

LTM8062: 32V, 2A μ Module Power Tracking Battery Charger

DESCRIPTION

Demonstration circuit 1621A features the LTM[®]8062, a 32V, 2A μ Module[®] power tracking battery charger. The demonstration circuit is designed to operate from a 9.75V to 32V input source, and to charge a 2-cell battery pack to a float voltage of 7.2V. The float voltage can easily be changed to a higher or lower voltage by adjusting the values of R2 and R3. R7 and R9 keep the converter off until the input has reached 8.5V, typically. JP2 allows for

easy selection of C/10 or timer charge termination. The LTM8062 data sheet must be read in conjunction with this quick start guide for working on or modifying the demo circuit 1621A.

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

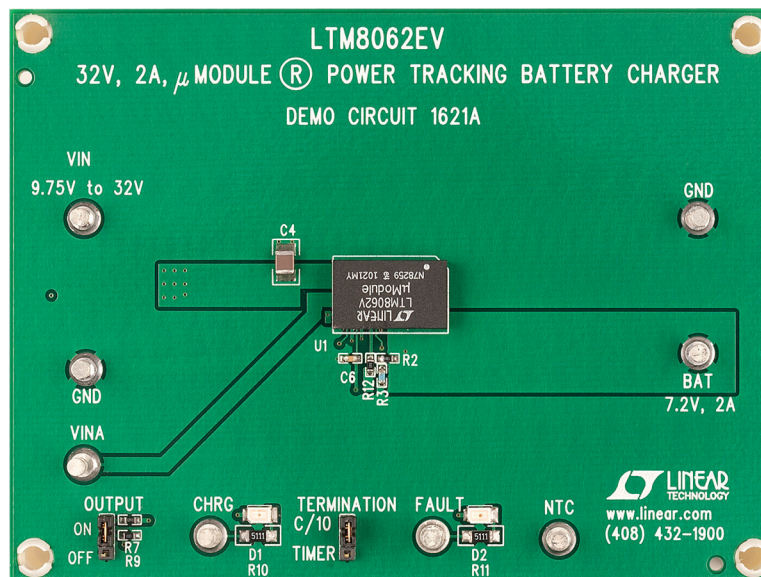
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PERFORMANCE SUMMARY

Table 1. Typical Specifications of the Demo Board ($T_A = 25^\circ\text{C}$)

PARAMETER	VALUE
Input Supply Range	9.75V to 32V
Output Voltage Accuracy	7.19V to 7.3V
Typical Output Current Limit	2A

BOARD PHOTO



QUICK START PROCEDURE

Demonstration circuit 1621A is easy to set up to evaluate the performance of the LTM8062.

Using short twisted pairs of leads for any power connection, with all loads and power supplies off, refer to Figure 1 for the proper measurement and equipment setup.

Follow the procedure below:

1. Jumper and Power Supply Setting:

JP1 = ON PS1 = OFF

JP2 = C/10 PS2 = OFF

2. Turn on PS2 and slowly increase the voltage to 4.5V while monitoring the current into the BAT pin. If the current is less than 5mA, turn on PS1. Increase the voltage on PS1 to 8V while monitoring the input current. If the current is less than 5mA, increase PS1 to 12V.
3. Verify that the battery charging current, I_{BAT} , is between 250mA and 350mA. The CHRG LED should be on and the FAULT LED should be off.
4. Increase PS2 until V_{BAT} is 6.3V. Verify the input current, I_{IN} , is between 1A and 1.5A, the battery current, I_{BAT} , is between 1.775A and 2.225A and that the CHRG LED is on.
5. Increase PS2 until V_{BAT} is 7.4V. Verify the battery charging current, I_{BAT} , is less than 5mA and that the CHRG LED is off.
6. Decrease PS2 until V_{BAT} is 6.8V. Verify the battery current, I_{BAT} , is between 1.775A and 2.225A and that the CHRG LED is on.
7. Set JP1 to off. Verify the charging current, I_{BAT} , is less than 5mA and that the FAULT LED and the CHRG LED are off.
8. Set JP1 to on. Connect a jumper from the NTC pin to ground. Verify the charging current, I_{BAT} , is less than 5mA and that the FAULT LED and the CHRG LED are on.
9. Remove the jumper from NTC to ground. Verify the charging current, I_{BAT} , is between 1.775A and 2.225A and that the FAULT LED is off and the CHRG LED is on.
10. At this point, vary PS1 between the 9.75V to 32V range if desired, and verify the charging current is between 1.775A and 2.225A and that the CHRG LED is on.
11. This concludes the test. Turn off PS1 and PS2.

QUICK START PROCEDURE

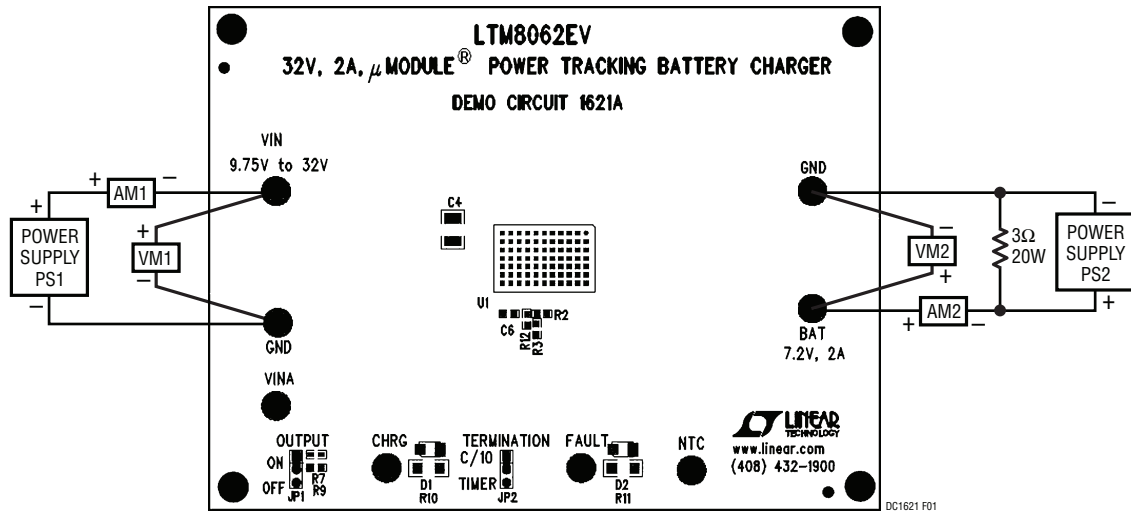


Figure 1. DC1621A Proper Equipment Setup

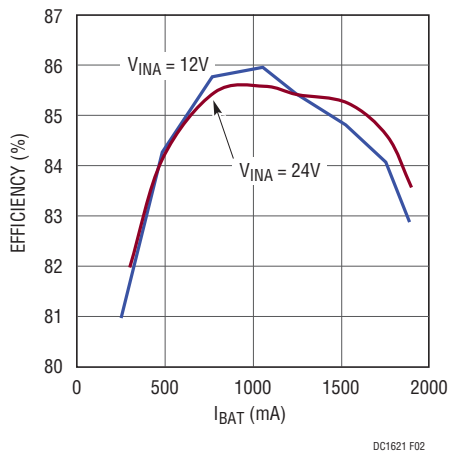


Figure 2. Efficiency vs I_{BAT}, 7.2V Float

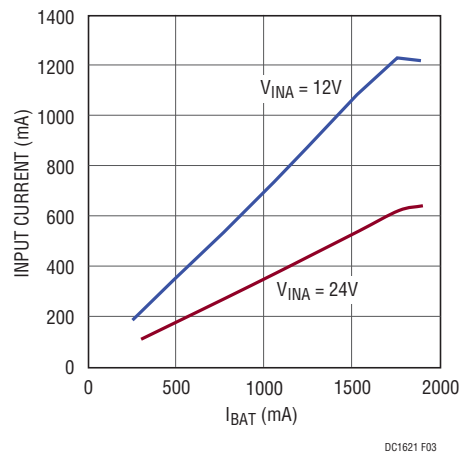


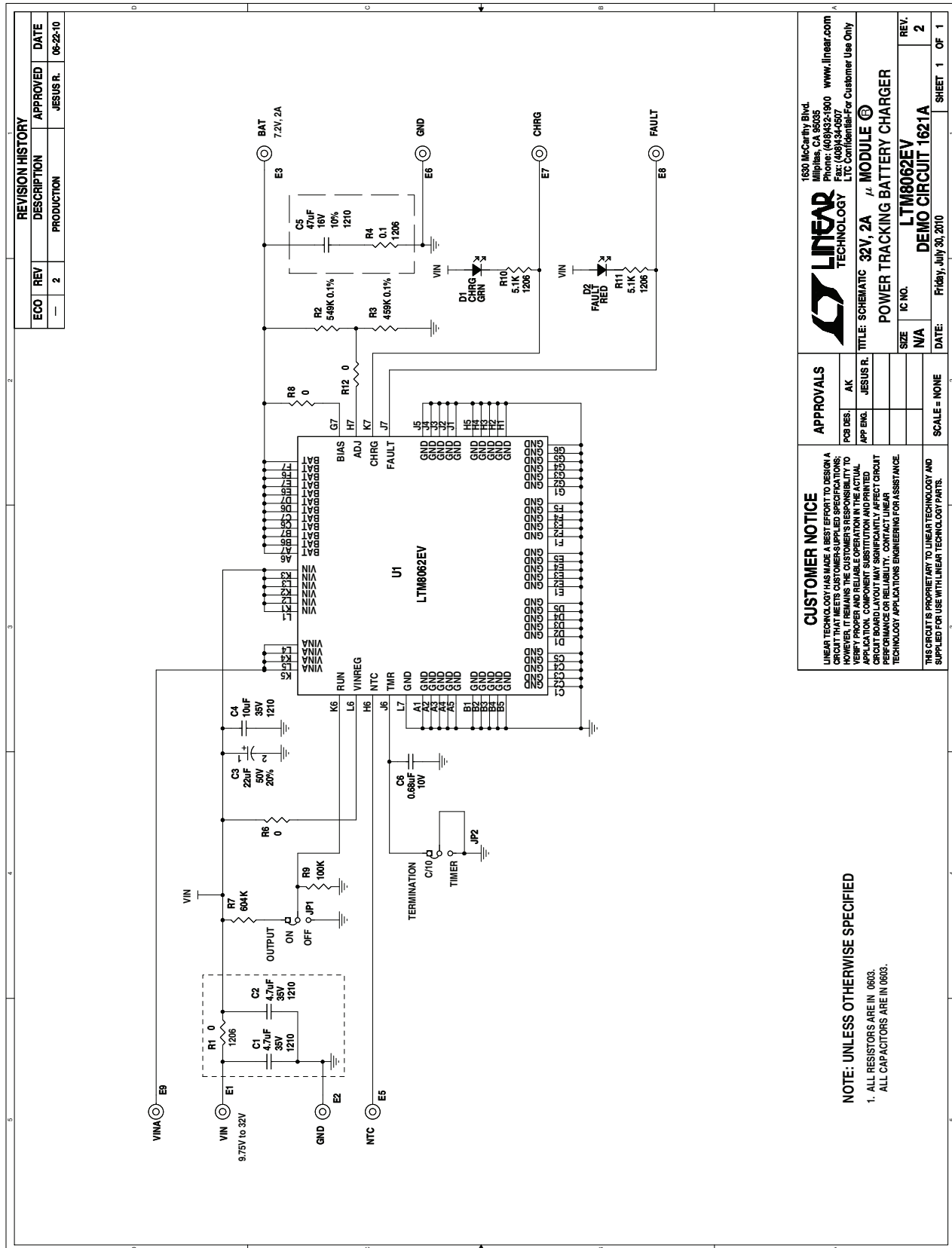
Figure 3. Input Current vs I_{BAT}, 7.2V Float

DEMO MANUAL DC1621A

PARTS LIST

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
Required Circuit Components for DC1621A				
2	1	C3	Cap., SMT, 22 μ F, 50V, 20%	Sanyo, 50CE22BS
3	1	C4	Cap., X5R, 10 μ F, 35V, 20%, 1210	Taiyo Yuden, GMK325BJ106MN-T
5	1	C6	Cap., X5R, 0.68 μ F, 10V, 20%, 0603	AVX, 0603YD684KAT
12	1	R2	Res., Chip, 549k, 0.1%, 0603	Vishay, TNPW0603549KBKEA
13	1	R3	Res., Chip, 459k, 0.1%, 0603	Vishay, TNPW0603459KBKEA
19	1	U1	I.C. LTM8062, LGA-77-15 $\times$ 9	Linear Technology Corporation LTM8062EV
Additional Demo Board Circuit Components				
1	0	C1, C2	OPT	
4	1	C5	Cap., X5R, 47 μ F, 16V, 20%, 1210	Taiyo Yuden, EMK325BJ476MM-T
6	1	D1	LED-LN Green	Panasonic, LN1351CTR
7	1	D2	LED-LN Red	Panasonic, LN1251CTR
11	1	R1	Res., Chip, 0 Ω 1/16W 1 AMP, 1206	Vishay, CRCW12060000Z0EA
14	1	R4	Res, Chip, 0.1 Ω , 1/8W, 1%, 1206	Vishay, WSL1206R1000FEA
15	3	R6, R8, R12	Res., Chip, 0 Ω 1/16W, 0603	Vishay, CRCW06030000Z0EA
16	1	R7	Res., Chip, 604k, 1%, 0603	Vishay, CRCW0603604KFKEA
17	1	R9	Res., Chip, 100k, 1%, 0603	Vishay, CRCW0603100KFKEA
18	2	R10, R11	Res., Chip, 5.1k, 1%, 1206	Vishay, CRCW12065K10FKEA
Hardware for Demo Board Only				
8	8	E1, E2, E3, E5, E6, E7, E8, E9	Turret, Testpoint	Mill Max 2501-2-00-80-00-00-07-0
9	2	JP1, JP2	Headers, 3 Pins 2mm Ctrs.	Samtec TMM-103-02-L-S
10	2	XJP1, XJP2	Shunt, 2mm Ctrs.	Samtec 2SN-BK-G

SCHEMATIC DIAGRAM



dc1621af

DEMO MANUAL DC1621A

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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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