

LTM8027: 60V, 4A DC/DC μ Module[®] Regulator

DESCRIPTION

Demonstration circuit 1307B features the LTM[®]8027 configured to deliver 12V from a 16V to 60V input. The wide input range of the LTM8027 allows a variety of input sources such as automotive batteries, wall adaptors and industrial supplies. The LTM8027 is a step down converter, so a minimum amount of headroom is required to keep the output in regulation. A soft-start feature controls the output voltage slew rate at start-up, reducing current surges and voltage overshoots. The current mode control scheme creates fast transient response and good loop stability.

The LTM8027 data sheet gives a complete description of the part, operation and application information. The data sheet must be read in conjunction with this manual before working on or modifying demo circuit 1307B.

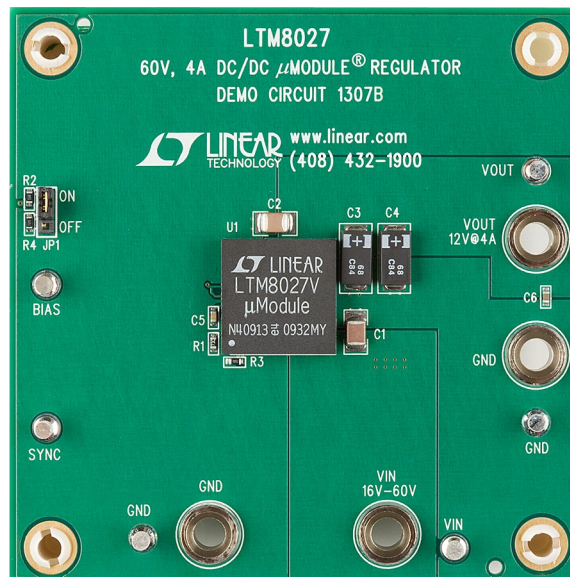
Design files for this circuit board are available at <http://www.linear.com/demo>

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

PERFORMANCE SUMMARY (T_A = 25°C)

PARAMETER	VALUE
Input Voltage Range	16V to 60V
Output Voltage V _{OUT}	12V \pm 3%
Maximum Output Current	4A
Typical Switching Frequency	300kHz

DEMO BOARD PHOTO



dc1307bf

QUICK START PROCEDURE

Demonstration circuit 1307B is an easy way to evaluate the performance of the LTM8027. Refer to Figure 1 for proper measurement equipment setup and follow the procedure below:

1. Place JP1 on the ON position.
2. With power off, connect the input power supply to V_{IN} and GND. Preset the power supply within the input voltage range.
3. Connect the load and preset to 0A.
4. Turn on the power at the input.
5. Check for the proper output voltage.
6. Once the proper output voltages are established, adjust the loads within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.

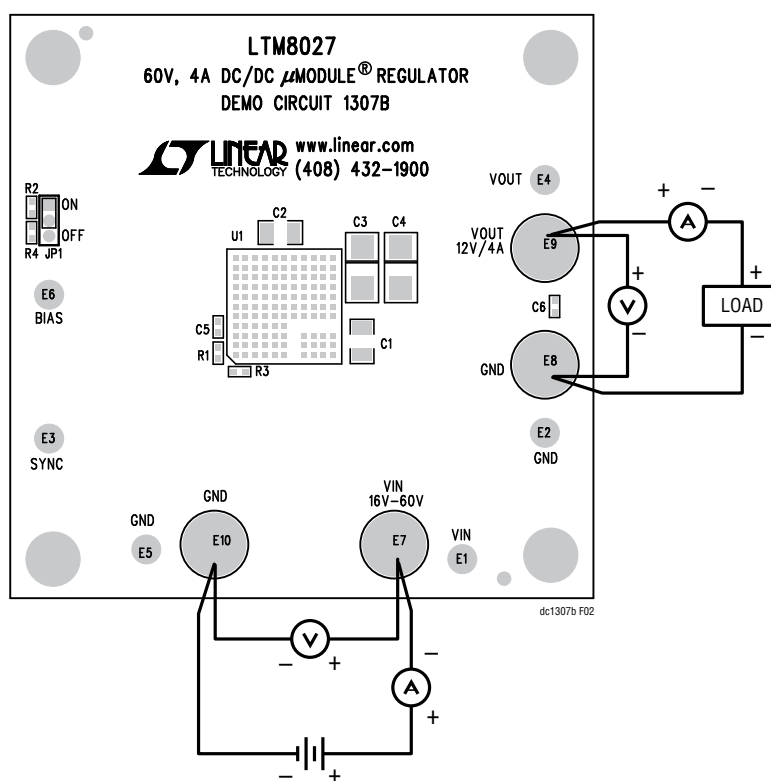


Figure 1. Proper Measurement Equipment Setup

QUICK START PROCEDURE

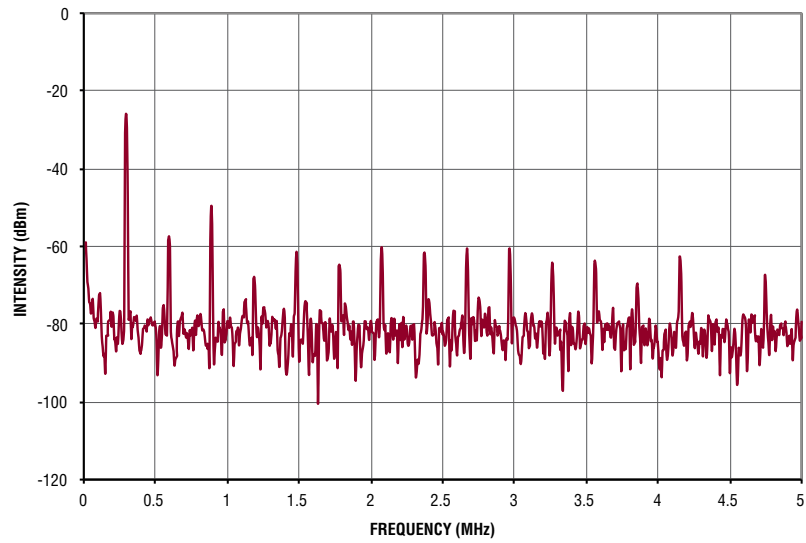


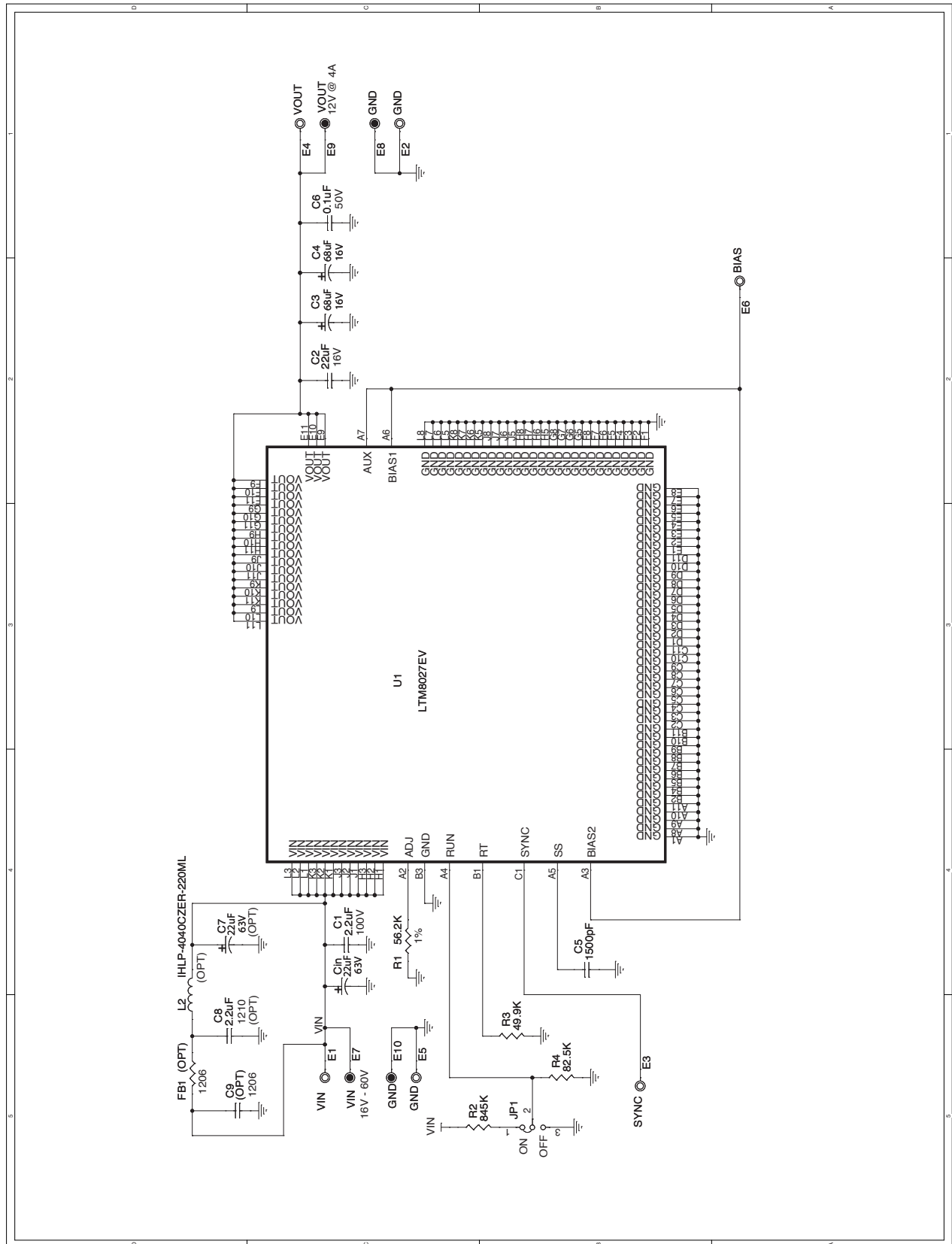
Figure 2. DC1307B Output Noise Spectrum ($V_{IN} = 24V$, $V_{OUT} = 12V$, $I_{OUT} = 4A$)

DEMO MANUAL DC1307B

PARTS LIST

ITEM	QUANTITY	REFERENCE	DESCRIPTION	MANUFACTURER'S PART NUMBER
Required Circuit Components				
1	1	C5	Capacitor, COG, 1500pF, 100V, 5%, 0603	AVX, 06031A152JAT2A
2	1	C1	Capacitor, X5R, 2.2μF, 100V, 10%, 1210	TDK, C3225X5R2A225K
3	1	C2	Capacitor, X5R, 22μF, 16V, 20%, 1210	AVX, 1210YC226MAT2A
4	2	C3, C4	Capacitor, TQC, 68μF, 16V	SANYO, 16TQC68M
5	1	R1	Resistor, Chip, 56.2k, 1/16W, 1%, 0603	Vishay, CRCW060356K2FKEA
6	1	R2	Resistor, Chip, 845k, 1/16W, 1%, 0603	Vishay, CRCW0603845KFKEA
7	1	R3	Resistor, Chip, 49.9k, 1/16W, 1%, 0603	Vishay, CRCW060349K9FKEA
8	1	R4	Resistor, Chip, 82.5k, 1/16W, 5%, 0603	Vishay, CRCW060382K5FKEA
9	1	U1	I.C., LTM8027EV#PBF, LGA, 113-Pin	Linear Technology, LTM8027EV#PBF
Additional Demo Board Circuit Components				
1	1	C _{IN}	Capacitor, Aluminum, 22μF, 63V	Sun Electronic, 63CE22BS
2	1	C6	Capacitor, X7R, 0.1μF, 50V, 10%, 0603	Murata, GRM188R71H104KA93D
3	0	C7 (Optional)	Capacitor, Aluminum, 63V, 22μF	
4	0	C8 (Optional)	Capacitor, 1210	
5	0	C9 (Optional)	Capacitor, 1206	
6	0	L2 (Optional)	Inductor, 22μH	Vishay, IHLP-4040DZER22R0M11
7	0	FB1 (Optional)	Resistor, Chip, 1206	
Hardware, for Demo Board Only				
1	6	E1-E6	Testpoint, Turrent, .095"	MILL-MAX, 2501-2-00-80-00-00-07-0
2	1	JP1	2mm Single Row Header, 3-Pin	Samtec, TMM-103-02-L-S
3	1	JP1	Shunt	Samtec, 2SN-BK-G
4	4	E7-E10	Banana Jack	Keystone, 575-4
5	4	(Stand-Off)	Stand-Off, Nylon 0.50" Tall	Keystone, 8833(Snap On)

SCHEMATIC DIAGRAM



dc1307bf

DEMO MANUAL DC1307B

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

dc1307bf



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.