

## DESCRIPTION

Demonstration circuit 1045 is a Telecom isolated DC/DC converter featuring the LTC3805 constant frequency current mode flyback controller. The DC1045 converts 36V to 72V input voltage to an isolated 3A of output current at 3.3V. The 200kHz constant frequency operation is maintained down to very light load to reduce low frequency noise generated over a wide range of load current. The converter provides high output voltage accuracy (typically  $\pm 2\%$ ) over wide load range with no minimum load requirement.

The DC1045 also provides non-isolated design by removing opto coupler and LTC4430 circuit. The demonstration circuit can be easily modified to generate different output voltages up to 15V. As

output voltage is increased, the maximum output current must be reduced to limit the output power to no more than 10W. Higher output voltages and currents can be achieved by changing the MOSFET, transformer and output capacitors. Please consult LTC factory for details.

The DC1045 has a small circuit footprint. It is a high performance and cost effective solution for Telecom, Automotive and Power-over-Ethernet applications.

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

LTC and LT are registered trademarks of Linear Technology Corporation.

## QUICK START PROCEDURE

Demonstration circuit 1045 is easy to set up to evaluate the performance of the LTC3805. For proper measurement equipment setup refer to Figure 1 and follow the procedure below:

When measuring the input or output voltage ripple, care must be taken to minimize the length of the oscilloscope probe ground lead. Measure the input or output voltage ripple by connecting the probe tip directly across the  $V_{IN}$  or  $V_{OUT}$  and GND terminals, see Figure 2.

1. With power off, connect the input power supply to  $V_{in}$  and PriRTN.
2. Move the RUN shunt to the ON position.
3. Turn the input power source on and slowly increase the input voltage. Be careful not to exceed 72V. Make sure that the input voltage  $V_{IN}$  does not exceed 72V. If higher operating voltage is required,

power components with higher voltage ratings should be used.

4. Check for proper output voltage.  $V_{out}=3.3V$ .  
If there is no output, temporarily disconnect the load to make sure that the load is not set too high.
5. To shut the converter down, move the RUN shunt to the OFF position
6. To synchronize converter to external clock, set jumper JP2 to 'EXT SYNC' position, apply signal to FSET pin. See LTC3805 datasheet for sync signal parameters.
7. Once the proper output voltage is established, adjust the load within 3.0A range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1045

## TELECOM DC/DC CONVERTER

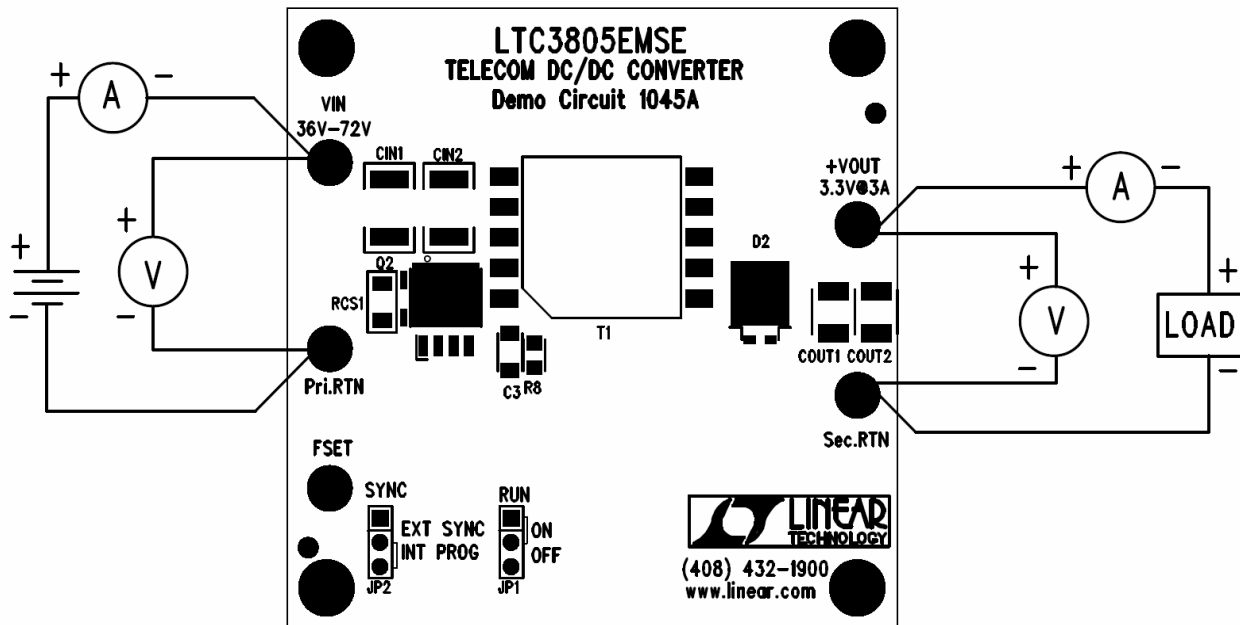


Figure 1. Proper Measurement Equipment Setup

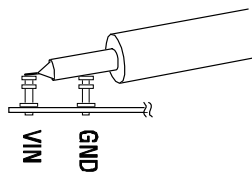
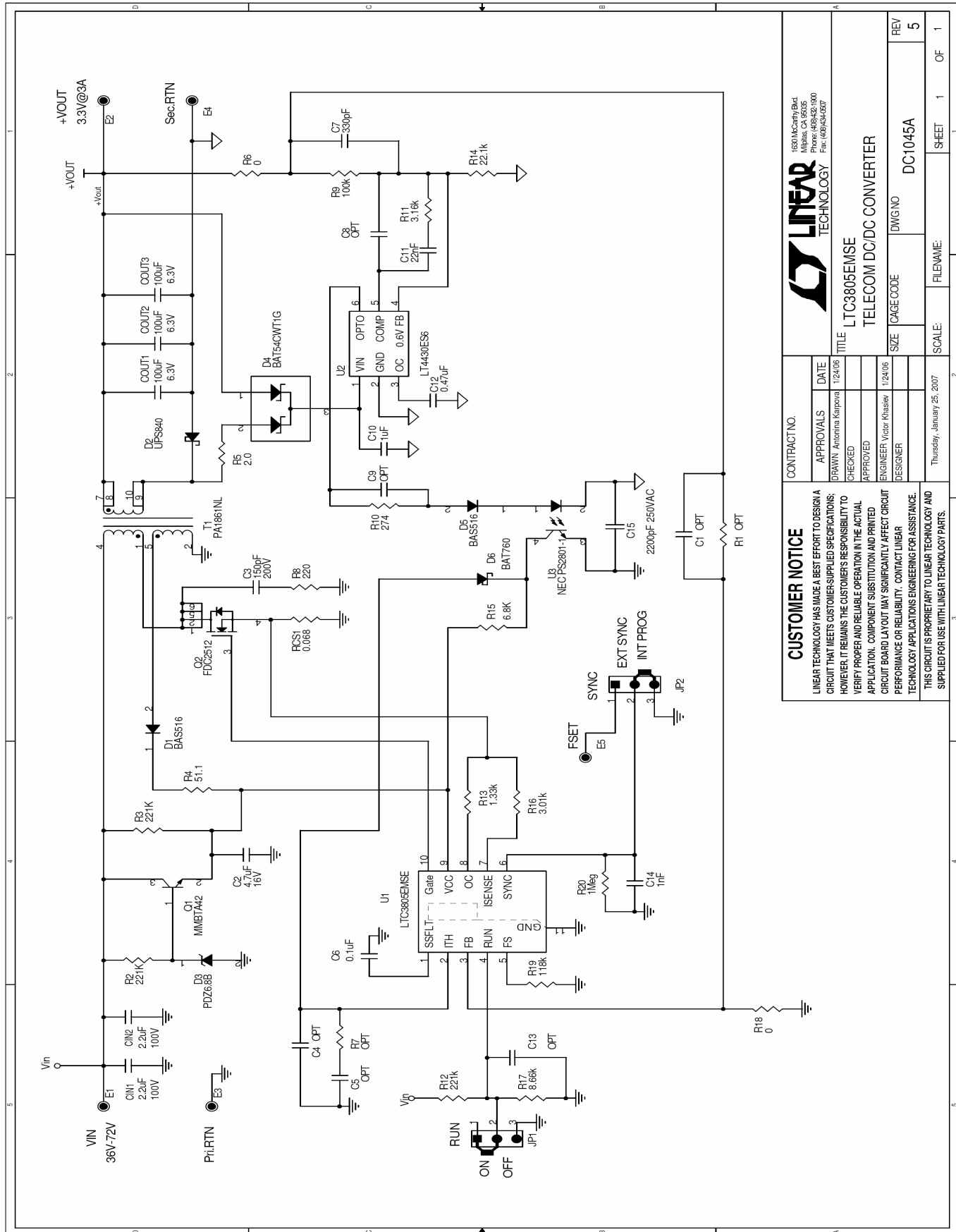


Figure 2. Measuring Input or Output Ripple

# QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1045

## TELECOM DC/DC CONVERTER



### 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

CHECKED

APPROVED

ENGINEER Victor Khaleel

DESIGNER

### DATE

1/24/06

DRAWN Antonina Karpova

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06

### DATE

1/24/06

1/24/06

1/24/06

1/24/06