

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 849

750mA, 1.2MHz SYNCHRONOUS BOOST CONVERTER

LTC3499EDD

DESCRIPTION

Demonstration circuit 849 is a 750mA, 1.2MHz Synchronous Boost Converter with Reverse Battery Protection featuring the LTC[®]3499EDD. The demo board demonstrates a DC/DC boost converter, with a 750mA switch current limit, providing a 3.3V output at 250mA from a two cell input voltage, or a 5V output at 170mA from either a two cell or a Li-ion battery. **The LTC3499EDD offers integrated reverse battery protection up to -6V for both the part and the load, drawing typically less than 1uA of current.** The input voltage of this supply can also be increased higher than the output, but thermal limitations reduce the output current that can be delivered. See **Vin>Vout Operation** section on the datasheet. The

circuit also demonstrates the advantages of output disconnect and inrush current limiting. Small circuit size and low component count make the LTC3499EDD suitable for use in many space-conscious applications such as Medical Equipment, Digital Cameras, MP3 Players, and other Portable Devices. Other integrated features include peak current limit, soft-start, antiringing control and thermal shut-down.

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

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Table 1. Performance Summary (T_A = 25°C) 3.3V Output

PARAMETERS	CONDITION	VALUE
Minimum Input Voltage		1.8V
Maximum Input Voltage		3V
Output Voltage V _{OUT}	V _{IN} = 1.8V, I _{OUT} = 0mA to 250mA	3.3V ±3%
Output Voltage V _{OUT}	V _{IN} = 3.0V, I _{OUT} = 0mA to 500mA	3.3V ±3%
Typical Output Ripple V _{OUT}	V _{IN} = 1.8V, I _{OUT} = 250mA	20mV _{P-P}
Typical efficiency	V _{IN} = 2.4V, I _{OUT} = 160mA	90%

Table 2. Performance Summary (T_A = 25°C) 5V Output

PARAMETERS	CONDITION	VALUE
Minimum Input Voltage		1.8V
Maximum Input Voltage		4.2V
Output Voltage V _{OUT}	V _{IN} = 1.8V, I _{OUT} = 0mA to 170mA	5V ±3%
Output Voltage V _{OUT}	V _{IN} = 2.7V, I _{OUT} = 0mA to 270mA	5V ±3%
Output Voltage V _{OUT}	V _{IN} = 4.2V, I _{OUT} = 0mA to 480mA	5V ±3%
Typical Output Ripple V _{OUT}	V _{IN} = 2.7V, I _{OUT} = 270mA	22mV _{P-P}
Typical efficiency	V _{IN} = 2.7V, I _{OUT} = 160mA	88%

Demonstration circuit 849 is easy to set up to evaluate the performance of the LTC3499EDD. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Place jumpers in the following positions:

JP2 3.3V or 5V (depending on output desired)

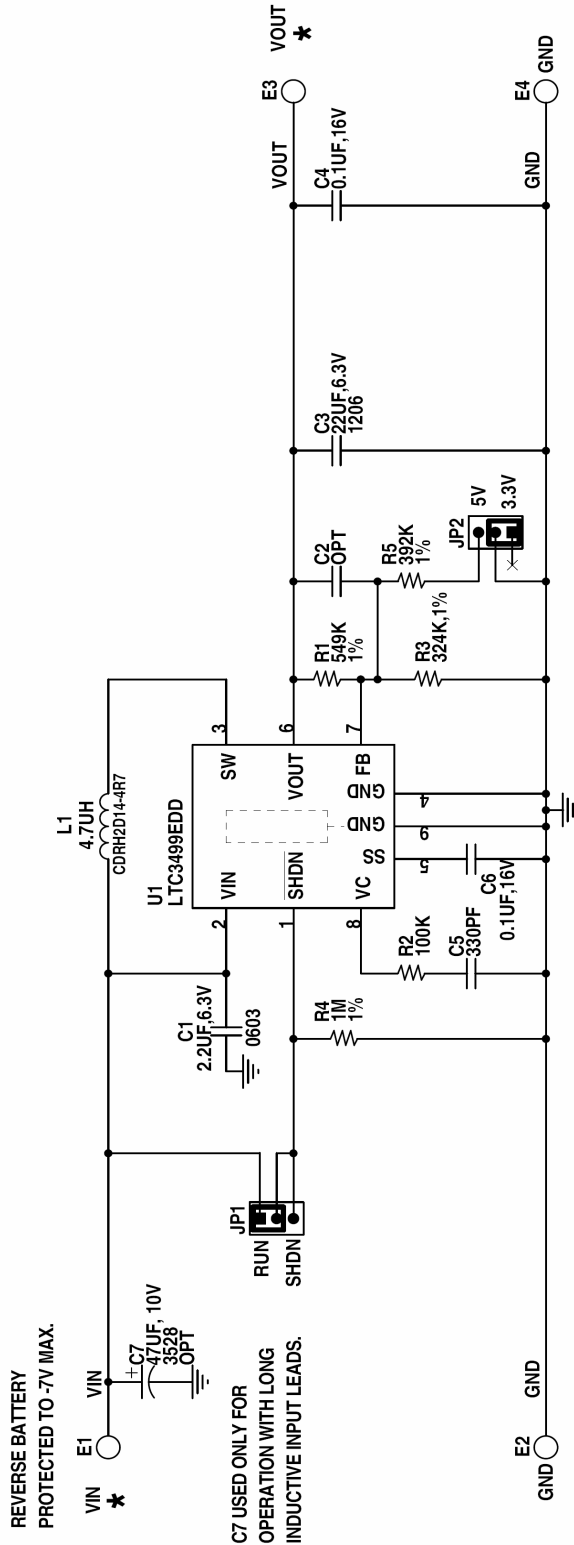
- NOTE:** If there is no output, temporarily disconnect the load to make sure that the load is not set too high.

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.



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VIN	VOUT	IOUT
1.8V-3.0V	3.3V	250mA
1.8V-3.0V	5V	170mA
2.7V-4.2V	5V	270mA

NOTES: UNLESS OTHERWISE SPECIFIED

- ALL RESISTORS ARE IN OHMS, 0402.
ALL CAPACITORS ARE IN MICROFARADS, 0402.
- INSTALL SHUNT ON JP1 AND JP2 PIN 1 AND 2.

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.

CONTRACT NO.

APPROVALS

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TITLE: SCHEMATIC

750mA, 1.2MHz SYNCHRONOUS BOOST CONVERTER

SIZE A DWG NO. DC849A-1 * LTC3499EDD

REV A-1

DATE: Monday, January 16, 2006 SHEET 1 OF 1