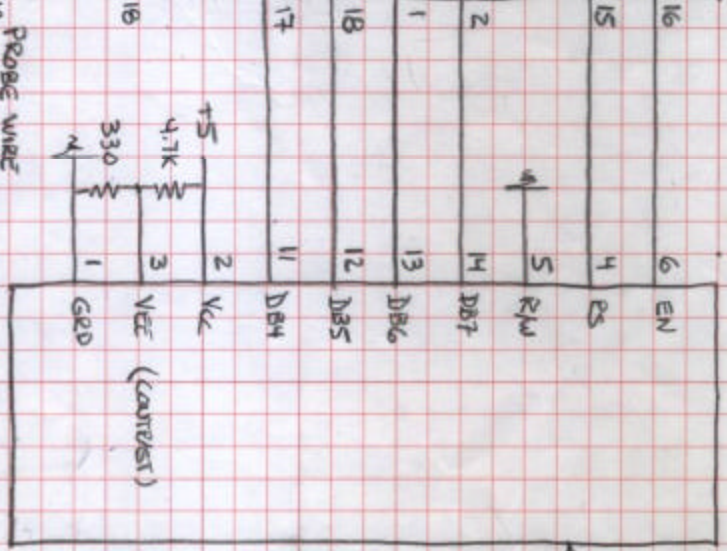


THIS IS REQUIRED ONLY WHEN THE DATA SOURCE IS INVERTED; A PC OR COM1 OF A BX24



A 5V LED IS PROVIDED FOR DEBUGGING. THIS LED PROVIDES AN INTERNAL SERIES LIMITING RESISTOR. SECURE THE CATHODE AND USE PROBE WIRE TO TEST POINTS

LED WITH HD44780 INTERFACE

THE TERMINAL NUMBERS SHOULD BE APPLICABLE TO VIRTUALLY ALL LEADS I HAVE SEEN.

BUT, I HAVE SEEN OTHERS

LCD PIN LAYOUT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

2x7 AREA

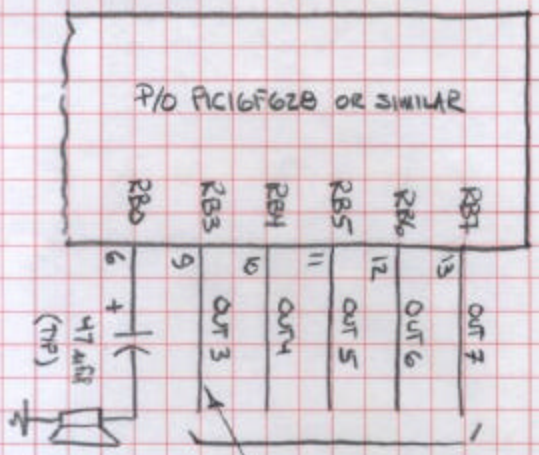
MOST LEADS USE EITHER A 2x7 AREA OR 1x14 AREA

NOTE NUMBERS FOR 2x7

LCD #W/V/SER LCD

FIG#1

Anderson, Nov, '83



TO LED OR TRANSISTOR (TIP41) OR DRUMSTON TRANSISTOR (TIP122) OR FET (19L244) OR DRUMSTON NETWORK (UM/2803)

ON THE LED#07 THIS IS USED FOR LED BLENDE INTENSITY

SPEAKER OR SIMILAR SOUND DEVICES

FOR LCD'S HMMUS AND LED BACKLIGHT, THE CURRENT MUST BE LIMITED WITH AN EXTERNAL RESISTOR

$$R = (V_{BACK} - V_{LED}) / I_{LED}$$

$$R_{MINUS} = I_{LED}^2 \times R$$

FOR EXAMPLE - V = 12VDC

$$R = (12 - 4) / 0.200 \approx 39\Omega$$

$$R_{MINUS} = 0.2^2 \times 39 = 1.56W$$

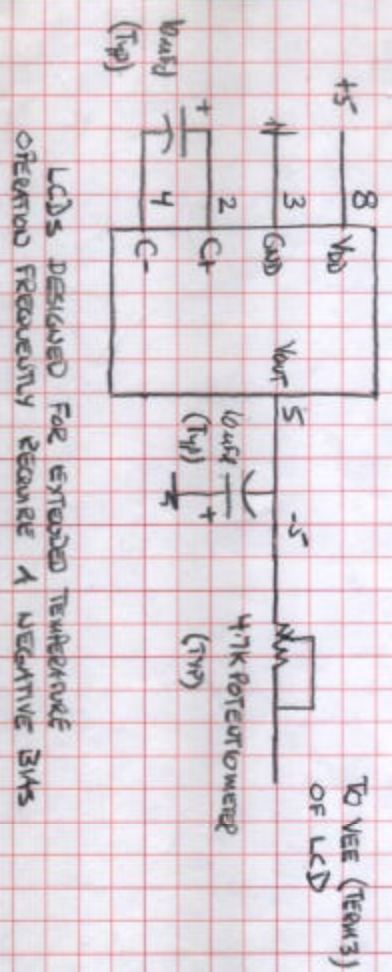
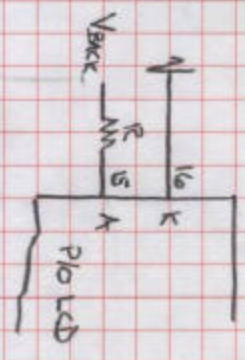
USE 39Ω 3WATT

FOR EXAMPLE V = 5V

$$R = (5 - 4) / 0.2 \approx 4.7\Omega$$

$$R_{MINUS} = 0.2^2 \times 4.7 = 0.18W$$

USE 4.7Ω 0.5W

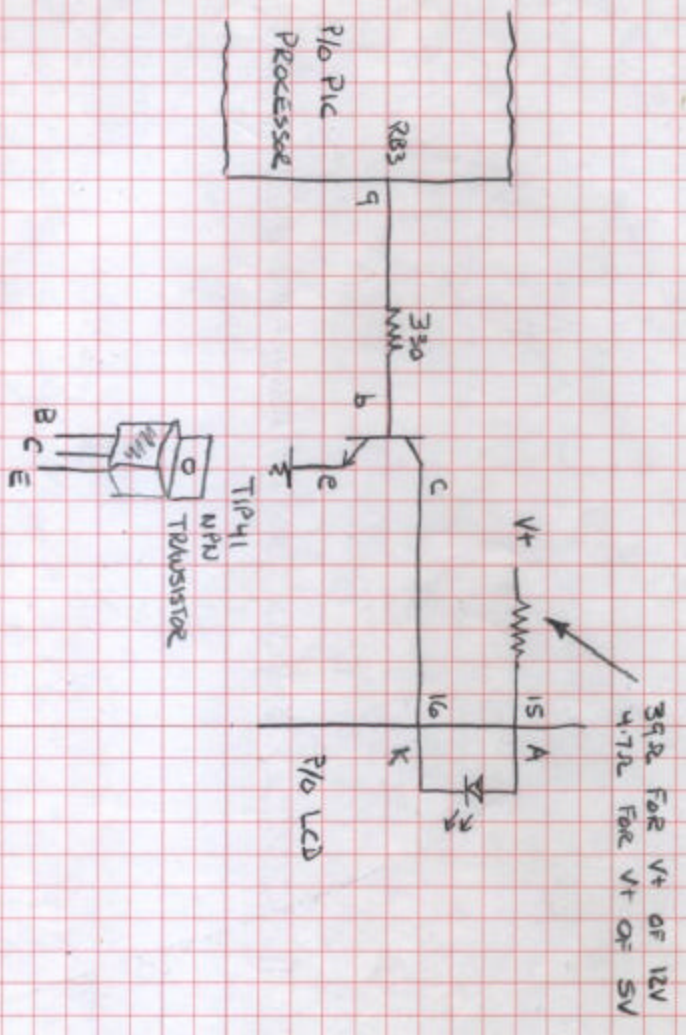


LCD'S DESIGNED FOR EXTENDED TEMPERATURE OPERATION FREQUENTLY REQUIRE A NEGATIVE BIAS

LCD # 106/07 - FIG # 2

Andersen, Nov '83

LCD #107 - FIG#3
LED BACKLIGHT INTENSITY



Anderson, Dec, '03