

In this way capacitor C1313 is charged just enough to keep the output voltage +VRAM at a stable value (3V DC).

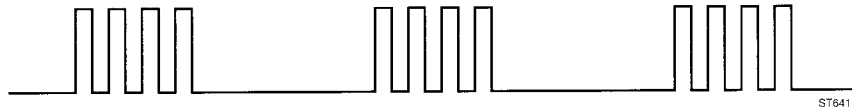


Figure 3.5 Pulse train signal on input A of Schmitt input NAND (Test Point 310)

3.3.5 LCD circuitry

- Introduction

The LCD used in the ScopeMeter is controlled by six LCD driver integrated circuits. These drivers get their information (data- and control signals) from the D-ASIC. The microprocessor enables the display when valid data is present.

ScopeMeter models 93 and 95 use a reflective LCD. Model 97 is provided with a transfective LCD with a backlight, which can be switched on or off by the user.

- Detailed circuit description

See figure circuit diagram A1 (figure 10.2).

LCD

The ScopeMeter uses a Super Twisted Nematic Liquid Crystal Display (LCD H1401, see circuit diagram A1, figure 10.2), with a resolution of 240 * 240 pixels.

The picture on the LCD screen is written column (vertical line) after column, rather than row (horizontal line) after row.

LCD drivers

The LCD display is controlled by the D-ASIC, via six LCD drivers:

- three LCD row drivers: D1404, D1405, D1406, each controlling 80 rows.
- three LCD column drivers: D1401, D1402, D1403, each controlling 80 columns.

Description of the LCD drivers input-/output signals:

LCD driver outputs Y1...Y80 and X1...X80

These outputs are connected to the LCD matrix. Every column driver serves 80 pixel columns of the LCD. Every row driver serves 80 pixel rows. The output signals are staircase signals, with levels equal to the V1...V6 voltages.

Data inputs D0... D3 (row drivers only!)

The actual display data coming from the D-ASIC is sent via the LCDCTL (LCD ConTrol) bus to the LCD drivers D0...D3 inputs. Data are provided via the lines:

- LCD1, LCD3, LCD1A, and LCD3A to D1404; D1404 controls the even numbered rows Y2...Y160.
- LCD0, LCD2, LCD0A, and LCD2A to D1405; D1405 controls the odd numbered rows Y1...Y159.
- LCD0, LCD1, LCD2, and LCD3 to D1406; D1406 controls the odd and even rows Y161...Y240.

The signals LCD0A...LCD3A are derived from LCD0...LCD3 by the odd/even circuit in the M-ASIC.

Terminal input voltages V1...V6

Out of the voltages V1...V6 the LCD drivers generate the staircase signals. The voltages are generated by the LCD SUPPLY circuit.