

DESCRIPTION

The Demo circuit 2357A is a 2kV AC isolated flyback μ Module[®] DC/DC converter featuring the LTM8067. The demo circuit is designed for a 5V flyback output from a 4.5V to 40V input. The typical current capability of the 5V flyback output varies with input voltage from about 200mA at 4.5V_{IN} to about 500mA at 40V_{IN}. Figure 1 shows the maximum output current on V_{OUT}. R1 provides the necessary minimum load current to keep the output voltage in regulation throughout the entire input voltage range. Please see the typical performance characteristic curves

in the LTM8067 data sheet to determine the minimum load current for other input/output configurations.

The LTM8067 data sheet gives complete description of the device, operation and application information. The data sheet must be read in conjunction with this quick start guide for demo circuit 2357A.

Design files for this circuit board are available at <http://www.linear.com/demo/DC2357A>

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.

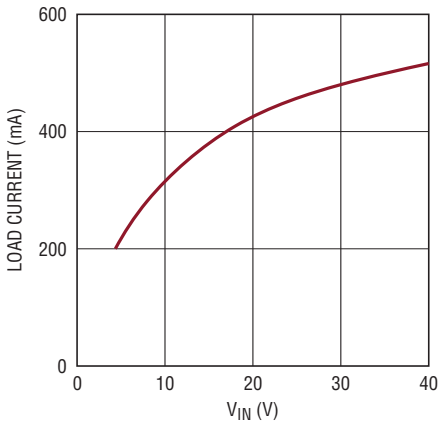


Figure 1. V_{OUT} Maximum Output Current vs V_{IN}

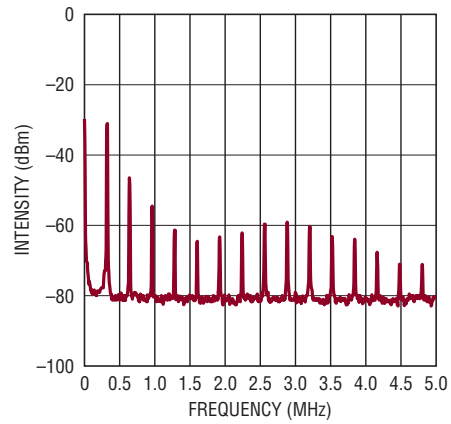
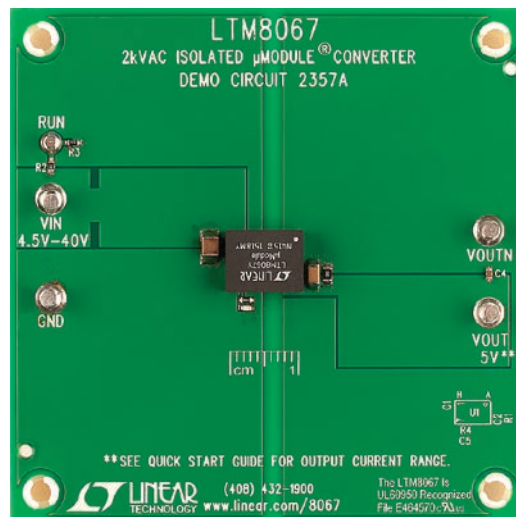


Figure 2. V_{OUT} Output Noise Spectrum with I_{OUT} at 200mA and V_{IN} at 12V

BOARD PHOTO



dc2357af

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

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
Minimum Input Voltage				4.5	V
Maximum Input Voltage		40			V
Output Voltage V_{OUT}	$V_{IN} = 4.5\text{V to }40\text{V}$	4.75	5	5.25	V
Voltage Ripple V_{OUT}	$V_{IN} = 12\text{V}, I_{OUT} = 200\text{mA}$		25		mV

QUICK START PROCEDURE

Demo circuit 2357A is easy to set up to evaluate the performance of the LTM8067. Refer to Figure 3 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 V_{OUTN} terminals. See Figure 4 for proper scope probe technique.

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

2. Turn on the power at the input.

NOTE. Make sure that the input voltage does not exceed 40V.

3. Check for the proper output voltage. (For V_{OUT} , check the voltage between V_{OUT} and V_{OUTN})

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

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

QUICK START PROCEDURE

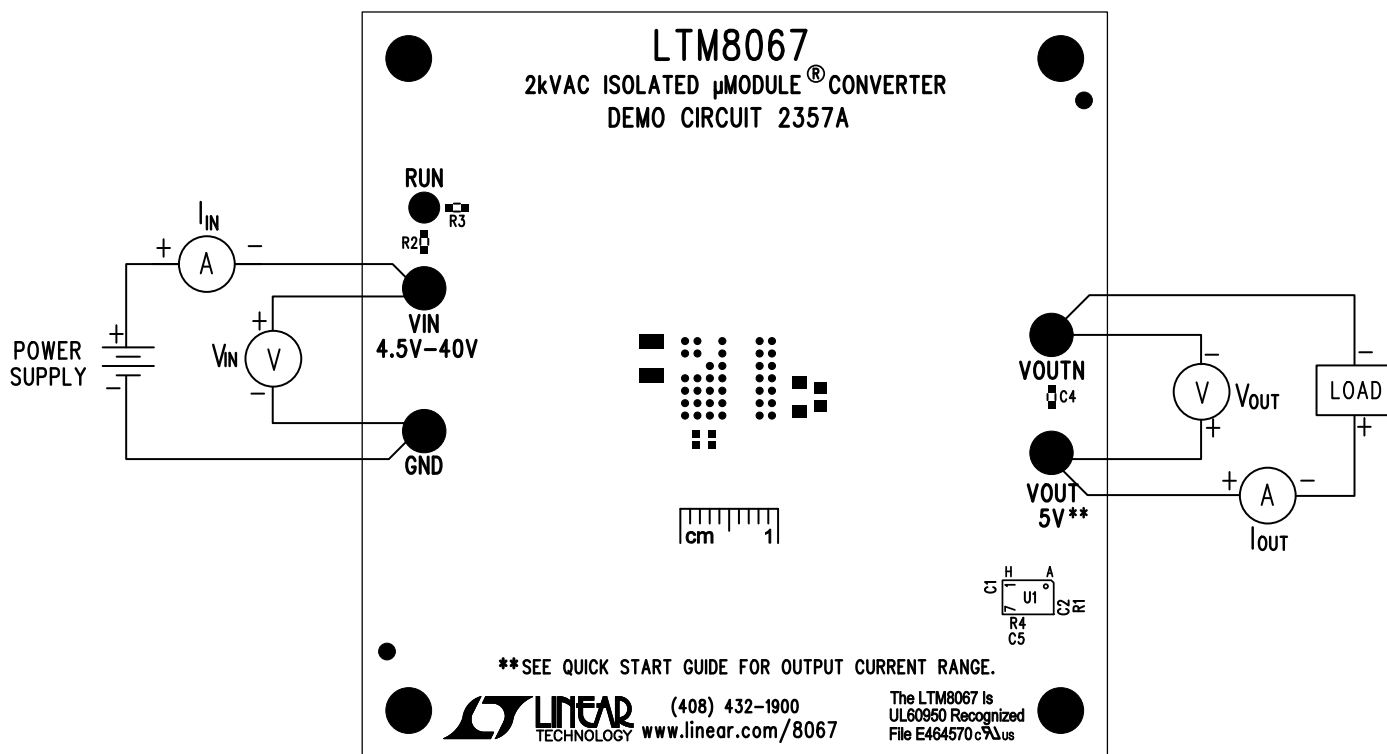


Figure 3. DC2357A Proper Equipment Setup

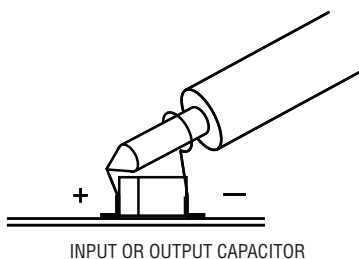


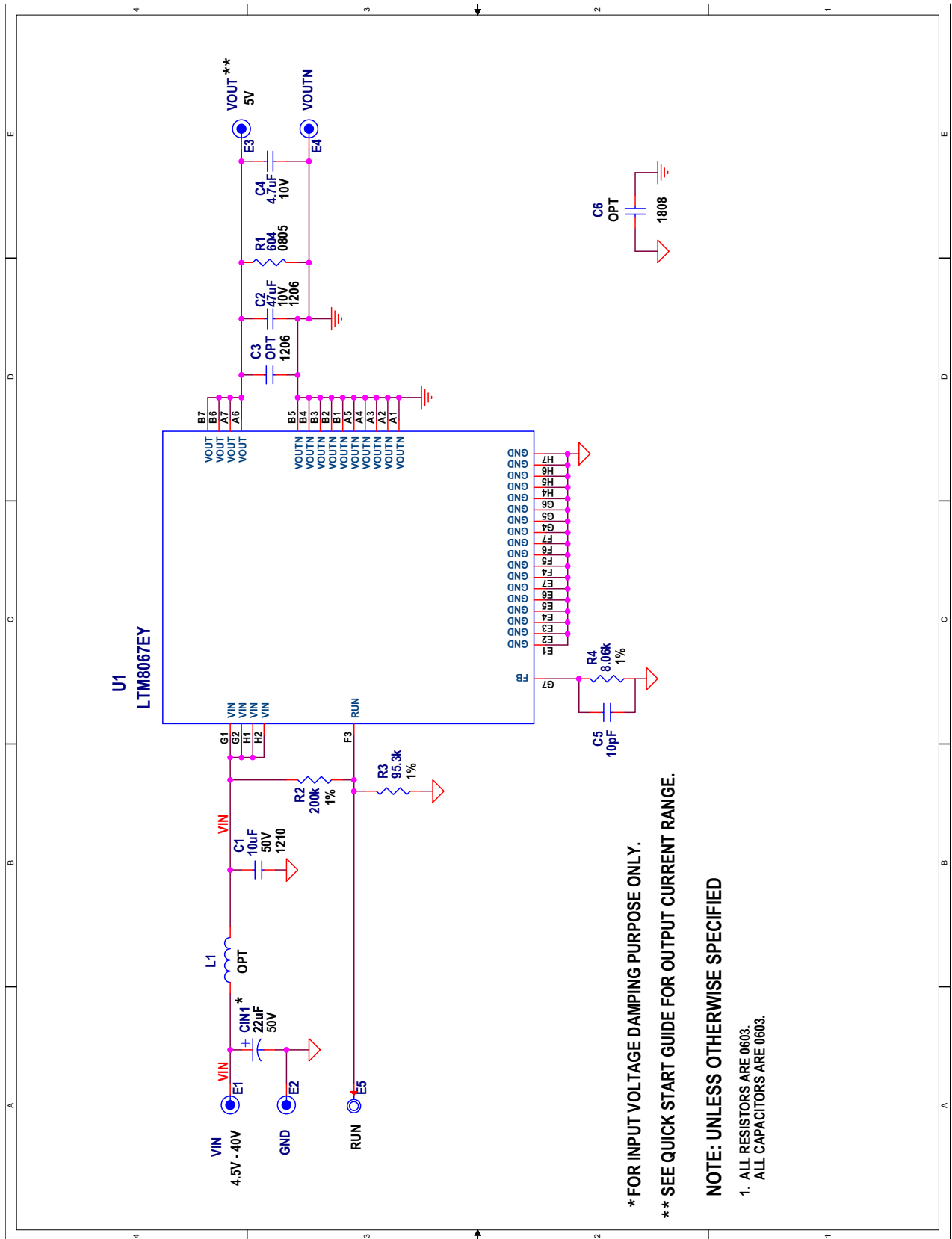
Figure 4. Measuring Input or Output Ripple

DEMO MANUAL DC2357A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	CIN1	CAP, ALUM, 22 μ F, 50V, 6.6x6.6mm	UNITED CHEMI-CON, EMZA500ADA220MF61G
2	1	C1	CAP, CER., 10 μ F, X7R, 50V, 10%, 1210	MURATA, GRM32ER71H106KA12L
3	1	C2	CAP, CER., 47 μ F, X5R, 10V, 10%, 1206	MURATA, GRM31CR61A476KE15L
4	1	C4	CAP, CER., 4.7 μ F, X5R, 10V, 10%, 0603	MURATA, GRM188R61A475KE15D
5	1	C5	CAP, CER., 10pF, NPO, 50V, 5%, 0603	MURATA, GRM1885C1H100JA01D
6	1	R1	RES, 604 Ω , 1/8W, 1%, 0805	VISHAY, CRCW0805604RFKEA
7	1	R2	RES, 200k, 1/10W, 1%, 0603	VISHAY, CRCW0603200KFKEA
8	1	R3	RES, 95.3k, 1/10W, 1%, 0603	VISHAY, CRCW060395K3FKEA
9	1	R4	RES, 8.06k, 1/10W, 1%, 0603	VISHAY, CRCW06038K06FKEA
10	1	U1	I.C., LTM8067EY#PBF 9 x 11.25 x 4.92 BGA	LINEAR TECH., LTM8067EY#PBF
Additional Demo Board Circuit Components				
1	0	C3 (OPT)	CAP, 1206 (OPT)	
2	0	C6 (OPT)	CAP, 1808 (OPT)	
3	0	L1 (OPT)	IND., XFL3012 (OPT)	
Hardware: For Demo Board Only				
1	4	E1-E4	TESTPOINT, TURRET, 0.094" PBF	MILL-MAX, 2501-2-00-80-00-00-07-0
2	1	E5	TEST POINT, TURRET, 0.064" MTH HOLE	MILL-MAX, 2308-2-00-80-00-00-07-0
3	4	MH1-MH4	STAND-OFF, NYLON 0.375" SNAP ON	KEYSTONE, 8832

SCHEMATIC DIAGRAM



*** FOR INPUT VOLTAGE DAMPING PURPOSE ONLY.**

**** SEE QUICK START GUIDE FOR OUTPUT CURRENT RANGE.**

NOTE: UNLESS OTHERWISE SPECIFIED

1. ALL RESISTORS ARE 0603.
ALL CAPACITORS ARE 0603.

DEMO MANUAL DC2357A

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