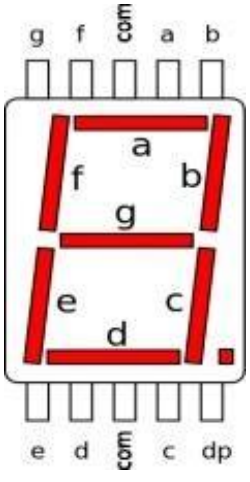
SEVEN SEGMENT DISPLAY

The 7 segment display is an arrangement of 7 LEDs and a separate LED for the decimal place.

- ✓ The display can form the digits 0-9 to display decimal numbers.
- ✓ It can also form the letters A-F allowing Hexadecimal to be displayed.
- ✓ 7 Segment displays come in different sizes and colours.
- ✓ They have different forward bias voltages depending on how many LEDs make up each segment.
- ✓ There are two types of display available - common cathode and common anode.
- ✓ The number "SC52" on the 7 segment display shown means it is a common Cathode display.

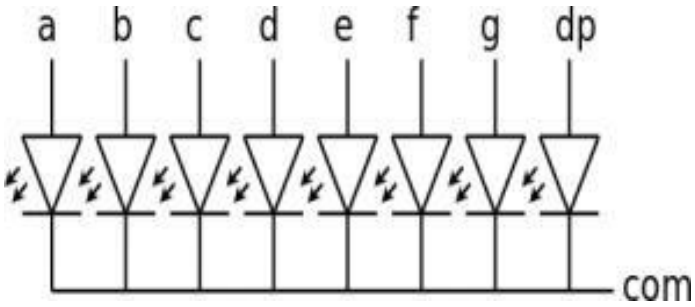
A 7 Segment display is a series of LEDs arranged to make letters and numbers. There are 8 LEDs including the decimal point. A display decoder is usually used to convert binary (for example) into the correct outputs for the display. Common cathode displays have a common cathode connected to ground and each segment is made HIGH. Common anode displays have a common anode connected to positive and each segment is made LOW. Each LED needs a series resistor. Numbers, some upper case letters and some upper case letters can be displayed

CONNECTION



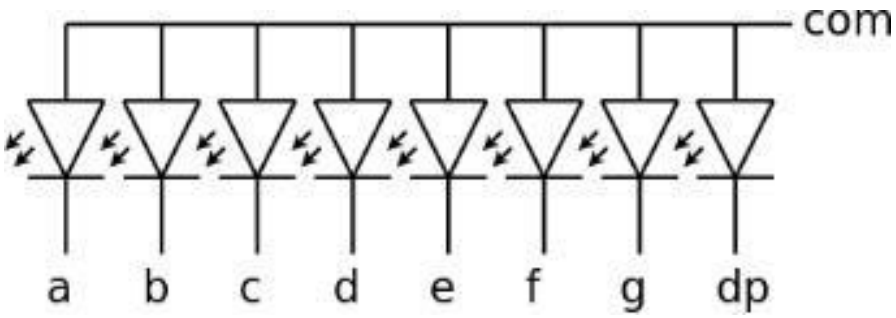
The LEDs in a 7 Segment Display usually need a series resistor. 7 Segment Displays are usually used with some form of counter and may need a decoder so that the correct segments are illuminated for each corresponding number, letter or symbol. The diagram shows the connections for a typical 7 segment display.

COMMON CATHODE DISPLAYS



- In a Common Cathode 7 Segment Display the cathodes of all eight LEDs are connected to a common pin which should be connected to 0 V.
- Each separate segment of the display should have its own series resistor.
- Each segment is made HIGH to illuminate the display.
- The display driver must be able to source current to the LEDs.

COMMON ANODE DISPLAYS



- In a 'Common Anode' 7 Segment Display, all eight anodes are connected to a common pin which is connected to the positive supply.
- Each segment is connected separately to 0 V (made LOW) using a series resistor to illuminate the display.
- The display driver must be able to sink current from the LEDs.

DISPLAYING NUMBERS

Numbers	No. of LED which is ON						
	a	b	c	d	e	f	g
0	1	1	1	1	1	1	0
1	0	1	1	0	0	0	0
2	1	1	0	1	1	0	1
3	1	1	1	1	0	0	1
4	0	1	1	0	0	1	1
5	1	0	1	1	0	1	1
6	0	0	1	1	1	1	1
7	1	1	1	0	0	0	0
8	1	1	1	1	1	1	1
9	1	1	1	0	0	1	1