QUICK START GUIDE FOR DEMONSTRATION CIRCUIT 1156A

ULTRALOW QUIESCENT CURRENT, 20mA LINEAR REGULATOR

LT3009EDC

DESCRIPTION

Demonstration circuit 1156A is an ultralow quiescent current and low dropout voltage linear regulator featuring LT®3009, which comes in an 8-lead SC70 or 2mmX2mm DFN package. The DC1156A has an input voltage range from 1.6V to 20V, and is capable of delivering up to 20mA output current. With the 3uA quiescent current of the LT3009, the DC1156A is ideal for supplying power to low current battery-powered systems, keep-alive power supply and remote monitoring utility meters and hotel door locks.

The LT3009 datasheet gives a complete description of the part, operation and application information. The datasheet should be read in conjunction with this quick start guide for working on or modifying the demo circuit 1156A.

Design files for this circuit board are available. Call the LTC factory.

Table 1. Performance Summary (T_A = 25°C)

PARAMETER	CONDITION	VALUE
Minimum Input Voltage		1.6V
Maximum Input Voltage		20V
Output Voltage	Vin=20V, Iout=20mA	1.2V ±3%
	Vin=20V, Iout=20mA	1.5V±3%
	Vin=20V, Iout=20mA	1.8V±3%
	Vin=20V, Iout=20mA	2.0V±3%
	Vin=20V, Iout=20mA	2.5V±3%
	Vin=20V, Iout=20mA	3.3V±3%
	Vin=20V, Iout=20mA	5.0V±3%
Maximum Output Current		20mA
Quiescent Current in Shutdown	Vin=20V	<1uA

QUICK START PROCEDURE

The DC1156A is easy to set up to evaluate the performance of the LT3009. Refer to Figure 1. for proper measurement equipment setup and following the procedures below:

1. Before proceeding to test, insert jumper JP1 into the OFF position, and use VOUT Select jumper J1 for the desired output voltage 1.2V, 1.5V, 1.8V, 2.0V, 2.5V, 3.3V or 5.0V. If the output voltage is different from the above values, use the USER option and install a resistor R8. Select R8 according to the following equation: $R_8 = \left(\frac{V_{OUT}}{0.6V} - 1\right) \cdot 619K$.

2. Assume 1.2V is the desired output. Apply 1.6V across Vin (to Gnd). Insert jumper JP1 into the ON position. Draw 20mA of load current. The measured Vout should be 1.2V ± 3% (1.164V to 1.236V).

3. Vary the input voltage from 1.6V to 20V and the load current from no load to 20mA. Vout should measure 1.2V ± 4% (1.152V to 1.248V).

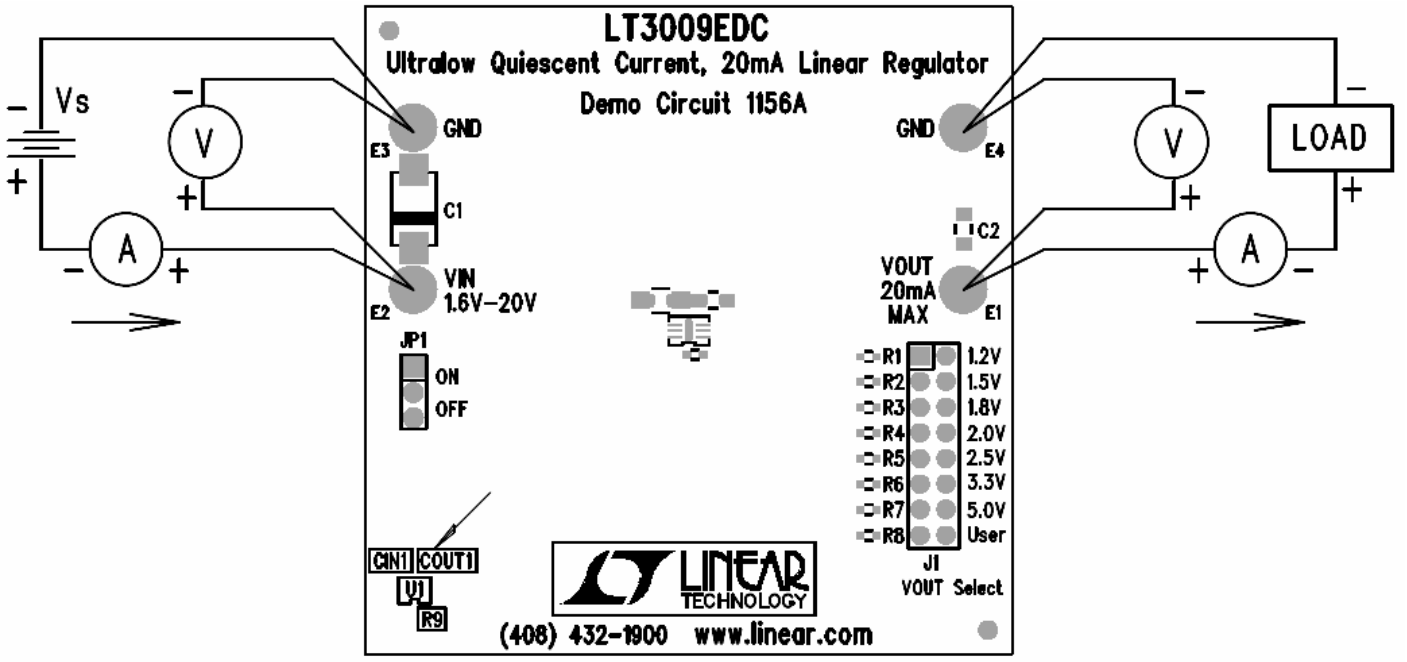


Figure 1. Proper Measurement Equipment Setup

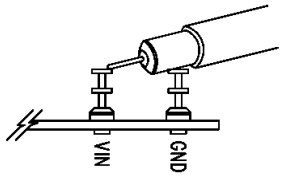
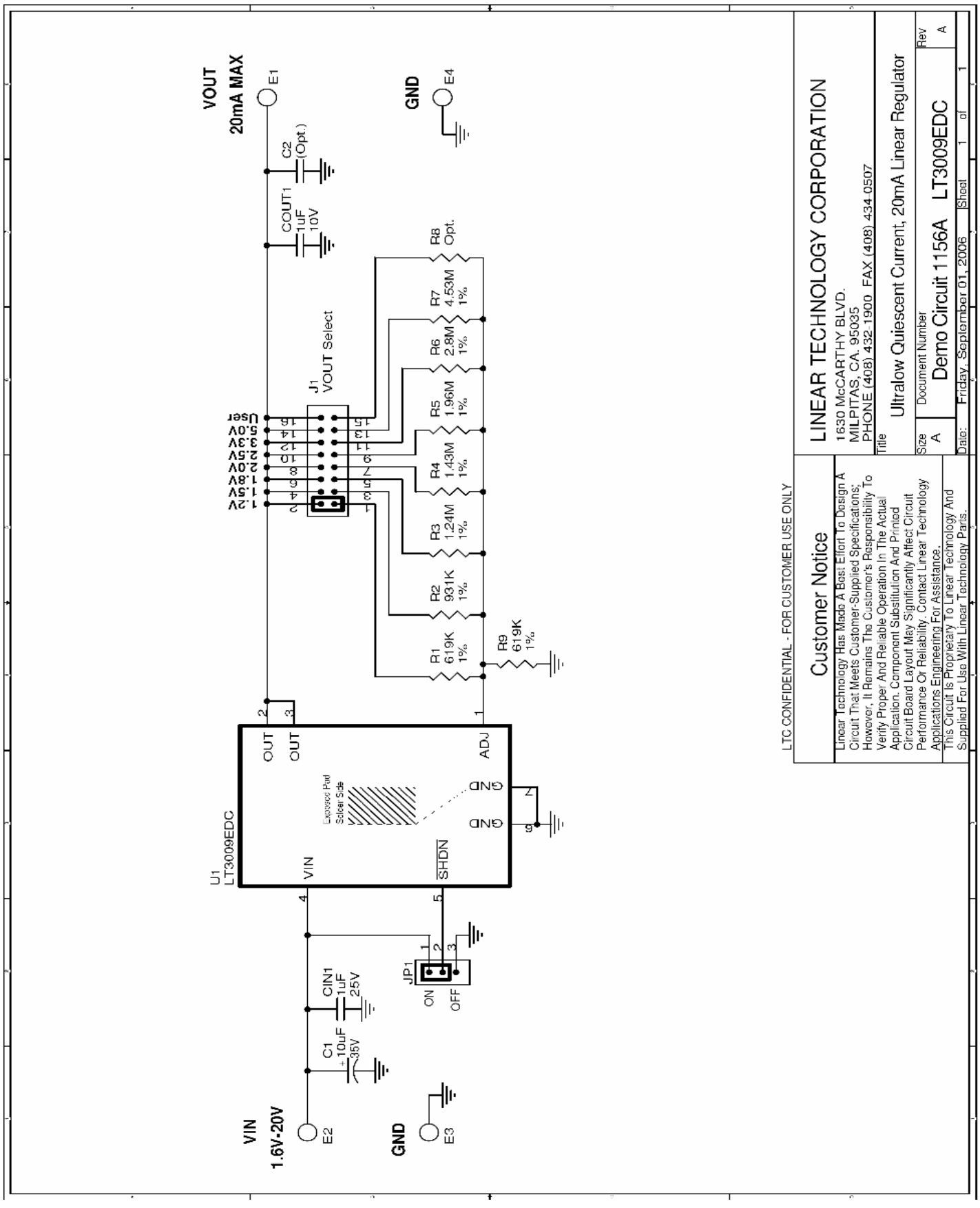


Figure 2. Measuring Input or Output Ripple


VOUT
20mA MAX
E1
C2
(Opt.)
COUT1
1uF
10V
GND
E4
J1
VOUT Select
User
5.0V
3.3V
2.5V
2.0V
1.8V
1.5V
1.2V
R8
Opt.
R7
4.53M
1%
R6
2.8M
1%
R5
1.96M
1%
R4
1.43M
1%
R3
1.24M
1%
R2
931K
1%
R1
619K
1%
R9
619K
1%
U1
LT3009EDC
OUT
OUT
ADJ
GND
GND
Exposed Pad
Solder Side
VIN
SHDN
CIN1
1uF
25V
C1
10uF
35V
JP1
ON
OFF
VIN
1.6V-20V
E2
GND
E3
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