

QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 960

HIGH VOLTAGE, P-CH MOSFET STEP-DOWN CONTROLLER

LTC3824

DESCRIPTION

Demonstration Circuit 960 is a high voltage, current-mode DC/DC step-down converter featuring the LTC3824 in a small 10-pin MSOP package.

The board operates from a Vin range of 5.5V – 60V and outputs 5Vout @ 2A. The Converter uses a P-Ch MOSFET for the main switch resulting in a low parts count design. Operating frequency is set to 200kHz with the option to accept a synchronized external clock. A soft-start feature controls the output voltage slew rate at start-up, reducing current surges and voltage overshoots. Burst Mode operation that improves the effi-

ciency at light loads can be enabled with a jumper. The demonstration board has been laid out with the option for adding a second switching MOSFET to facilitate higher output currents.

This board is suitable for a wide range of Industrial control systems and particularly suitable for 12V/42V Automotive applications and 48V Telecom power supplies.

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

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QUICK START PROCEDURE

DC960 is easy to set up to evaluate the performance of the LTC3824. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Use a 65V/8A or better Bench Power Supply.
2. Set the Power supply voltage to somewhere between 5V and 60V.
3. Set the Load to somewhere between 0 – 2A.
4. Make sure the SHDN/RUN jumper is in the RUN position.

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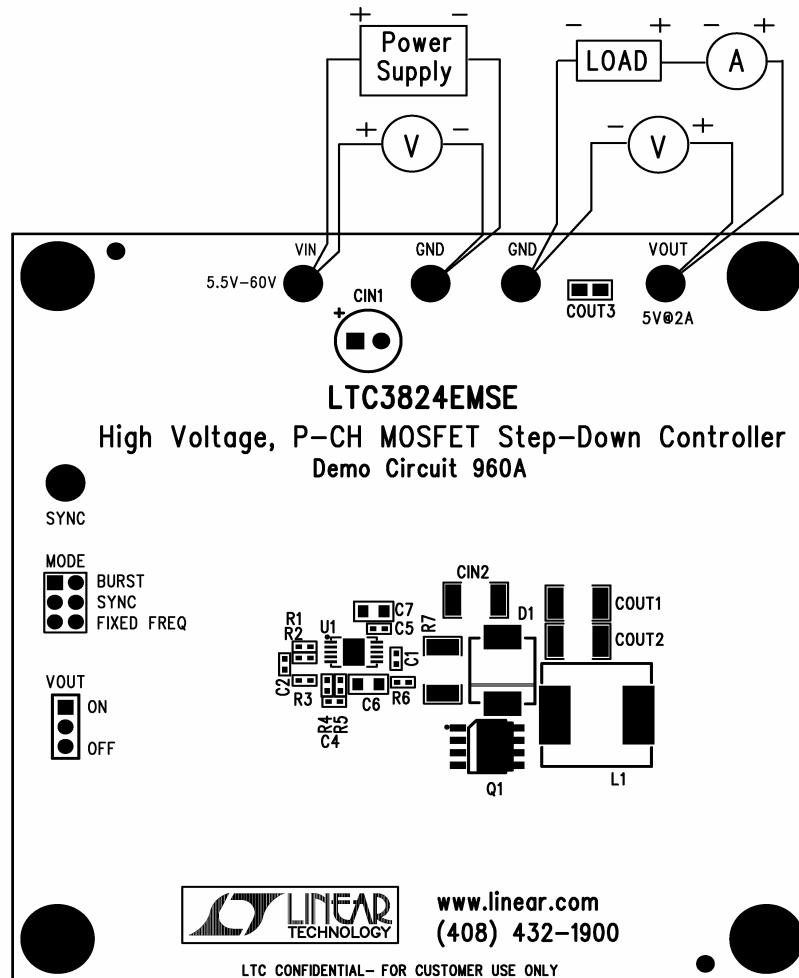
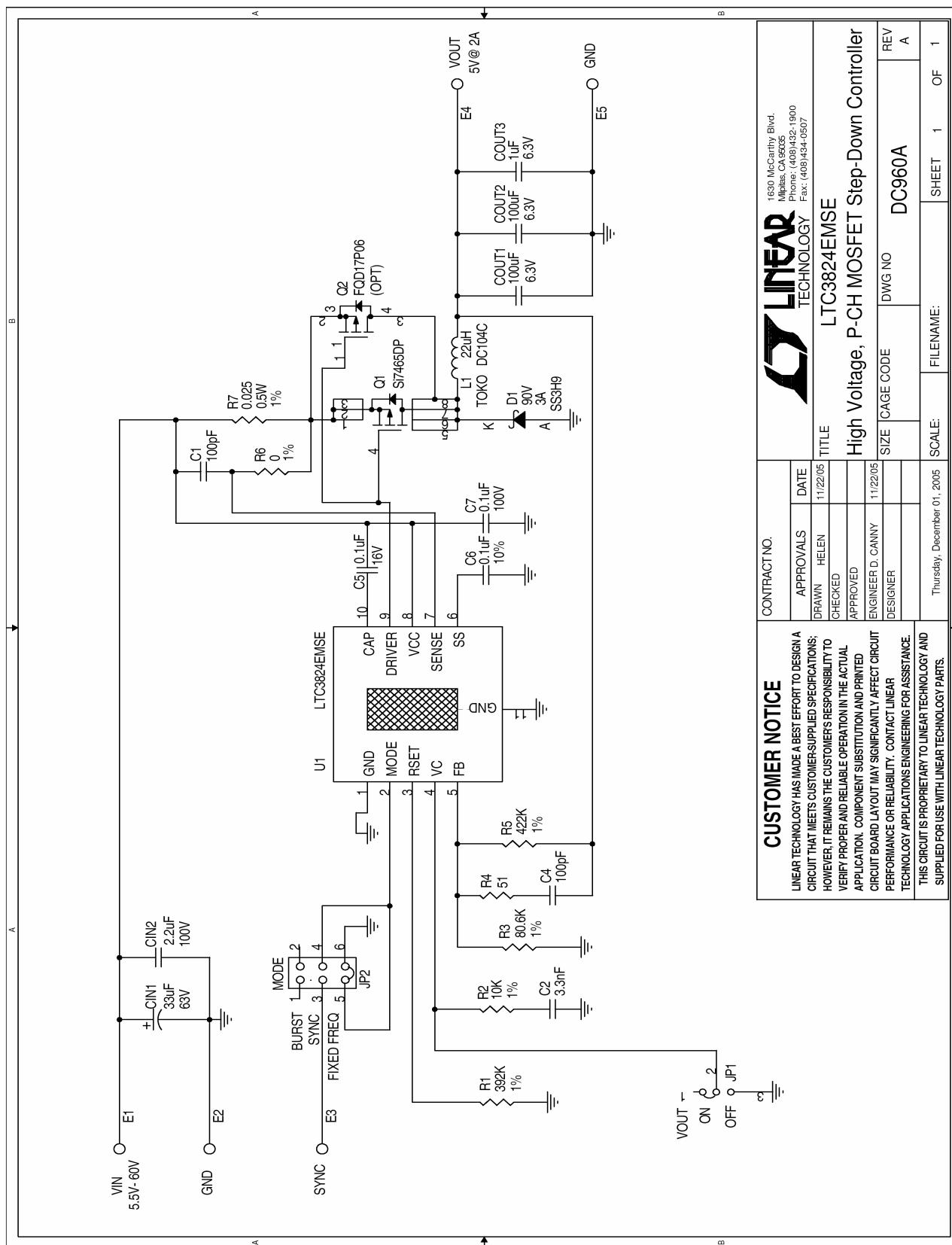


Figure 1. Proper Measurement Equipment Setup

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| | | |
|-----------------------------|---|--|
| CONTRACT NO. | 1630 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)442-1900 Fax: (408)444-0507 | |
| APPROVALS | DATE | TITLE |
| DRAWN - HELEN | 11/22/05 | LTC3824EMSE |
| CHECKED | | High Voltage, P-CH MOSFET Step-Down Controller |
| APPROVED | | |
| ENGINEER D. CANNY | 11/22/05 | SHEET |
| DESIGNER | | FILENAME: |
| | | DC960A |
| | | REV A |
| Thursday, December 01, 2005 | SCALE: | 1 OF 1 |

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| Item | Qty | Reference | Part Description | Manufacturer / Part # |
|--|-----|-------------|--|------------------------------------|
| REQUIRED CIRCUIT COMPONENTS: | | | | |
| 1 | 1 | CIN1 | Cap., Alum, 33uF, 63V, 20% (thru hole) | SANYO, 63ME33AX+ TS |
| 2 | 1 | CIN2 | Cap., X7R, 2.2uF, 100V, 20%, 1812 | TDK, C4532X7R2A225M |
| 3 | 2 | COUT1,COUT2 | CAP., X5R, 100uF, 6.3V, 20%, 1812 | TDK, C4532X5R0J107M |
| 4 | 1 | COUT3 | CAP., X5R, 1uF, 6.3V, 10%, 0603 | AVX, 06036D105KAT |
| 5 | 2 | C1,C4 | Cap., COG, 100pF, 50V, 10%, 0402 | AVX, 04025A101KAT |
| 6 | 1 | C2 | Cap., X7R, 3.3nF, 50V, 10%, 0402 | AVX, 04025C332KAT |
| 7 | 1 | C5, | Cap., X7R, 0.1uF, 16V, 10%, 0402 | TDK, C1005X7R1C104K |
| 8 | 2 | C6,C7 | Cap., X7R, 0.1uF, 100V, 10%, 0805 | TDK, C2012X7R2A104K |
| 9 | 1 | D1 | SCHOTTKY DIODE 90V | VISHAY, SS3H9-E3 |
| 10 | 2 | L1 | INDUCTOR, 22uH | TOKO, #919AS-220M=P3 |
| 11 | 1 | Q1 | P-CHANNEL MOSFET, SO-8 POWERPAK | VISHAY, S17465DP-T1-E3 |
| 12 | 0 | R1 | RES., CHIP, 392K, 1/16W, 1%, 0402 | AAC, CR05-3923FM |
| 13 | 1 | R2 | RES., CHIP, 10K, 1/16W, 1%, 0402 | AAC, CR05-1002FM |
| 14 | 1 | R3 | RES., CHIP, 80.6K, 1/16W, 1%, 0402 | AAC, CR05-8062FM |
| 15 | 1 | R4 | RES., CHIP, 51, 1/16W, 5%, 0402 | AAC, CR05-510JM |
| 16 | 1 | R5 | RES., CHIP, 422K, 1/16W, 1%, 0402 | AAC, CR05-4223FM |
| 17 | 1 | R6 | RES., CHIP, 0, 1/16W, 0402 | VISHAY, CRCW0402000Z0ED |
| 18 | 1 | R7 | RES., CHIP, 0.025, 0.5W, 1%, 2010 | VISHAY, WSL2010R0250FEA |
| 19 | 4 | U1 | I.C, LTC3824EMSE#PBF, 10PIN MSOP | LINEAR TECH., LTC3824EMSE#PBF |
| ADDITIONAL DEMO BOARD CIRCUIT COMPONENTS: | | | | |
| 1 | 1 | Q2(OPT) | P-CHANNEL MOSFET, D-PAK | FAIRCHILD SEMICONDUCTOR, FQDD17P06 |
| HARDWARE-FOR DEMO BOARD ONLY: | | | | |
| 1 | 1 | JP1 | 0.079 SINGLE ROW HEADER, 3 PIN | SAMTEC, TMM-103-02-L-S |
| 2 | 1 | JP2 | 0.079 DOUBLE ROW HEADER, 6 PIN | SAMTEC, TMM-103-02-L-D |
| 3 | 1 | JP1,JP2 | SHUNT, | SAMTEC, 2SN-BK-G |
| 4 | 5 | E1-E5 | TESTPOINT, TURRET, .095" | MILL-MAX, 2501-2-00-80-00-00-07-0 |
| 5 | 4 | (STAND-OFF) | STAND-OFF, NYLON 0.25" tall | KEYSTONE, 8831(SNAP ON) |



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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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