Microchirp

O7STRTA Datasheet

One Seven Segment to Rule Them All

1) Features

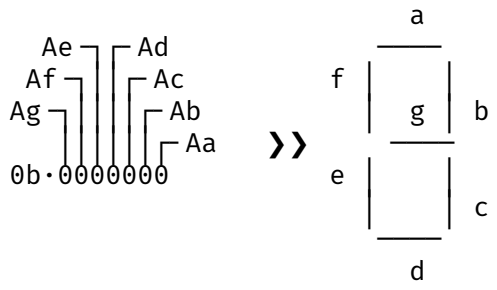
- It has seven high-performance, low-power LEDs. Duh’.
- It’s bright red! No, like .. really red.
- Advanced RISC architecture. There’s like, only one single-byte command. If that isn’t a reduced instruction set, I don’t know what is.
- Very volatile memory segments. 7/8th of a Byte of RAM.

2) Protocol

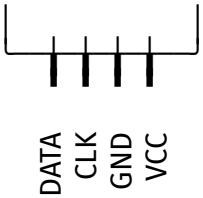
The heart of the **O7STRTA** is a **SN74HC164N** shift register. It sort-of speaks **SPI** and it likes either 3.3V or **5V** on its VCC pin. One bit is shifted in from the DATA pin with every **rising edge** on the CLK pin. Each bit is mapped to one segment anode of the display, refer to Section 3) for details. See Listing 1 for example Python code.

3) Segment Mapping

Each bit of the byte is mapped to a particular segment anode:



4) Pinout




```
#!/usr/bin/env python3

import board
import time

# configure spi pins
spi = board.SPI()
spi.try_lock()
spi.configure(1000000)

# segment mappings
H = 0b01110110
E = 0b01111001
L = 0b00111000
O = 0b00111111
_ = 0b00000000

while True:
  for c in [H, E, L, L, O]:
    spi.write([c])
    time.sleep(0.3)
    spi.write([_])
    time.sleep(0.05)
```

Listing 1: Example Python code for the Adafruit FT232H