Re: 1.5v src, LED needs 3v, now what?

Source: http://sci.tech−archive.net/Archive/sci.electronics.basics/2005−04/msg00538.html

- *From*: "Lord Garth" <LGarth@xxxxxxxxxxxx>
- *Date*: Sat, 09 Apr 2005 15:49:53 GMT

"Chris" <cfoley1064@xxxxxxxxx> wrote in message
news:1113024996.784822.203580@xxxxxxxxxxxxxxxxxxxxxxxxxxxx...

Lord Garth wrote:
>
> Chris, Are those connection dots between the ref amp output and the
> power rails? Looks like a short across the battery to me. The 7 and
4
> pin numbers are probably misplaced as well.

Thanks. Possibly this will get through unmunged:

```
'              ___        ___
'      ..----|___|---o-|___|----------------------|<------->
'      |    330K    |  100 ..-----------------. 1N4001    To
'      |            |      |                 |        Flasher
'      |            |      |                 |
'      |   ..--------o------o------------.    |
'      |   |        |6     |8          7|    |
'      |   |OpAmp.--|------|-----o------o----|--------.
'      |   |     |  |      |     |      |    |        |
'      |   |2  |\|  |      |   |\| Ref  |    |        |
'   .--|---o---|-\  |      '---|-\ Amp 1|    |200mV  +|
'   |  |   |   |  >-' LM10     |  >-----o----o       ---
'   |  o---o---|+/         ..---|+/      |    |        -
'   |  |   |3  |/|        +|   |/|      |    |        |1.5V
'   |  |   |     |        ---    |      |    |        |
'   |  |   |     |   200mV -     |      |    |        |
'   |  |   |     |    Ref  |     |      |    |        |
'   |  |   |     '---------o-----o------o----|--------'
'   |  |   |                          4|    o----.
'   |  |   '----------------------------'    |    |
'   |  |                                  ..-.   |
'   |  |                                10K| |   |
'   |  |                                   | |   |
'   |  |                                   '-'   |20K
'   |  |                                    |   .-.
'   |  '-------------------------------------o   | |<---.
'   |                                       |   | |    |
'   |                                       ..-.  '-'    |
'   |                                Sensor| |   |      |
'   |                            2K to 64K| |   |      |
'   |                                      '-'   |      |
'   |                                       |    |      |
'   |                                      GND  GND     |
'   '-----------------------------------------------------'
'
```

created by Andy´s ASCII−Circuit v1.24.140803 Beta www.tech−chat.de

The LM10 has a bit of an unusual pinout:
Pin 1 Reference output
Pin 2 OpAmp − Input
Pin 3 OpAmp + Input
Pin 4 (Batt −)
Pin 5 Balance (unused)
Pin 6 OpAmp Output
Pin 7 (Batt +)
Pin 8 Reference Amp Feedback

In the diagram, Pin 8 is tied to Pin 1 for a ref amp voltage follower, which would give 200mV Vref for the VDVR and the pot. Pin 7 is connected to the battery +. I showed the internal "power connections" of the LM10 like on the appnote, instead of just pinouts. Just focus on what's going on outside the LM10 box (bubbles indicate pins). Battery + (Pin 7) and Reference Output (Pin 8) are not connected together here.

Thanks for the note. It seems Google munges ASCII art sometimes no matter what. I don't mind it apart from that, but I used to post from AOL groups. If it were a choice between AOL groups and a jammed teletype machine with a spool of torn tape spewed all over the floor, I'd have to think 'er over. Possibly I should chip in for a store−bought newsreader and write off the monthly fees ;−)

Chris

Here's my edit on the circuit

```
'            ___       ___
'     ..----|___|---o-|___|----------------------|<------->
'     |    330K    |  100                      1N4001    To
'     |            |                                 Flasher
'     |            |
'     |   ..--------o------o------------.
'     |   |        |6     |8    7      |
'     |   |OpAmp.--|------|-----o------|-------------.
'     |   |     |  |      |     |      |             |
'     |   |2  |\|  |      |   |\| Ref  |             |
'  .--|---o---|-\  |      '---|-\ Amp 1|  200mV     +|
'  |  |       |  >-' LM10     |  >-----o----o       ---
'  |  o-------|+/         ..---|+/      |             -
'  |  |3      |/|        +|   |/|      |             |1.5V
'  |  |         |        ---    |      |             |
'  |  |         |   200mV -     |      |             |
'  |  |         |    Ref  |     |      |             |
'  |  |         '---------o-----o------|-------------'
'  |  |                        4      o----.
'  |  |                               |    |
'  |  |                             .-.   |
'  |  |                          10K| |   |
'  |  |                             | |   |
'  |  |                             '-'   |20K
'  |  |                               |   .-.
```

```
'   |  '--------------------------------o   | |<---.
'   |                                    |   | |    |
'   |                                 ..-.  '-'     |
'   |                            Sensor| |   |      |
'   |                        2K to 64K| |   |      |
'   |                                  '-'   |      |
'   |                                    |    |      |
'   |                                  GND  GND    |
'   '-----------------------------------------------'
```