

LT3048-15 Low Noise Bias Generator

DESCRIPTION

Demonstration circuit 2120A features the [LT3048-15](#), a Boost DC/DC Converter with integrated Schottky diode and LDO in a 2mm × 2mm DFN package. This demo board is designed to convert a 2.7V to 4.8V input to a 15V output at 19mA to 35mA with low output ripple and noise. The LT3048-15 is programmed for 2MHz switching frequency.

This demonstration board can be used to evaluate other fixed output voltage versions of the LT3048.

The LT3048 data sheet gives a complete description of the part, operation, and application information. The data sheet must be read in conjunction with this Quick Start Guide for the demo circuit DC2120A.

Design files for this circuit board are available at <http://www.linear.com/demo/DC2120A>

LT, LT, LTC, LTM, Linear Technology and the Linear logo are registered trademarks of Linear Technology Corporation. All other trademarks are the property of their respective owners.

PERFORMANCE SUMMARY Specifications are at $T_A = 25^\circ\text{C}$

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Input Supply Range		2.7		4.8	V
Output Voltage Range	$V_{IN} = 2.7\text{V}$, $I_{OUT} = 19\text{mA}$	14.625	15	15.375	V
Switching Frequency		1.7	2.2	2.7	MHz
Output Ripple	$V_{IN} = 4.8\text{V}$, Load = 37mA		1		mV

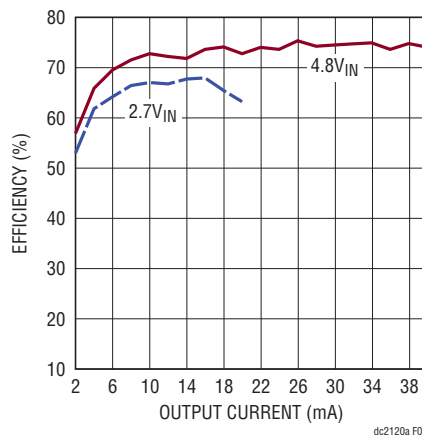


Figure 1. DC2120A Efficiency

DEMO MANUAL DC2120A

QUICK START PROCEDURE

Demonstration circuit 2120A is easy to set up to evaluate the performance of the LT3048. Refer to Figure 2 for proper measurement equipment setup and follow the procedure below:

NOTE. When measuring the output voltage ripple, connect a X1 oscilloscope probe as shown in Figure 3.

1. Place jumper in the following positions: JP1 Run
2. With power off, connect the input power supply to V_{IN} and GND.
3. Turn on the power at the input.

NOTE. Make sure that the input voltage does not exceed 4.8V.

4. Connect a 20mA load from V_{OUT} to GND and check for the proper output voltage. $V_{OUT} = 14.625V$ to $15.375V$

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

5. Once the proper output voltages are established, adjust the input voltage and load within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

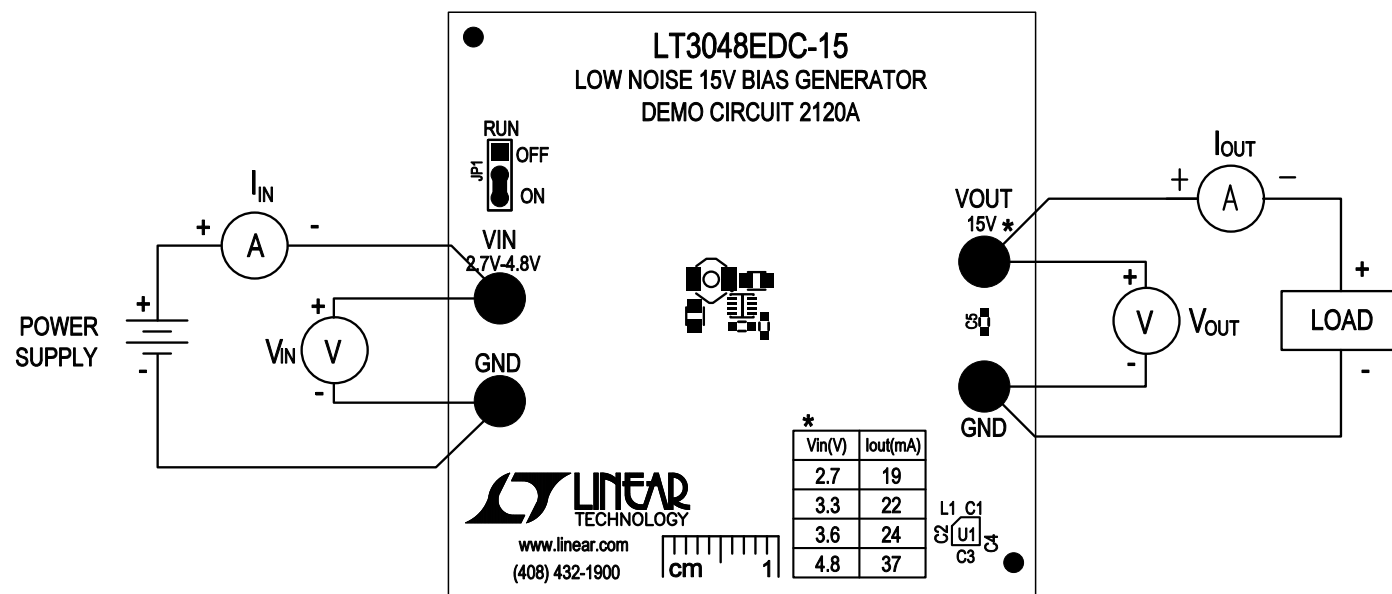


Figure 2. Proper Measurement Equipment Setup

QUICK START PROCEDURE

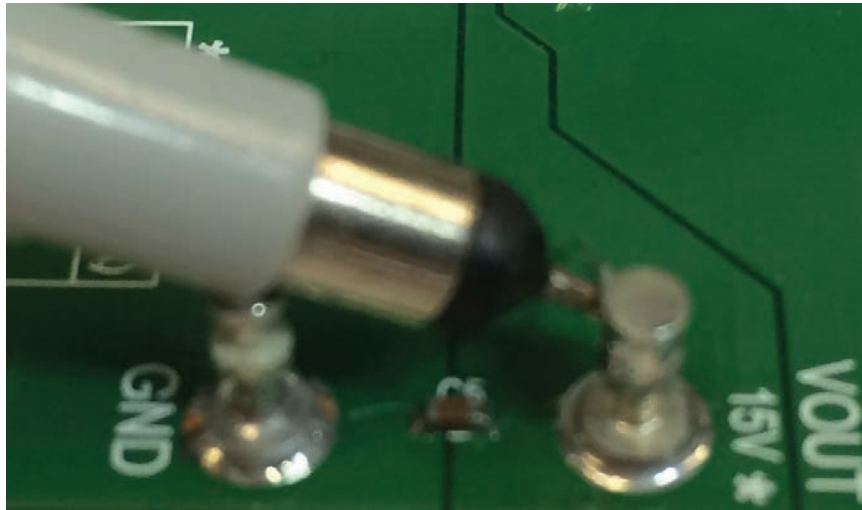


Figure 3. Output Ripple Measurement Technique

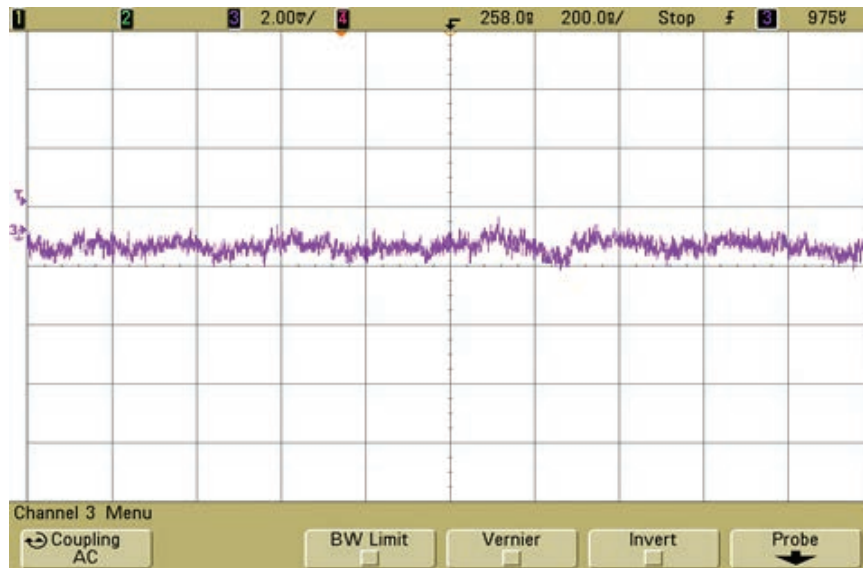


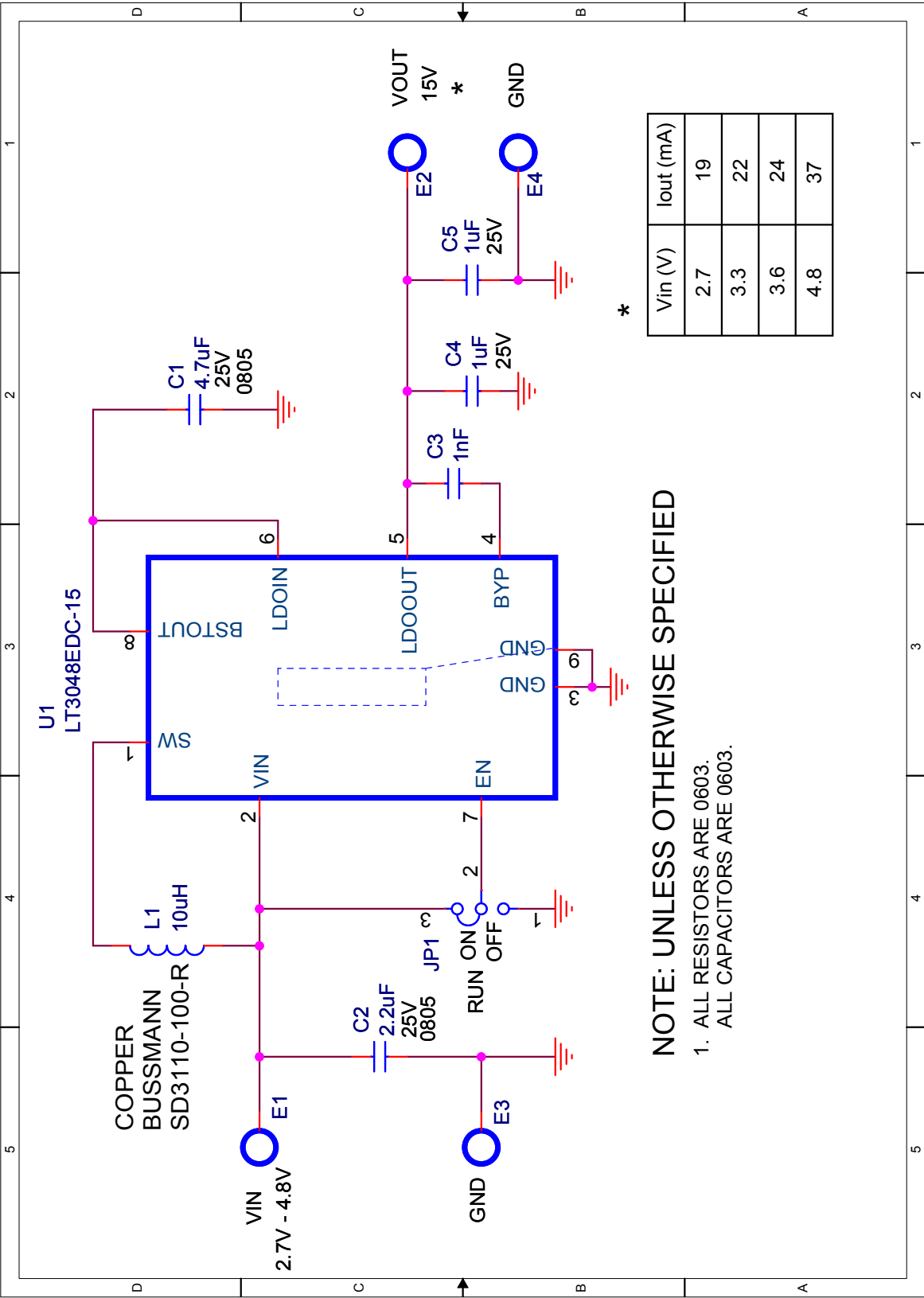
Figure 4. Output Voltage Ripple

DEMO MANUAL DC2120A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	C1	CAP., X7R, 4.7 μ F, 25V, 10%, 0805	TDK, C2012X7R1E475K
2	1	C2	CAP., X7R, 2.2 μ F, 25V, 10%, 0805	TDK, C2012X7R1E225K
3	1	C4	CAP., X7R, 1 μ F, 25V, 10%, 0603	TDK, C1608X7R1E105K
4	1	C3	CAP., C0G, 1nF, 25V, 5%, 0603	MURATA GRM1885C1E102JA01D
5	1	L1	INDUCTOR, 10 μ H	COOPER Bussmann, SD3110-100-R
6	1	U1	IC., LT3048EDC-15#PBF, DFN-2X2, 8 LEAD	LINEAR TECH., LT3048EDC-15#PBF
7	1		FAB, PRINTED CIRCUIT BOARD	DEMO BOARD 2120A
Additional Demo Board Circuit Components				
1	1	C5	CAP., X7R, 1 μ F, 25V, 10%, 0603	TDK, C1608X7R1E105K
Hardware: For Demo Board Only				
1	4	E1-E4	TESTPOINT, TURRET, 0.094"	MILL-MAX, 2501-2-00-80-00-00-07-0
2	1	JP1	3 PIN 0.079" SINGLE ROW HEADER	SULLINS, NRPN031PAEN-RC
3	1	XJP1	SHUNT, 0.079" CENTER	SAMTEC, 2SN-BK-G
4	1		STENCIL	STENCIL DC2120A

SCHEMATIC DIAGRAM



DEMO MANUAL DC2120A

DEMONSTRATION BOARD IMPORTANT NOTICE

Linear Technology Corporation (LTC) provides the enclosed product(s) under the following **AS IS** conditions:

This demonstration board (DEMO BOARD) kit being sold or provided by Linear Technology is intended for use for **ENGINEERING DEVELOPMENT OR EVALUATION PURPOSES ONLY** and is not provided by LTC for commercial use. As such, the DEMO BOARD herein may not be complete in terms of required design-, marketing-, and/or manufacturing-related protective considerations, including but not limited to product safety measures typically found in finished commercial goods. As a prototype, this product does not fall within the scope of the European Union directive on electromagnetic compatibility and therefore may or may not meet the technical requirements of the directive, or other regulations.

If this evaluation kit does not meet the specifications recited in the DEMO BOARD manual the kit may be returned within 30 days from the date of delivery for a full refund. THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY MADE BY THE SELLER TO BUYER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. EXCEPT TO THE EXTENT OF THIS INDEMNITY, NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

The user assumes all responsibility and liability for proper and safe handling of the goods. Further, the user releases LTC from all claims arising from the handling or use of the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge. Also be aware that the products herein may not be regulatory compliant or agency certified (FCC, UL, CE, etc.).

No License is granted under any patent right or other intellectual property whatsoever. **LTC assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or any other intellectual property rights of any kind.**

LTC currently services a variety of customers for products around the world, and therefore this transaction **is not exclusive**.

Please read the DEMO BOARD manual prior to handling the product. Persons handling this product must have electronics training and observe good laboratory practice standards. **Common sense is encouraged.**

This notice contains important safety information about temperatures and voltages. For further safety concerns, please contact a LTC application engineer.

Mailing Address:

Linear Technology
1630 McCarthy Blvd.
Milpitas, CA 95035

Copyright © 2004, Linear Technology Corporation

dc2120af



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.