

DESCRIPTION

Demonstration circuit DC1154 is a Telecom non isolated DC/DC converter featuring the LTC3873 constant frequency current mode flyback controller. The DC1154 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 DC1154 also provides an isolated design by installing the optocoupler and LTC4430 related circuitry. 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 DC1154 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.

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QUICK START PROCEDURE

Demonstration circuit DC1154 is easy to set up to evaluate the performance of the LTC3873. 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 +VIN or +VOUT and -VIN or -VOUT terminals, see Figure 2.

1. With power off, connect the input power supply to +VIN and -VIN terminals.
2. Move the RUN jumper into 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 VIN 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 jumper into OFF position
6. 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.

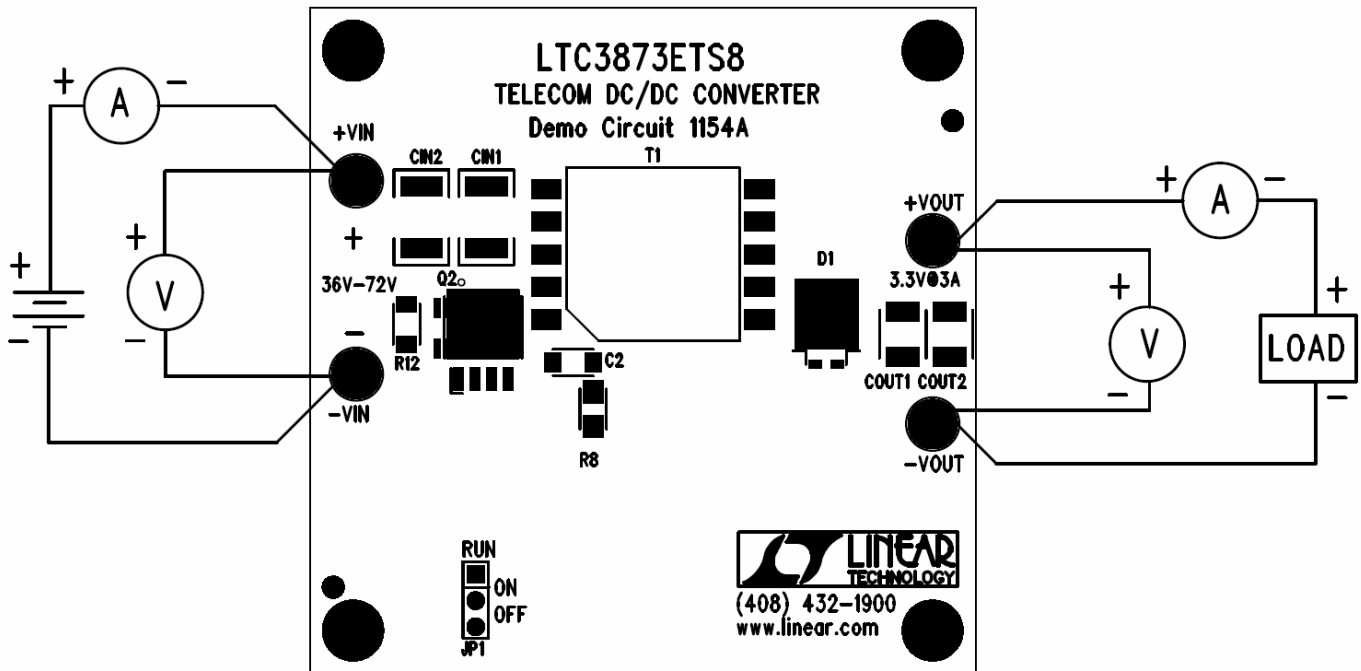


Figure 1. Proper Measurement Equipment Setup

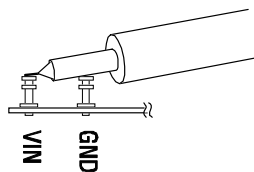
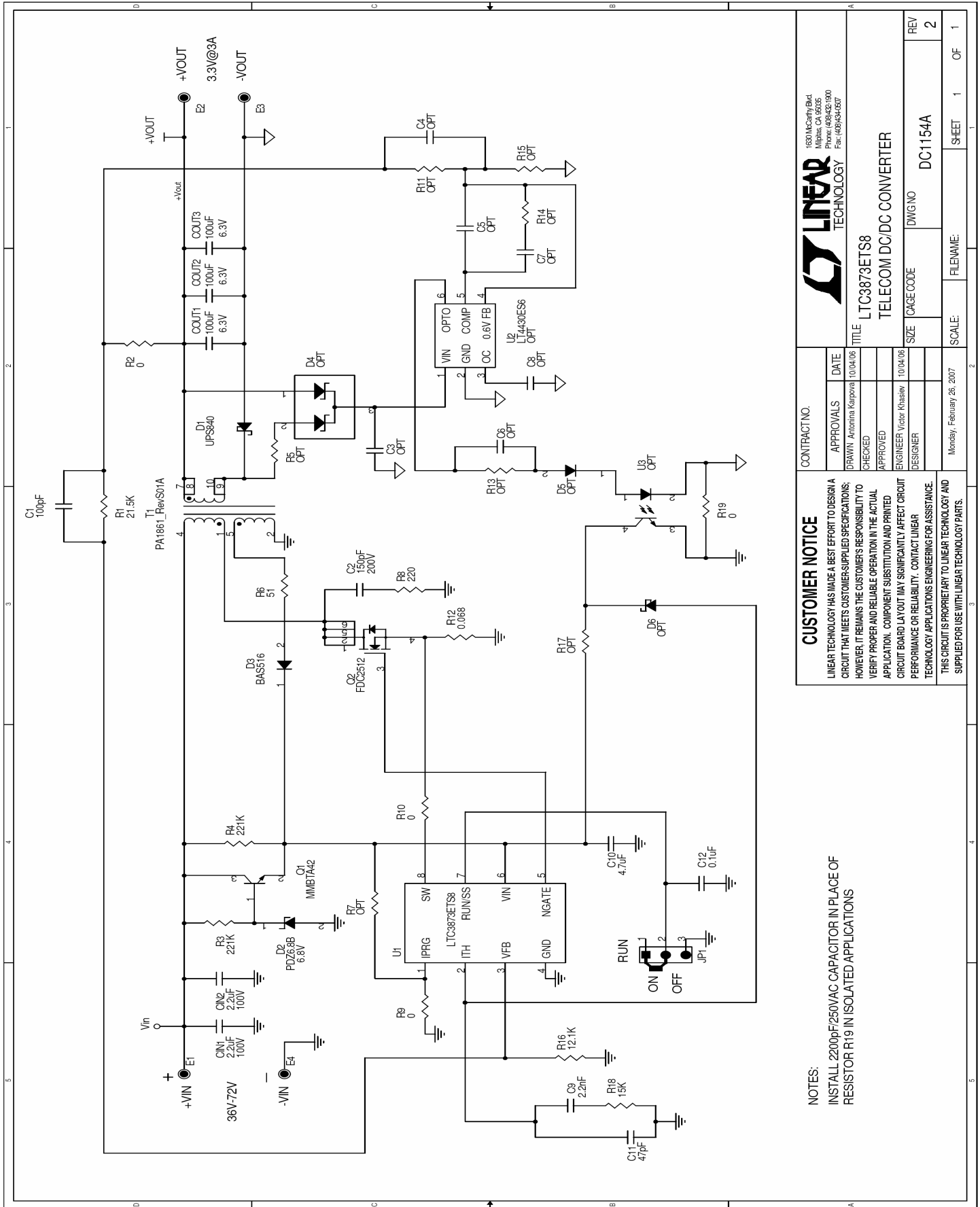


Figure 2. Measuring Input or Output Ripple

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1154

TELECOM DC/DC CONVERTER



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 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 | DATE |
|-------------------------|----------|
| DRAWN Antonina Karpova | 10/04/06 |
| CHECKED | |
| APPROVED | |
| ENGINEER Victor Khasiev | 10/04/06 |
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TITLE LTC3873ETS8
 TELECOM DC/DC CONVERTER

| SIZE | CAGE CODE | DWG NO | REV |
|------|-----------|---------|-----|
| | | DC1154A | 2 |

Monday, February 26, 2007
 SCALE: FILENAME: SHEET 1 OF 1

NOTES:
 INSTALL 2200pF/250VAC CAPACITOR IN PLACE OF RESISTOR R19 IN ISOLATED APPLICATIONS