

SANYO

No.1465D

LC7570, 7570E

Static Drivers for Vacuum Fluorescent
Display for Frequency Display Applications

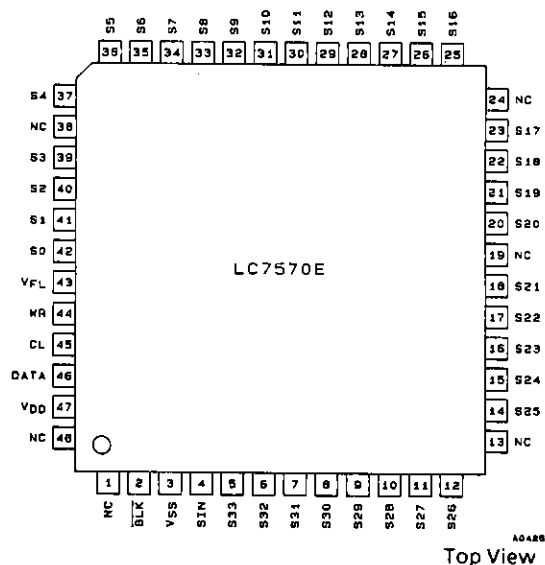
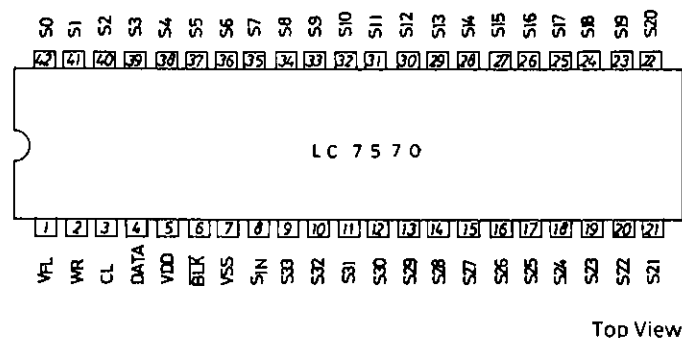
Overview

The LC7570, LC7570E are controller-controlled static drivers for vacuum fluorescent display to be used in electronic tuning frequency indicator applications.

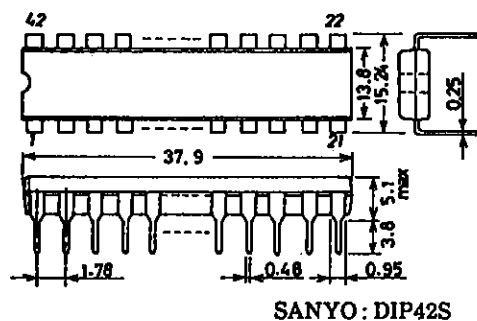
Features

- 34-segment output (With pull-down resistor).
- 5-step A/D converter.
- The display can be forced to the off state with the $\overline{\text{BLK}}$ pin.
- Data input: Serial input (CL, DATA, WR).
- The program of a controller can be used to suit the segment outputs to the pin assignment of a vacuum fluorescent display.

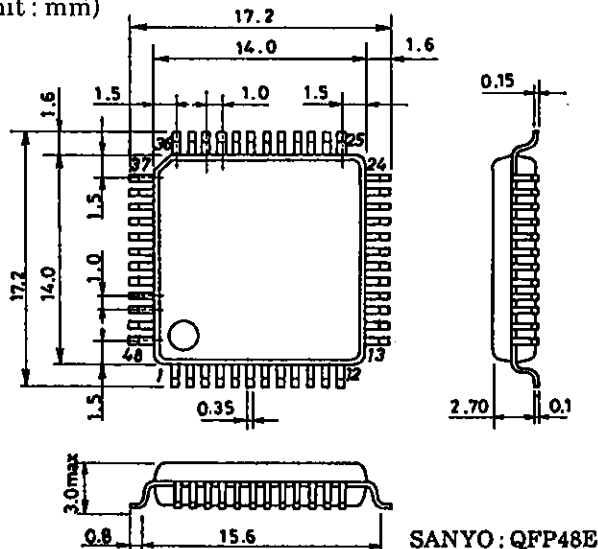
Pin Assignments



Package Dimensions 3025B [LC7570]
(unit: mm)



Package Dimensions 3156 [LC7570E]
(unit: mm)



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Absolute Maximum Ratings at Ta=25°C, VSS=0V

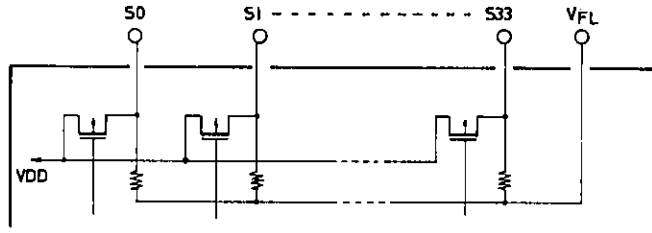
Allowable Operating Ranges at $T_a = -30$ to $+75^\circ\text{C}$, $V_{SS} = 0\text{V}$

Electrical Characteristics in the Allowable Operating Ranges

The diagram illustrates a 10-bit digital-to-analog converter (DAC) architecture. It consists of a **SHIFT REGISTER** and a **LATCH, DRIVER** block. The **SHIFT REGISTER** has three inputs: **CL** (Clock), **DATA**, and **WR** (Write Enable). The **WR** input is connected to a Schmitt Inverter (S) and a pull-up resistor to **VDD**. The **SHIFT REGISTER** outputs 10 bits, labeled **S0** through **S9**, which are connected to the **LATCH, DRIVER** block. The **LATCH, DRIVER** block also receives **VFL** (Valid Flag Latch) and **BLK** (Blank) signals. The **LATCH, DRIVER** block outputs a 10-bit digital signal, which is then converted to an analog signal by an **A/D CONVERTER**. The **A/D CONVERTER** has a **SIN** (Sine) input. The **A/D CONVERTER** output is connected to the **WR** input of the **SHIFT REGISTER**. A legend at the bottom indicates that the triangle symbol with an 'S' represents a Schmitt Inverter.

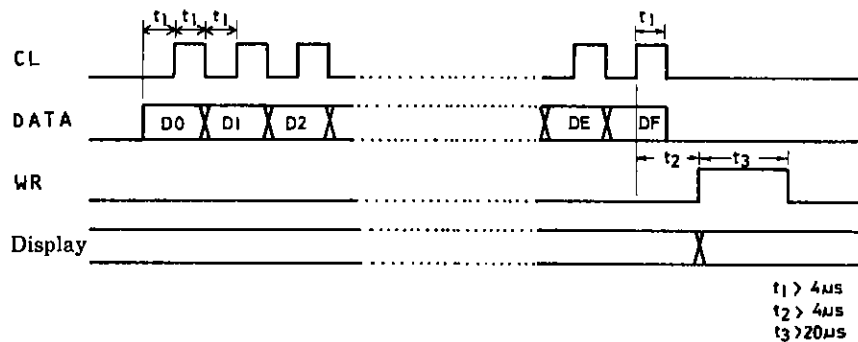
Pin Description

S0 to S33, V_{FL} : Segment outputs and common pin for pull-down resistors.

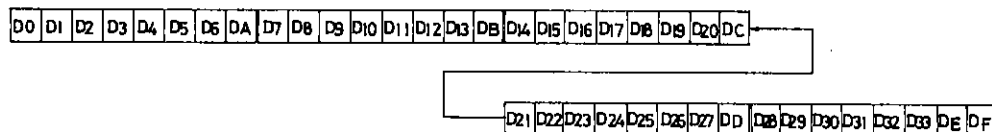


- BLK** : Input for making display unlighted
 BLK = 「 0 」 (V_{SS}) Unlighted
 BLK = 「 1 」 (V_{DD}) Lighted
- CL, DATA, WR** : Data input
- V_{DD}, V_{SS}** : Power supply pin
- SIN** : A/D converter input
- 1st step light-up level 0.1V_{DD} (typ)
 2nd step light-up level 0.2V_{DD} (typ)
 3rd step light-up level 0.3V_{DD} (typ)
 4th step light-up level 0.4V_{DD} (typ)
 5th step light-up level 0.5V_{DD} (typ)
- NC** : No connect

Data Input



Inputting starts at D0.



- D0 to D33 : Display data
 DA to DE : Dummy bit (don't care)
 DF : S29 to S33 select
- Dn = 「 1 」 : Sn = 「 1 」 (= V_{DD})
 Dn = 「 0 」 : Sn = 「 0 」 (= V_{FL})
 DF = 「 0 」 : D29 to D33 → S29 to S33
 DF = 「 1 」 : AD1 → S33
 AD2 → S32
 AD3 → S31
 AD4 → S30
 AD5 → S29

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