QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 431
ISOLATED TRIPLE OUTPUT TELECOM CONVERTER

LT1725, LTC1773, LTC4210

DESCRIPTION

Demonstration circuit 431 is a simple isolated telecom converter, built in the footprint of a standard "half-brick". The input voltage range is 36-72V and three outputs are provided, 5V 3.3V and 2.5V. Total available power is 30W. **Design files for this circuit board are available. Call the LTC factory.**

Table 1. Performance Summary

PARAMETER	CONDITION	VALUE
Input Voltage		36-72V
VOUT1	VIN 36-72V, Iout1 = >50mA – 1A	5V +-3%
VOUT2	VIN 36-72V, Iout2 = 0-5A	3.3V +-3%
VOUT3	VIN 36-72V, Iout3 = 0-4A	2.5V +-3%
Isolation	1 min	1500V
Efficiency	V_{IN}=48V, Iout1 = 1A, Iout2 = 5A, Iout3 = 4A	73% typ.

OPERATING PRINCIPLES

Demo DC431 is a simple isolated triple output converter that might be used in a small telecom system. Input power, nominally 48V, is converted to isolated 5V by an LT1725 based flyback converter. This isolated 5V rail serves as the input for two LTC1773 based synchronous buck converters that separately derive the two low voltage rails from the isolated 5V rail. The benefit of this architecture is its flexibility, since the low voltage rails are derived from separate converters their outputs can be modified to suit the application without modifying the main power transformer.

QUICK START PROCEDURE

Demonstration circuit 431 is easy to set up. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. *With the power off*, connect the input power supply, meters and loads as shown in Figure 1.
2. The demo is now set up for evaluation. Turn on the input power and adjust the output loads.
3. The board can be shutdown by connecting the shutdown pin to the VIN- input.

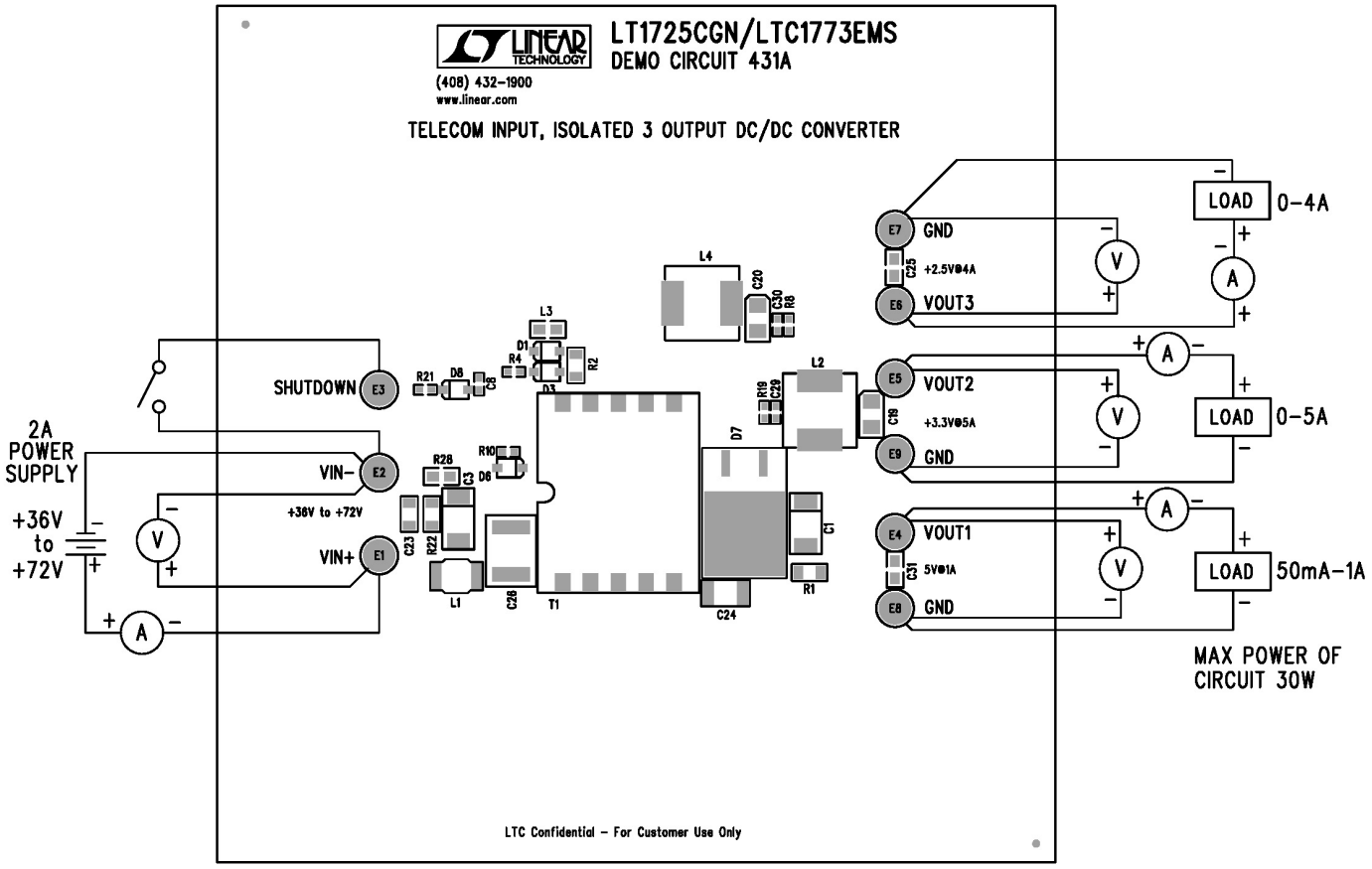
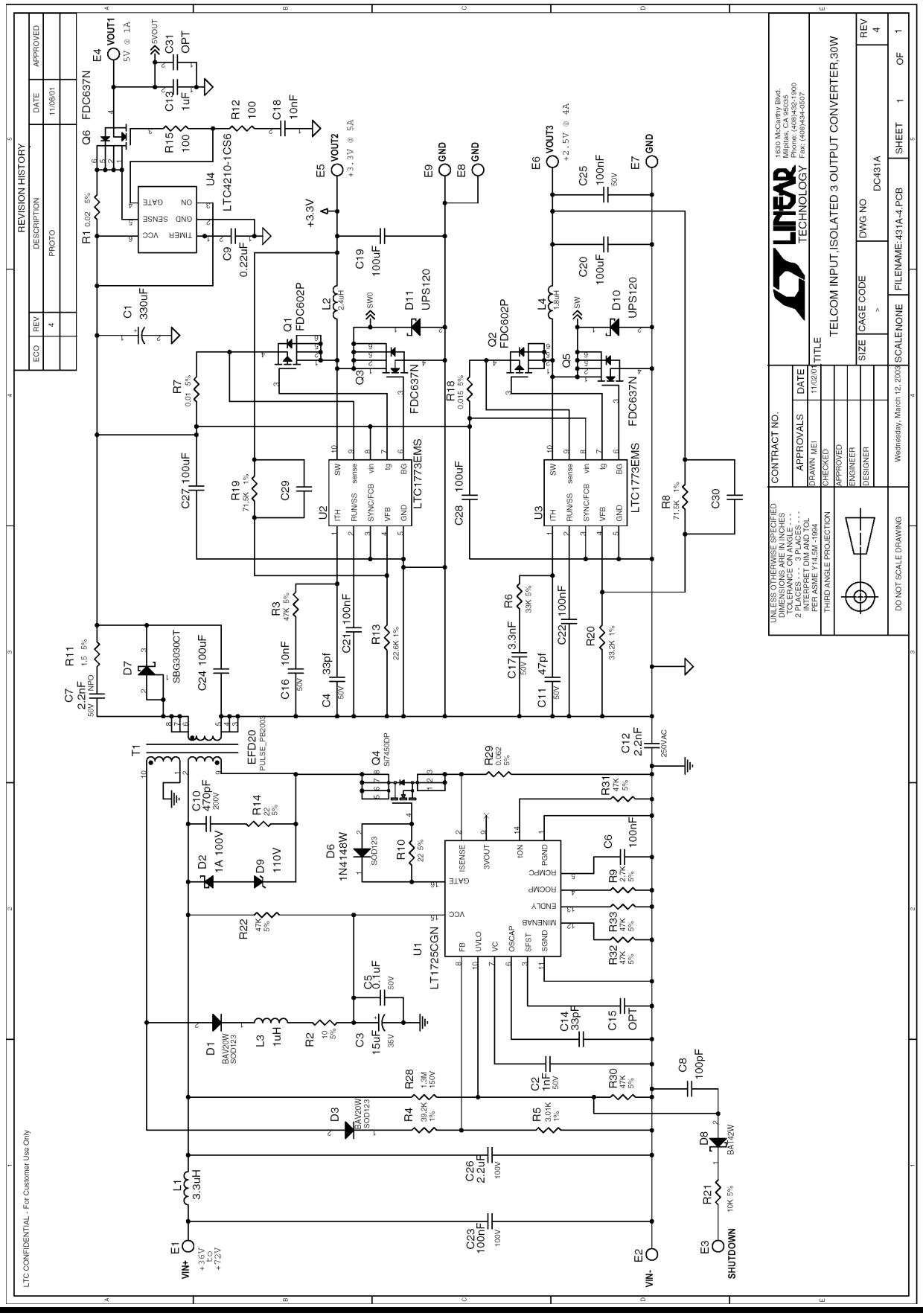


Figure 1. Proper Measurement Equipment Setup


REVISION HISTORY
ECO REV DESCRIPTION DATE APPROVED
4 PROTO 11/08/01
LINEAR TECHNOLOGY
1630 McCarthy Blvd.
Milpitas, CA 95035
Phone: (408)432-1900
Fax: (408)434-0507
TELCOM INPUT,ISOLATED 3 OUTPUT CONVERTER,30W
DC431A
REV 4
SIZE CAGE CODE DWG NO
SHEET 1 OF 1
FILENAME:431A-4.PCB
SCALE:NONE
Wednesday, March 12, 2003
CONTRACT NO.
APPROVALS DATE
DRAWN: MEI 11/02/01
CHECKED
APPROVED
ENGINEER
DESIGNER
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCE ON ANGLE --- 2 PLACES --- 3 PLACES --- INTERPRET DIM AND TOL PER ASME Y14.5M - 1994
THIRD ANGLE PROJECTION
DO NOT SCALE DRAWING
LTC CONFIDENTIAL - For Customer Use Only
VIN+ +36V TO +72V
VIN-
SHUTDOWN
VOUT1 5V @ 1A
VOUT2 +3.3V @ 5A
VOUT3 +2.5V @ 4A
GND
+3.3V
5VOUT
U1 LT1725CGN
U2 LTC1773EMS
U3 LTC1773EMS
U4 LTC4210-1CS6
T1 EFD20 PULSE_P8200
Q1 FDC602P
Q2 FDC602P
Q3 FDC637N
Q4 SI7450DP
Q5 FDC637N
Q6 FDC637N
D1 BAV20W SOD123
D2 1A 100V
D3 BAV20W SOD123
D6 1N4148W SOD123
D7 SBG3030CT
D8 BAT42W
D9 110V
D10 UPS120
D11 UPS120
L1 3.3uH
L2 2.4uH
L3 1uH
L4 1.8uH
C1 330uF
C2 1nF 50V
C3 15uF 35V
C4 33pf 50V
C5 0.1uF 50V
C6 100nF
C7 2.2nF 50V NPO
C8 100pF
C9 0.22uF
C10 470pF 200V
C11 47pf 50V
C12 2.2nF 250VAC
C13 1uF
C14 33pF
C15 OPT
C16 10nF 50V
C17 3.3nF 50V
C18 10nF
C19 100uF
C20 100uF
C21 100nF
C22 100nF
C23 100nF 100V
C24 100uF
C25 100nF 50V
C26 2.2uF 100V
C27 100uF
C28 100uF
C29
C30
C31 OPT
R1 0.02 5%
R2 10 5%
R3 47K 5%
R4 39.2K 1%
R5 3.01K 1%
R6 33K 5%
R7 0.01 5%
R8 71.5K 1%
R9 2.7K 5%
R10 22 5%
R11 1.5 5%
R12 100
R13 22.6K 1%
R14 22 5%
R15 100
R18 0.015 5%
R19 71.5K 1%
R20 33.2K 1%
R21 10K 5%
R22 47K 5%
R28 1.3M 150V
R29 0.062 5%
R30 47K 5%
R31 47K 5%
R32 47K 5%
R33 47K 5%