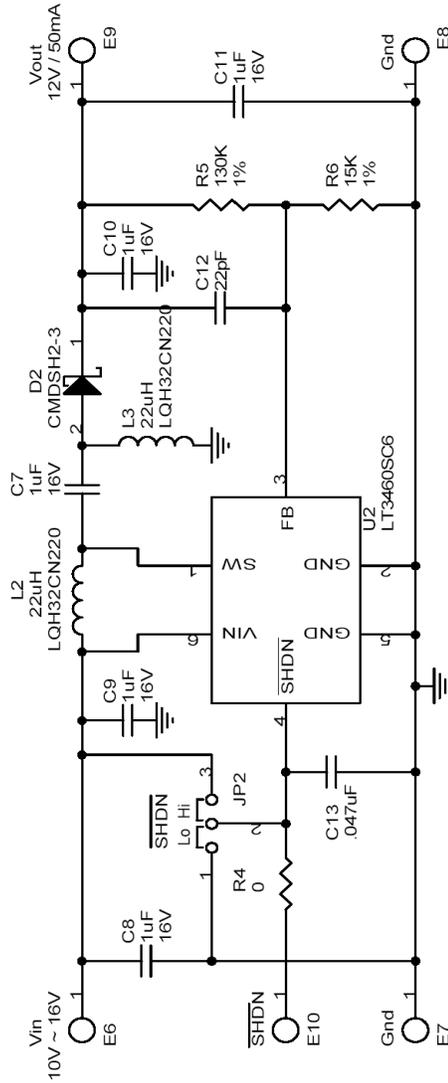
Figure 3. Measuring Input or Output Ripple

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Boost



SEPIC

LINEAR TECHNOLOGY CORPORATION

1630 MCCARTHY BLVD.
MILPITAS, CA. 95035
PHONE (408) 954-8400 FAX (408) 434-0507

1.3MHz Boost and SEPIC DC/DC Converter in SC70

Size	A	Document Number	DC545	LT3460SC6	Rev	A
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