

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>

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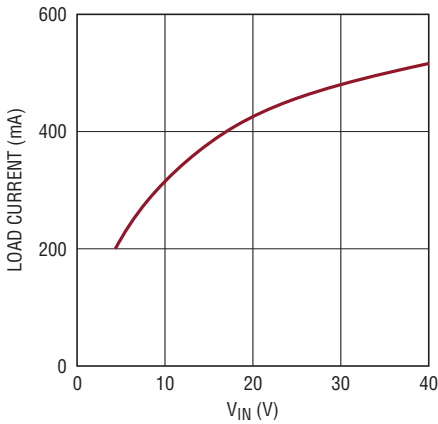


Figure 1. V_{OUT} Maximum Output Current vs V_{IN}

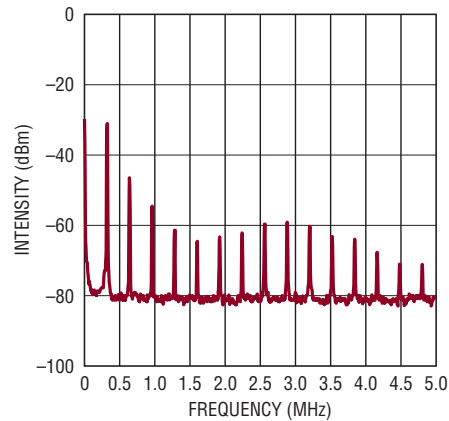
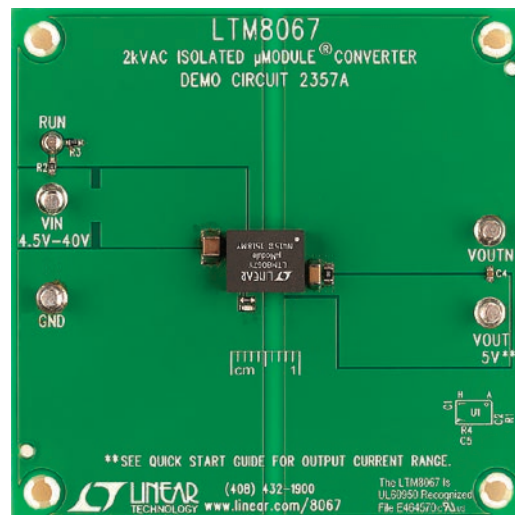


Figure 2. V_{OUT} Output Noise Spectrum with I_{OUT} at 200mA and V_{IN} at 12V

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

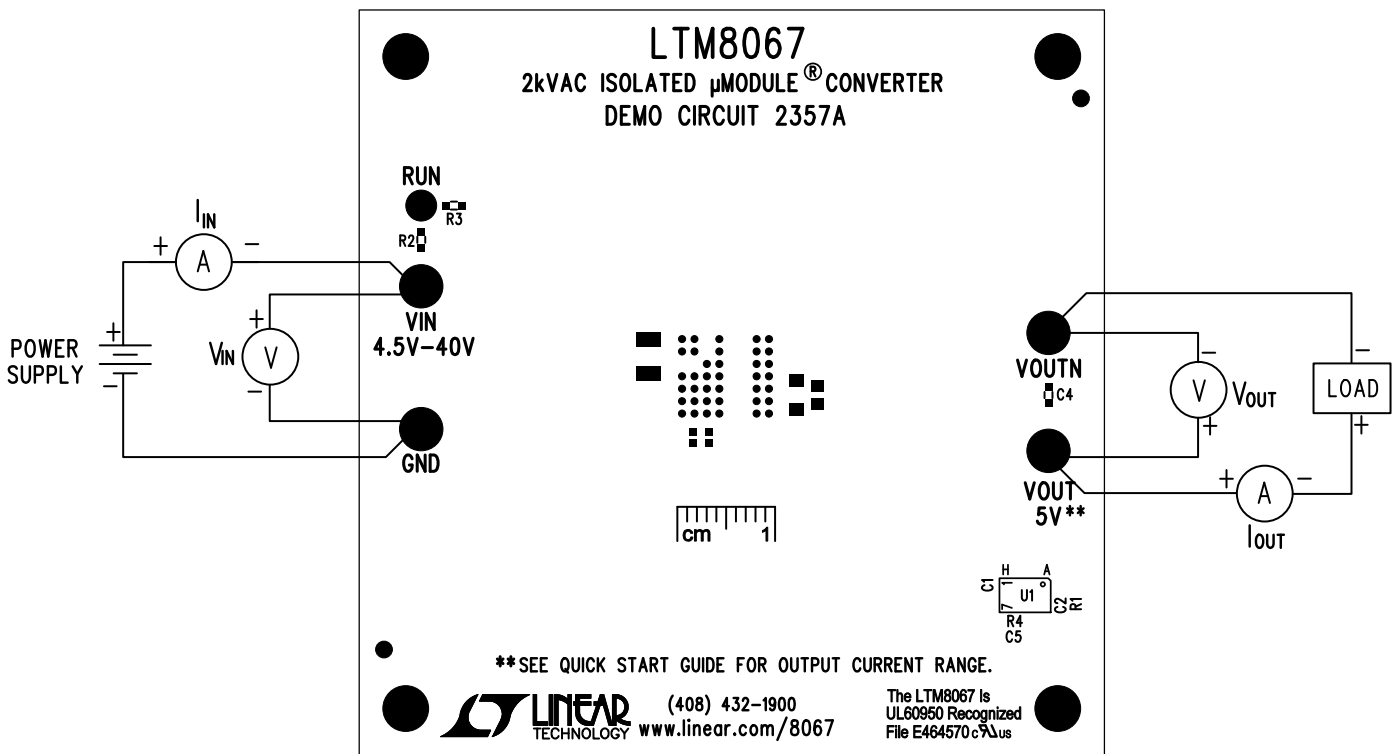


Figure 3. DC2357A Proper Equipment Setup

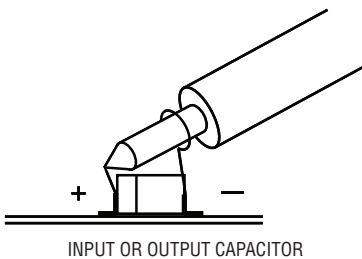


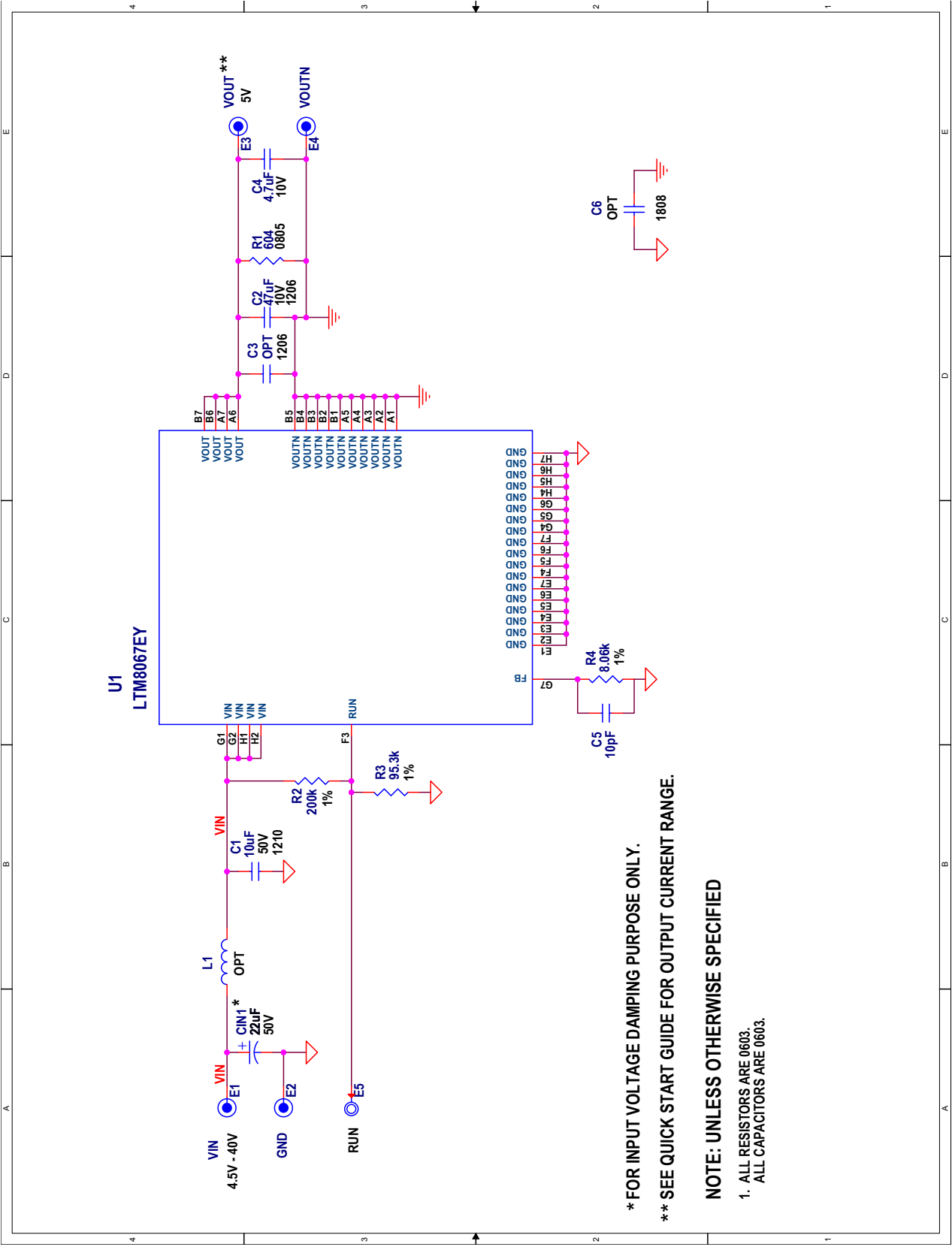
Figure 4. Measuring Input or Output Ripple

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, NP0, 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 $\times$ 11.25 $\times$ 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

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

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