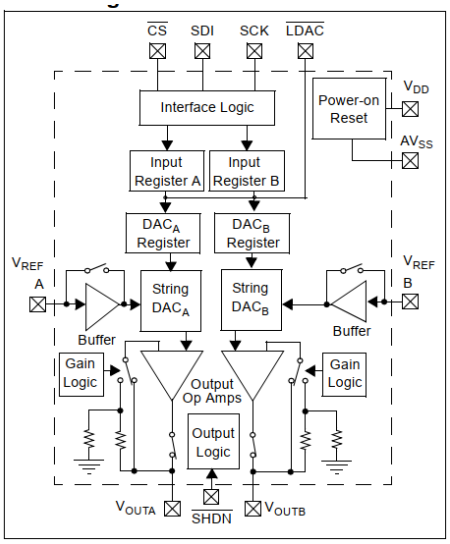
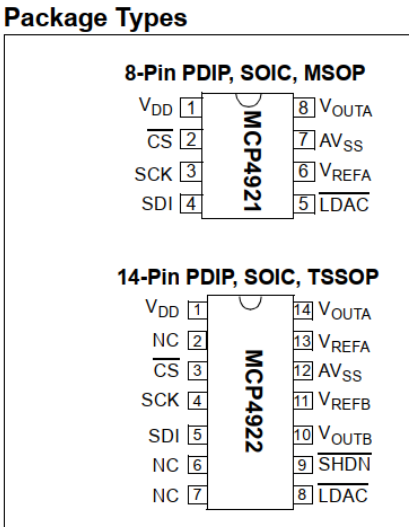
MCP4921:

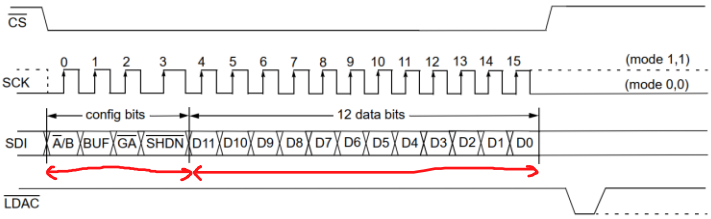
- Voltage: 2.7 --> 5.5V

- Schematic:



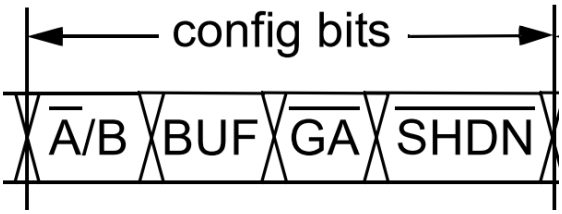


- Maxspeed: 20MHz
- Data frame:
    1. CPOL = 0
    2. CPHA = 0
    3. #of_bit =



    4. 

    5. MSB/LSB =



    6. Regiters

D=2500 → 9C4

D=9C4

= 0x39C4

0011 1001 1100 0100

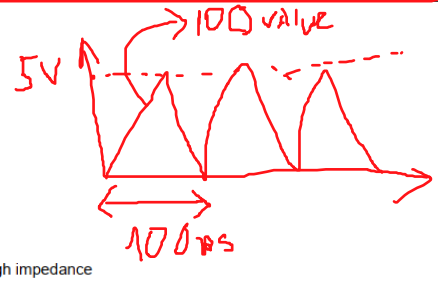
Data0

REGISTER 5-1: WRITE COMMAND REGISTER

Upper Half:							
W-x	W-x	W-x	W-0	W-x	W-x	W-x	W-x
$\overline{A/B}$	BUF	$\overline{GA}$	$\overline{SHDN}$	D11	D10	D9	D8
bit 15							bit 8

Data1

Lower Half:							
W-x	W-x	W-x	W-x	W-x	W-x	W-x	W-x
D7	D6	D5	D4	D3	D2	D1	D0
bit 7							bit 0



bit 15 **$\overline{A/B}$:** DAC_A or DAC_B Select bit
1 = Write to DAC_B
0 = Write to DAC_A

bit 14 **BUF:** V_{REF} Input Buffer Control bit
1 = Buffered
0 = Unbuffered

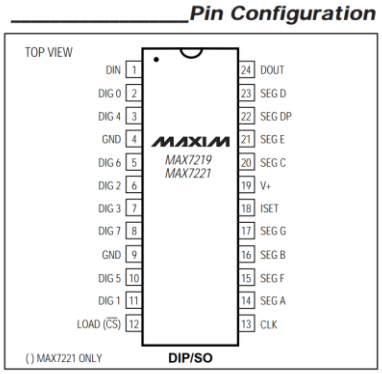
bit 13 **$\overline{GA}$:** Output Gain Select bit
1 = 1x ($V_{OUT} = V_{REF} * D/4096$)
0 = 2x ($V_{OUT} = 2 * V_{REF} * D/4096$)

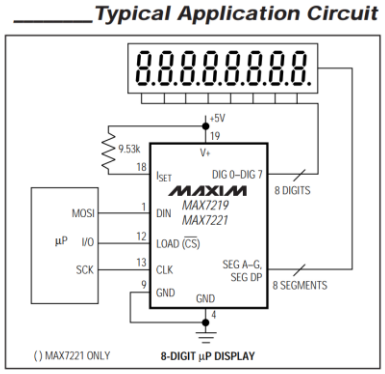
bit 12 **$\overline{SHDN}$:** Output Power Down Control bit
1 = Output Power Down Control bit
0 = Output buffer disabled, Output is high impedance

bit 11-0 **D11:D0:** DAC Data bits
12 bit number "D" which sets the output value. Contains a value between 0 and 4095.

MAX7219:

- Voltage: 4 → 5.5V
- Schematic:





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- Maxspeed: 10MHz
- Data frame :
  1. CPOL = 0
  2. CPHA = 0
  3. #of_bits
  4. MSB/LSB

Table 1. Serial-Data Format (16 Bits)

D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1	D0
X	X	X	X	ADDRESS				MSB			DATA				LSB

  5. Registers:
  6.

Table 3. Shutdown Register Format (Address (Hex) = XC)

MODE	ADDRESS CODE (HEX)	REGISTER DATA							
		D7	D6	D5	D4	D3	D2	D1	D0
Shutdown Mode	XC	X	X	X	X	X	X	X	0
Normal Operation	XC	X	X	X	X	X	X	X	1

  7.