

LTM8064 58V_{IN}, 6A CVCC Step-Down μModule Regulator

DESCRIPTION

Demonstration circuit 2237A is a 58V_{IN}, 6A, CVCC Step-Down μModule® Regulator featuring the [LTM8064](#). The demo circuit is designed for a 5V output from an input voltage range of 7.5V to 58V. The output can source 7A (typical) or sink 9.1A (typical). The circuit can be operated in either constant voltage mode or constant current mode.

Two or more LTM8064s can be paralleled to share load current equally. In this configuration, a master part determines the output currents of the slave parts. The MODE pin of the master part should be floating and all MODE pins of slave parts should be grounded.

When the output sinks current, the circuit maintains its output voltage regulation by power conversion, not

power dissipation. This means that the energy provided to LTM8064 is in turn delivered to its input power bus. There must be something on the input power bus to accept or use the energy.

The LTM8064 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 demo circuit 2237A.

Design files for this circuit board are available at <http://www.linear.com/demo/DC2237A>

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

BOARD PHOTO

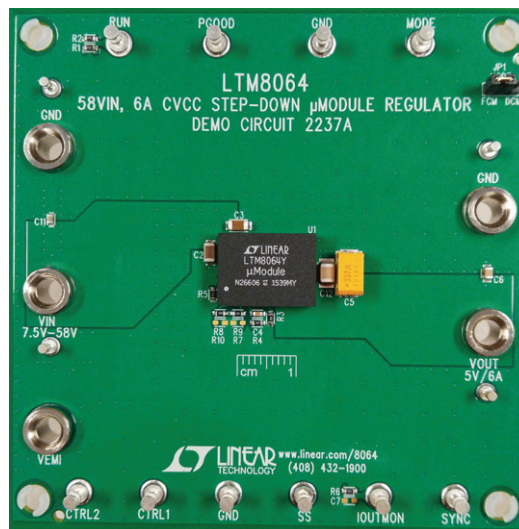


Figure 1. DC2237A Board Picture

DEMO MANUAL DC2237A

PERFORMANCE SUMMARY

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

PARAMETER	CONDITIONS		UNITS
Minimum Input Supply Voltage		7.5	V
Maximum Input Supply Voltage		58	V
Output Voltage	Sourcing Current	$5 \pm 5\%$	V
Switching Frequency		325	kHz
Maximum Output Current	Sourcing Current	6	A
Efficiency	$V_{IN} = 12\text{V}, I_{OUT} 6\text{A}$	86	%

QUICK START PROCEDURE

Demonstration circuit 2237A is easy to set up to evaluate the performance of the LTM8064. Refer to Figure 2 for proper measurement equipment setup and follow the procedure below:

NOTE: When measuring the input or output voltage ripple, care must be taken to avoid a long ground lead on the oscilloscope probe. Measure the input or output voltage ripple by touching the probe tip directly across the V_{IN} and GND or V_{OUT} and GND terminals.

1. With power off, connect the input power supply to V_{IN} and GND.

2. Connect a load to V_{OUT} and GND.
3. Turn on the power at the input.
4. Check for the proper output voltage and current.

Note. 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 voltage is established, adjust the load and input within the operating ranges and observe the output voltage regulation, output current regulation, ripple voltage, efficiency and other parameters.

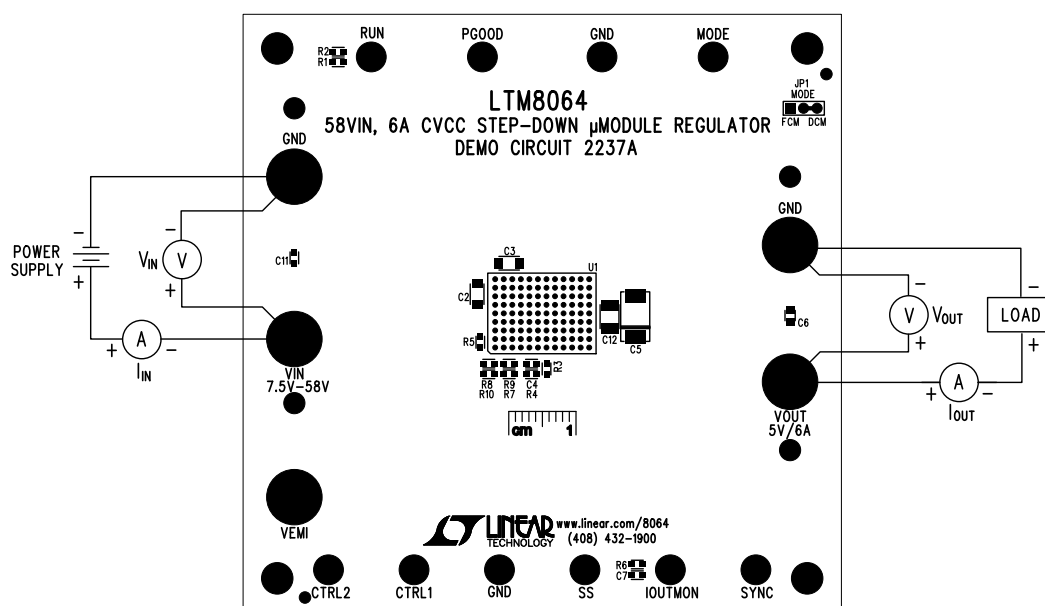


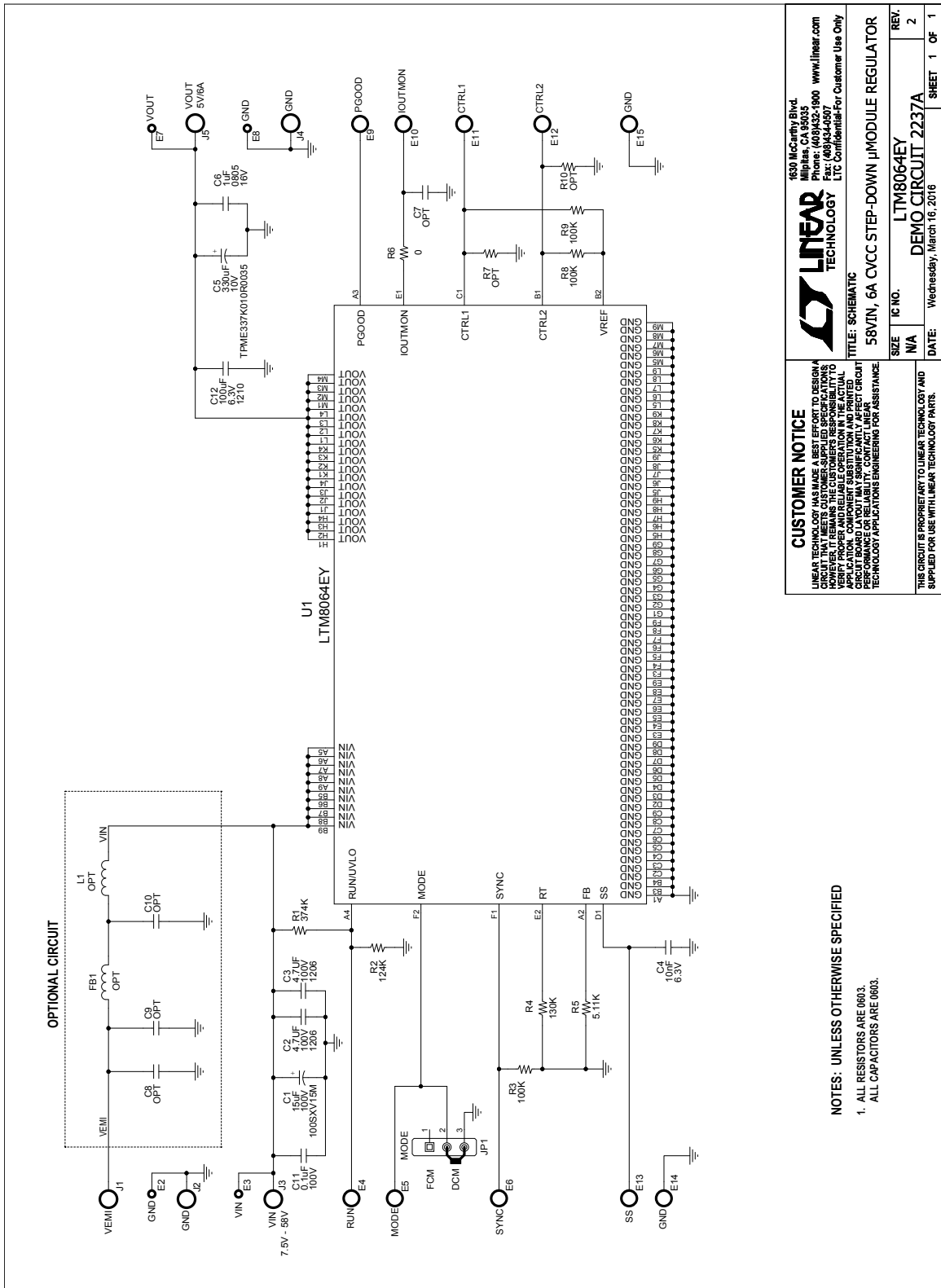
Figure 2. Proper Measurement Equipment Setup. Board Can Sink Current from the Load.

DEMO MANUAL DC2237A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	C1	CAP POLYMER 15 μ F 20% 100V RAD	PANASONIC, 100SXV15M
2	2	C2,C3	CAP CER 4.7 μ F 100V X7S 1206	AVX, 12061Z475MAT2A
3	1	C4	CAP., X7R, 0.01 μ F, 6.3V, 10%, 0603	MURATA, GRM188R70J103KA01D
4	1	C5	CAP TANT 330 μ F 10V 10% 2917	AVX, TPME337K010H0035
5	1	C6	CAP., X7R, 1 μ F, 16V, 10%, 0805	MURATA, GRM21BR71C105KA01L
8	1	C11	CAP., X7R, 0.1 μ F, 100V, 10%, 0603	MURATA, GRM188R72A104KA35D
9	1	C12	CAP CER 100 μ F 6.3V X5R 1210	MURATA, GRM32ER60J107ME20L
17	1	R1	RES., CHIP, 374k, 1/10W, 1%, 0603	VISHAY, CRCW0603374KFKEA
18	1	R2	RES., CHIP, 124k, 1/10W, 1%, 0603	VISHAY, CRCW0603124KFKEA
19	3	R3,R8,R9	RES., CHIP, 100k, 1/10W, 1%, 0603	VISHAY, CRCW0603100KFKEA
20	1	R4	RES., CHIP, 130k, 1/10W, 1%, 0603	VISHAY, CRCW0603130KFKEA
21	1	R5	RES., CHIP, 5.11k, 1/10W, 1%, 0603	VISHAY, CRCW06035K11FKEA
22	1	R6	RES., CHIP, 0 Ω , 1/10W, 0603	VISHAY, CRCW06030000Z0EA
24	1	U1	I.C., REGULATOR, BGA-108-16 \times 11.9 \times 5.01	LINEAR TECHNOLOGY., LTM8064EY#PBF
Additional Demo Board Circuit Components				
6	0	C7, C8 (OPT)	CAP., 0603	OPTION
7	0	C9, C10 (OPT)	CAP., 1210	OPTION
12	0	FB1 (OPT)	FERRITE CHIP 30 Ω 6A 0805	OPTION
16	0	L1 (OPT)	IND., IHLP2525	OPTION
23	0	R7, R10 (OPT)	RES., CHIP, 0603	OPTION
Hardware for Demo Board Only				
10	4	E2, E3, E7, E8	TESTPOINT, TURRET, 0.061" PBF	MILL-MAX, 2308-2-00-80-00-00-07-0
11	10	E4-E6, E9-E15	TESTPOINT, TURRET, 0.094" PBF	MILL-MAX, 2501-2-00-80-00-00-07-0
13	5	J1-J5	JACK BANANA	KEYSTONE, 575-4
14	1	JP1	HEADER 3-PIN 0.079" SINGLE ROW	WURTH ELEKTRONIK, 62000311121
15	1	XJP1	SHUNT, 0.079" CENTER	WURTH ELEKTRONIK, 60800213421
25	4	MH1-MH4	STAND-OFF, NYLON 0.50"	WURTH ELEKTRONIK, 702935000

SCHEMATIC DIAGRAM



DEMO MANUAL DC2237A

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

dc2237af

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Power Management IC Development Tools](#) *category:*

Click to view products by [Analog Devices](#) *manufacturer:*

Other Similar products are found below :

[EVAL-ADM1168LQEBZ](#) [EVB-EP5348UI](#) [MIC23451-AAAYFL EV](#) [MIC5281YMME EV](#) [DA9063-EVAL](#) [ADP122-3.3-EVALZ](#) [ADP130-0.8-EVALZ](#) [ADP130-1.2-EVALZ](#) [ADP130-1.5-EVALZ](#) [ADP130-1.8-EVALZ](#) [ADP1714-3.3-EVALZ](#) [ADP1716-2.5-EVALZ](#) [ADP1740-1.5-EVALZ](#) [ADP1752-1.5-EVALZ](#) [ADP1828LC-EVALZ](#) [ADP1870-0.3-EVALZ](#) [ADP1871-0.6-EVALZ](#) [ADP1873-0.6-EVALZ](#) [ADP1874-0.3-EVALZ](#) [ADP1882-1.0-EVALZ](#) [ADP199CB-EVALZ](#) [ADP2102-1.25-EVALZ](#) [ADP2102-1.875EVALZ](#) [ADP2102-1.8-EVALZ](#) [ADP2102-2-EVALZ](#) [ADP2102-3-EVALZ](#) [ADP2102-4-EVALZ](#) [ADP2106-1.8-EVALZ](#) [ADP2147CB-110EVALZ](#) [AS3606-DB](#) [BQ24010EVM](#) [BQ24075TEVM](#) [BQ24155EVM](#) [BQ24157EVM-697](#) [BQ24160EVM-742](#) [BQ24296MEVM-655](#) [BQ25010EVM](#) [BQ3055EVM](#) [NCV891330PD50GEVB](#) [ISLUSBI2CKIT1Z](#) [LM2744EVAL](#) [LM2854EVAL](#) [LM3658SD-AEV/NOPB](#) [LM3658SDEV/NOPB](#) [LM3691TL-1.8EV/NOPB](#) [LM4510SDEV/NOPB](#) [LM5033SD-EVAL](#) [LP38512TS-1.8EV](#) [EVAL-ADM1186-1MBZ](#) [EVAL-ADM1186-2MBZ](#)