

LTM8033: 36V_{IN}, 3A Low EMI Step-Down μModule Regulator

DESCRIPTION

Demonstration circuit DC1623A features the LTM[®]8033, a low-EMI EN55022 Class B certified step-down μModule[®] regulator, pre-configured for a 3.3V output from a 5.5V to 36V input. The circuit supports other features of the LTM8033 including synchronization to an external clock, current sharing with another LTM8033 μModule regulator, and burst mode operation for improved efficiency

at light loads. The LTM8033 data sheet must be read in conjunction with this quick start guide prior to working on or modifying demo circuit DC1623A.

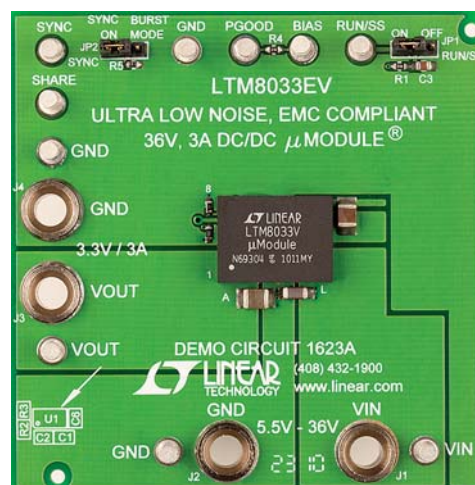
Design files for this circuit board are available at <http://www.linear.com/demo>

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PERFORMANCE SUMMARY (T_A = 25°C)

PARAMETER	CONDITIONS	VALUE
Input Voltage Range		5.5V to 36V
Output Voltage V _{OUT}		3.3V ±3%
Maximum Output Current		3A
Typical Switching Frequency	R2 = 93.1k	425kHz

BOARD PHOTO



QUICK START PROCEDURE

Demonstration circuit DC1623A is an easy way to evaluate the performance of the LTM8033. Refer to Figure 1 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 terminals of the input or output capacitors. See Figure 2 for proper scope probe technique.

1. Place JP1 in the ON position.
2. With power off, preset the input power supply within the operating input voltage range and connect to V_{IN} and GND.

3. Turn on the power at the input.

4. Check for the proper output voltage.

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

5. Once the proper output voltage is established, adjust the loads within the operating range and observe the output voltage regulation, ripple voltage, efficiency and other parameters.
6. An external clock can be added to the SYNC pin when SYNC function is used. See the Synchronization section in the data sheet for details.

QUICK START PROCEDURE

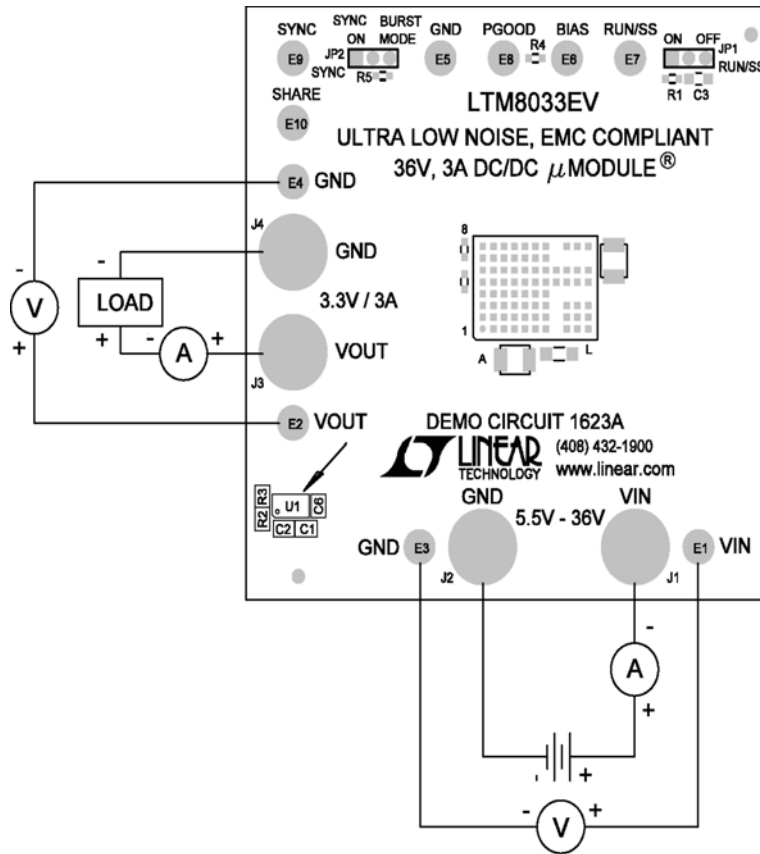


Figure 1. Measurement Equipment Setup

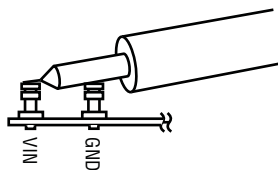


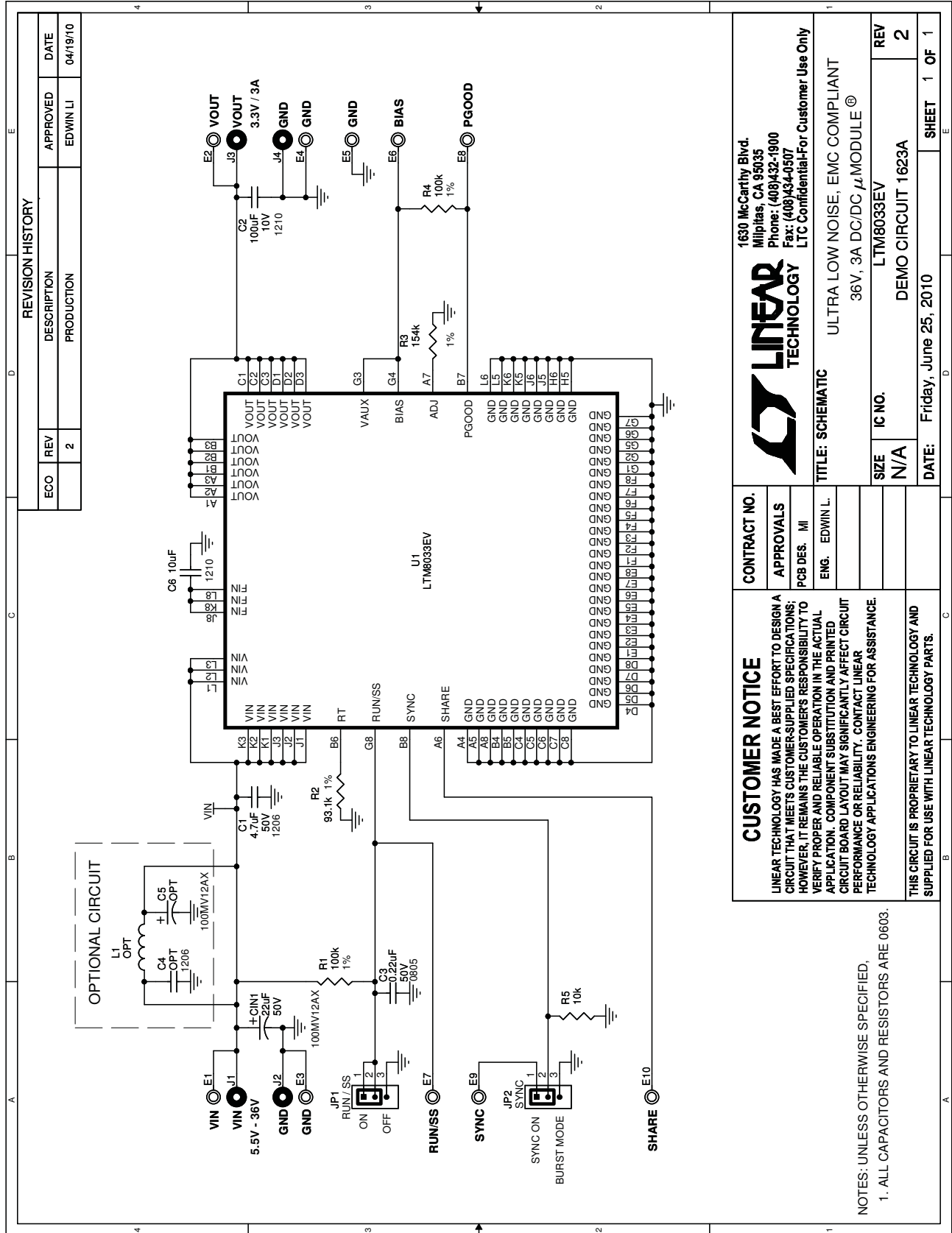
Figure 2. Measuring Input or Output Ripple

DEMO MANUAL DC1623A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components				
1	1	C3	CAP, 0805, 0.22 μ F 50V X5R	TAIYO YUDEN, UMK212BJ224MG-T
2	1	C2	CAP, 1210, 100 μ F 10V X5R	TAIYO YUDEN, LMK325BJ107MM-T
3	1	C1	CAP, 1206, 4.7 μ F 50V X5R	TAIYO YUDEN UMK316BJ475KL-T
4	1	C6	CAP, 1210, 10 μ F 10% 50V X7R	MURATA GRM32ER71H106K
5	1	R5	RES, 0603, 10k 5% 1/10W	VISHAY CRCW060310K0JNEA
6	2	R1,R4	RES, 0603, 100k 1% 1/10W	VISHAY CRCW0603100KFNEA
7	1	R2	RES, 0603, 93.1k 1% 1/10W	VISHAY CRCW060393K1FKEA
8	1	R3	RES, 0603, 154k 1% 1/10W	VISHAY CRCW0603154KFKED
9	1	U1	IC, LTM8033EV	LINEAR TECH. LTM8033EV
Additional Demo Board Circuit Components				
1	1	CIN1	CAP, 22 μ F 50V ALUMINUM ELEC.	SUN ELECT 50CE22BS
2	0	C4,C5	CAP, OPTION	OPTION
3	0	L1	OPTION	OPTION
Hardware—For Demo Board Only				
1	10	E1-E10	TURRET	MILL-MAX 2501-2-00-80-00-00-07-0
2	4	J1-J4	JACK, BANANA	KEYSTONE 575-4
3	2	JP1,JP2	HEADER, 1 \times 3 PINS, 2MM	SAMTEC TMM-103-01-L-S
4	2	JP1,JP2	SHUNT, 2 PINS, 2MM	SAMTEC 2SN-BK-G

SCHEMATIC DIAGRAM



DEMO MANUAL DC1623A

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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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