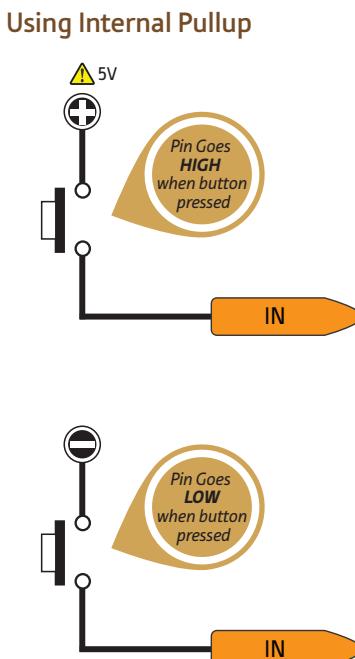
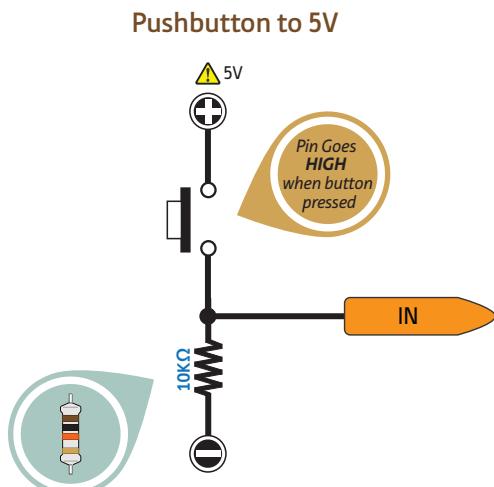
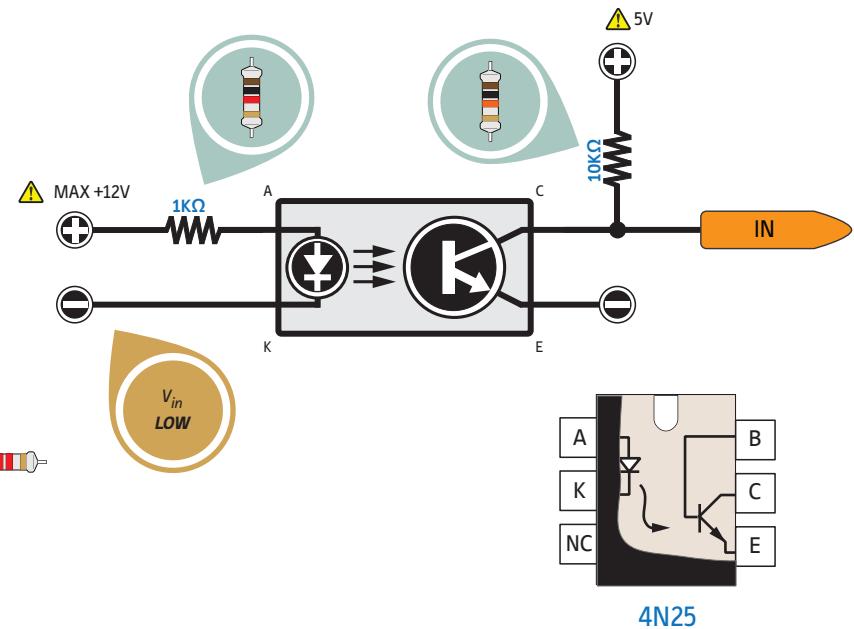
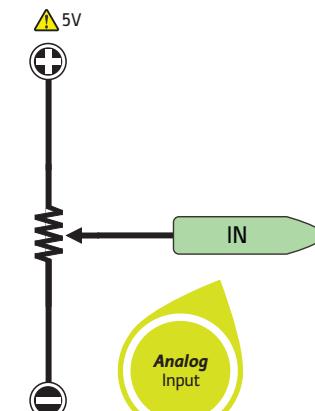


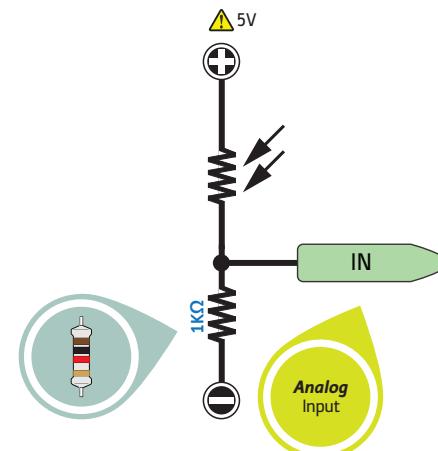
Optocoupled inputs
Used when galvanic separation between external circuitry and Arduino circuit is required

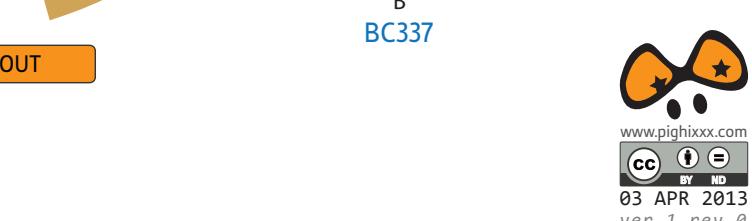
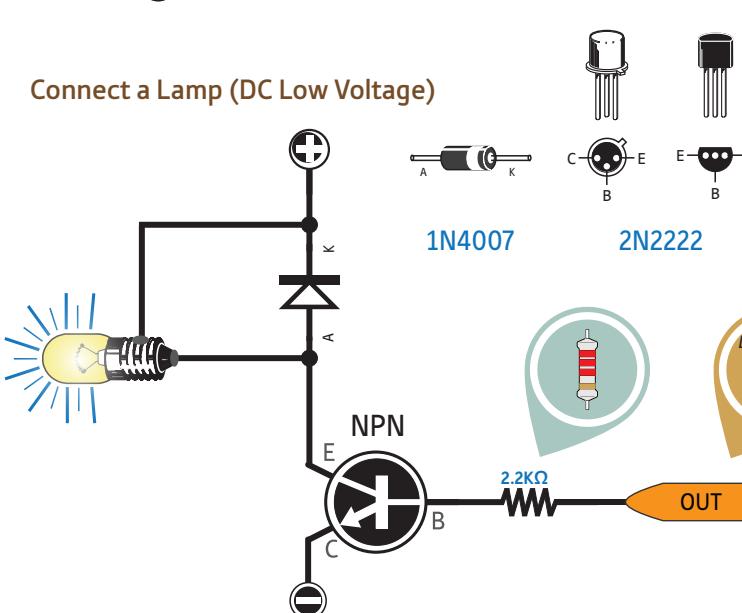
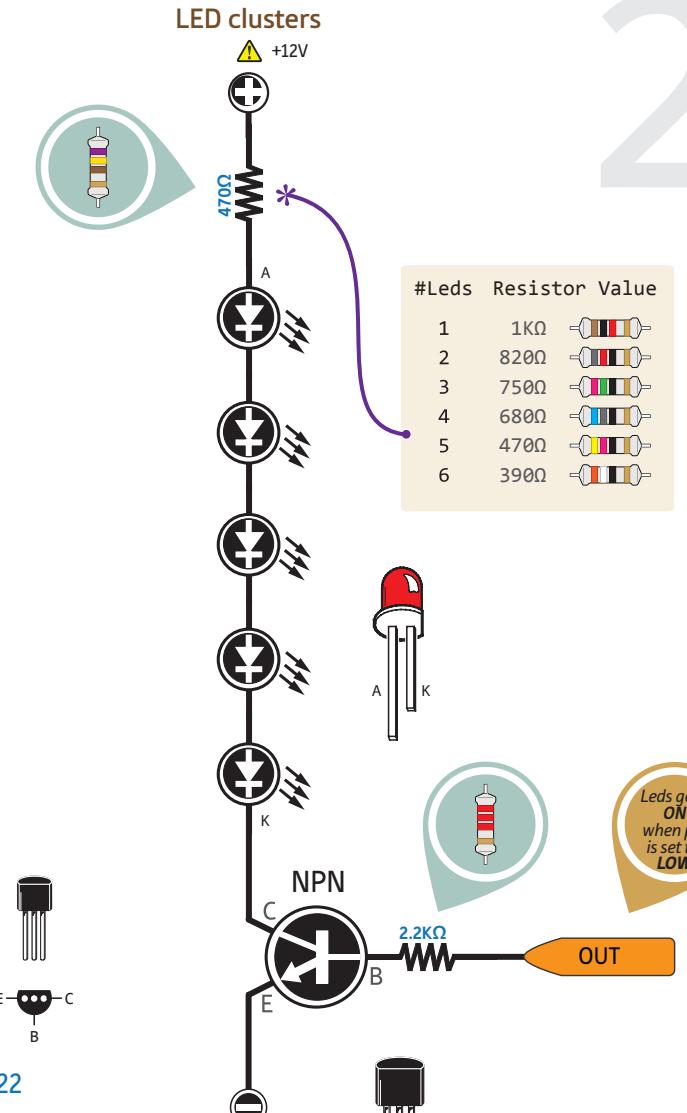
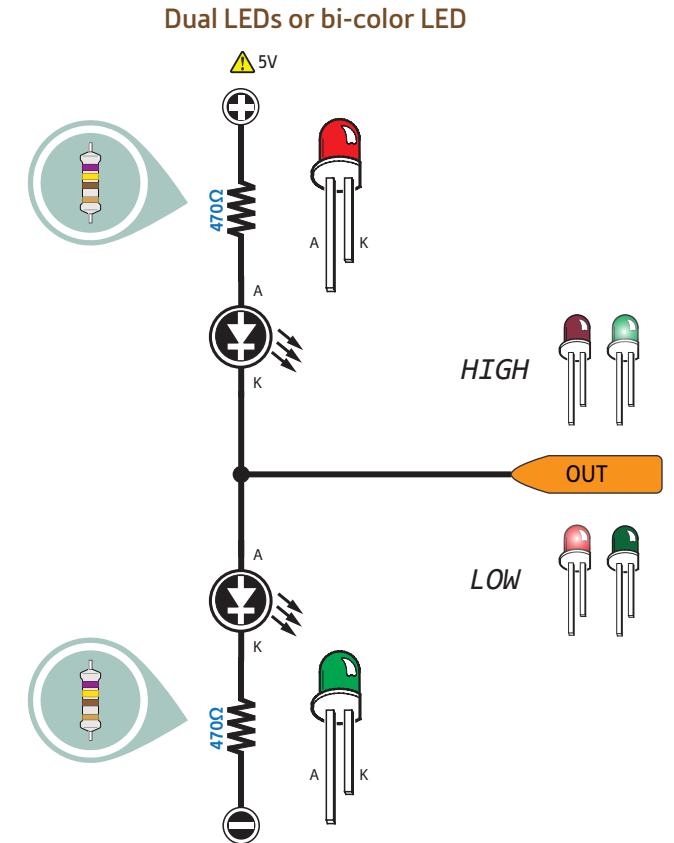
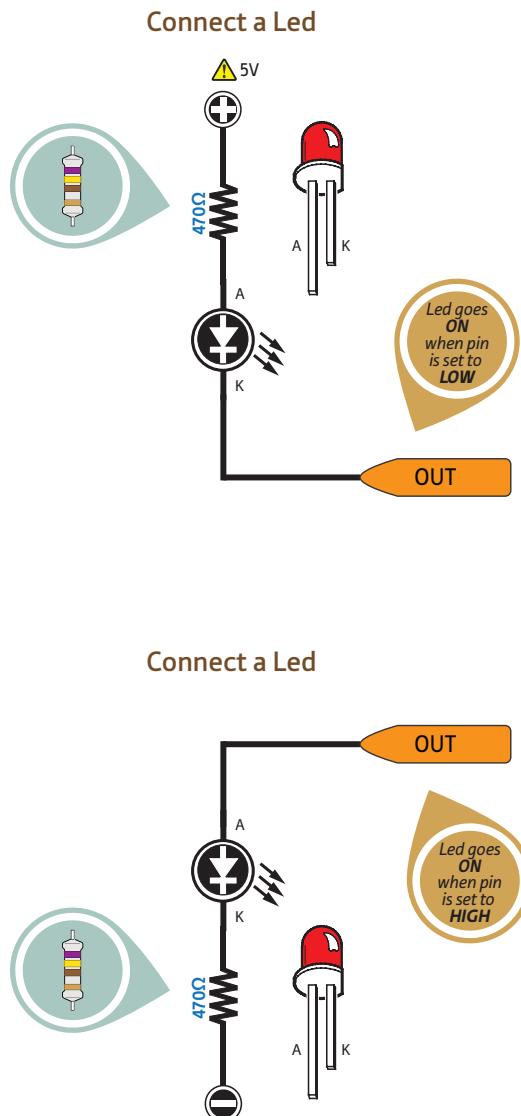


Trimmer or Potentiometer

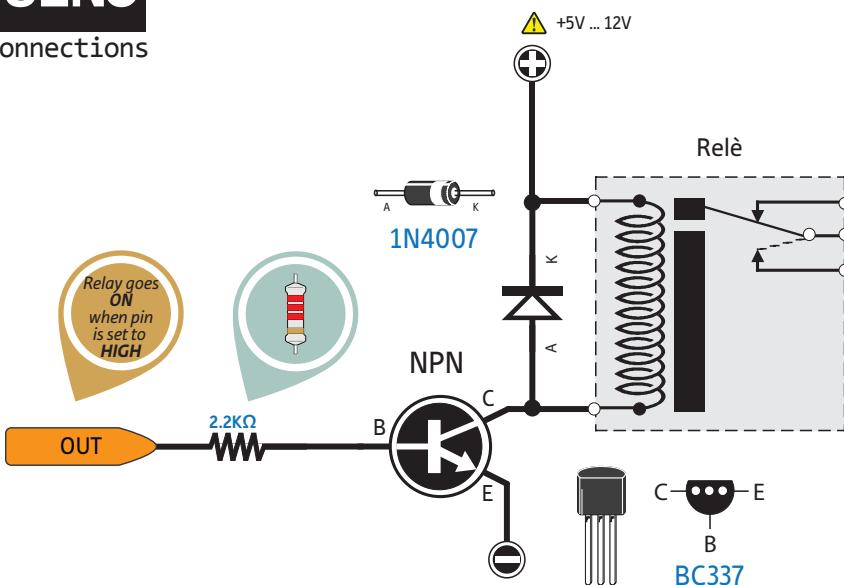


Photoresistor

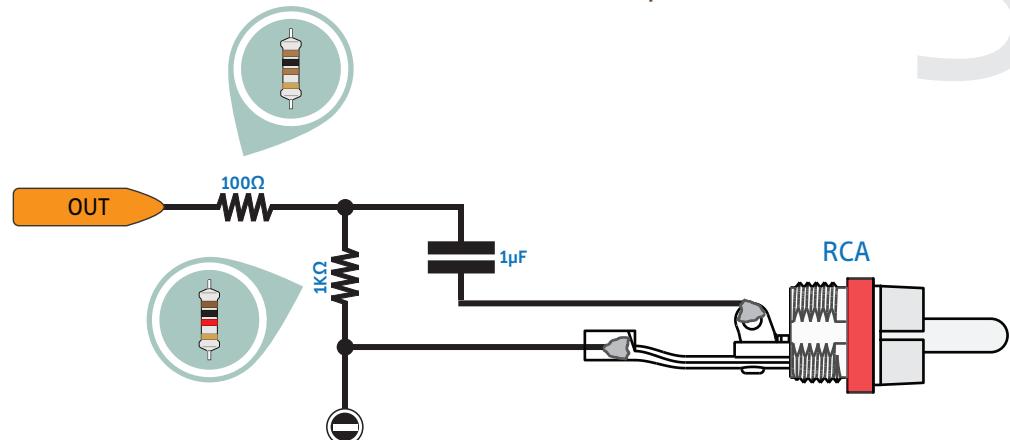




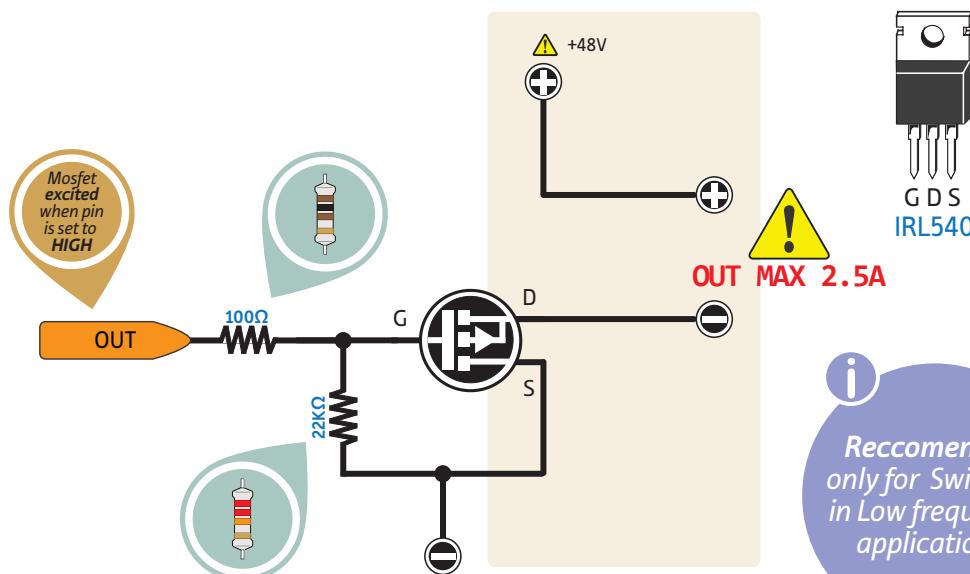
Connect a Relay



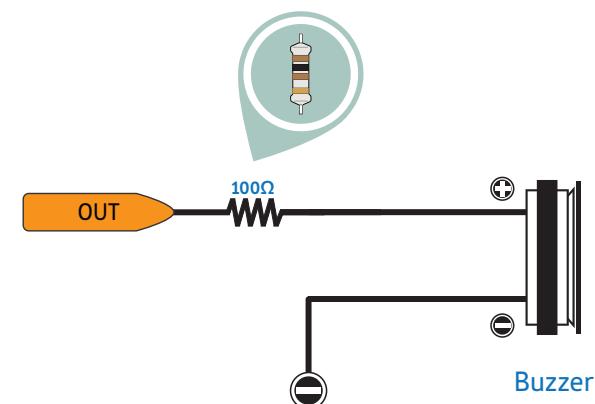
Connect an Audio Amplifier



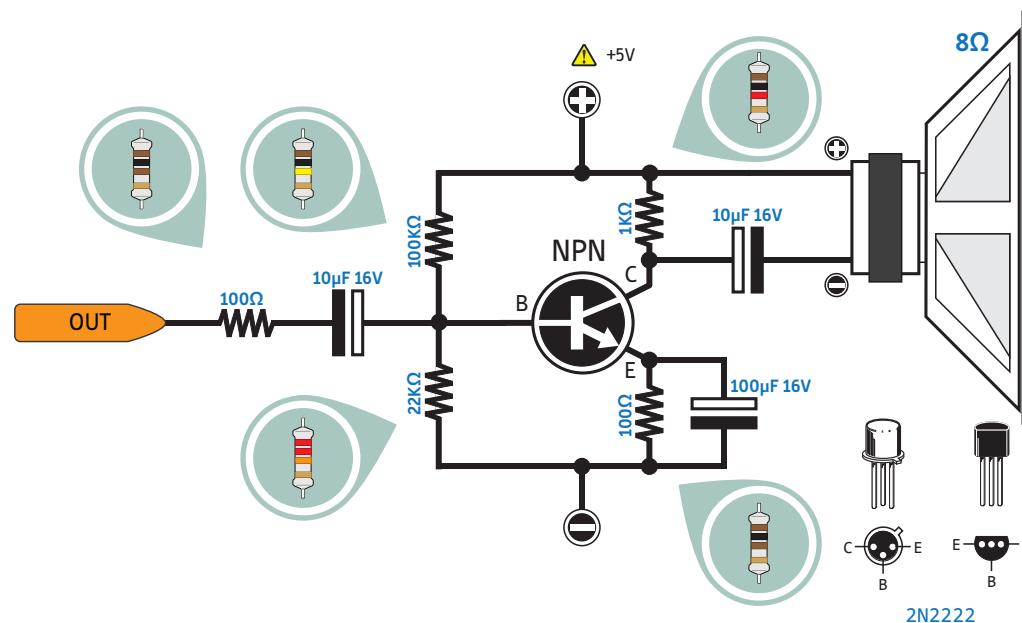
Connect a Mosfet



Connect a Buzzer

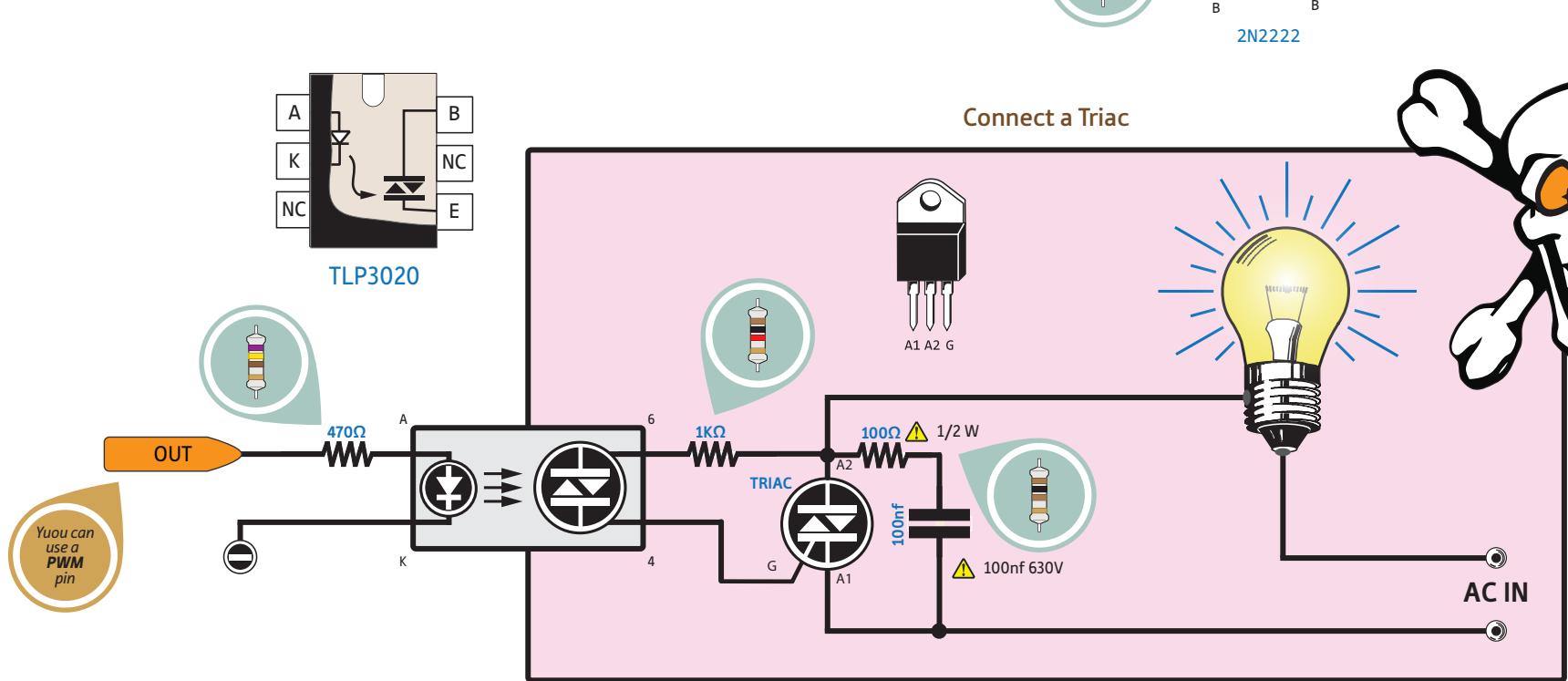


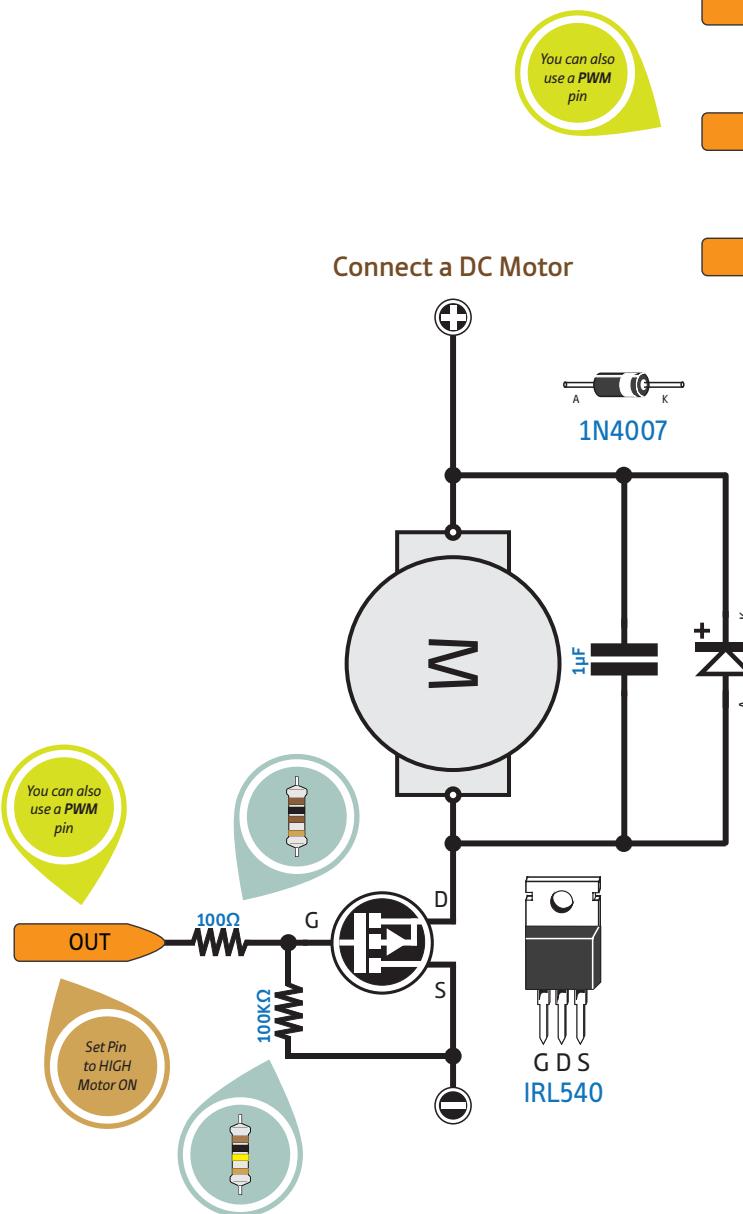
Connect a Speaker



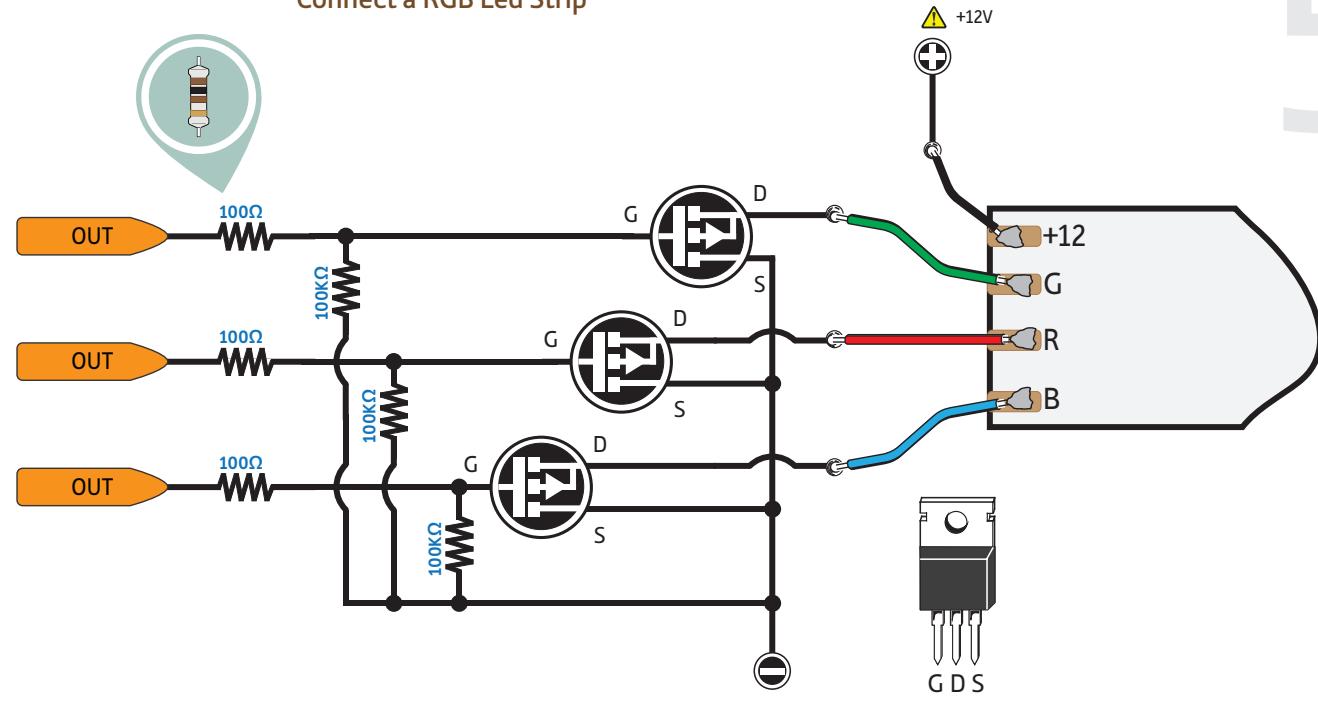
2N2222

Connect a Triac

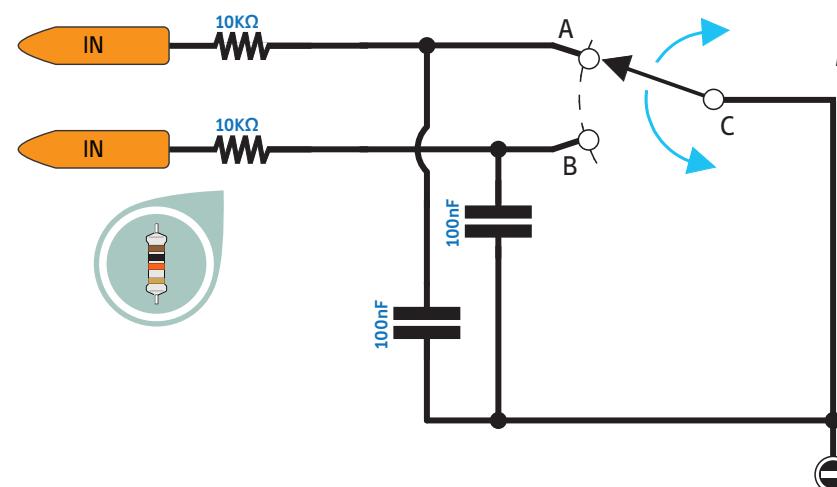




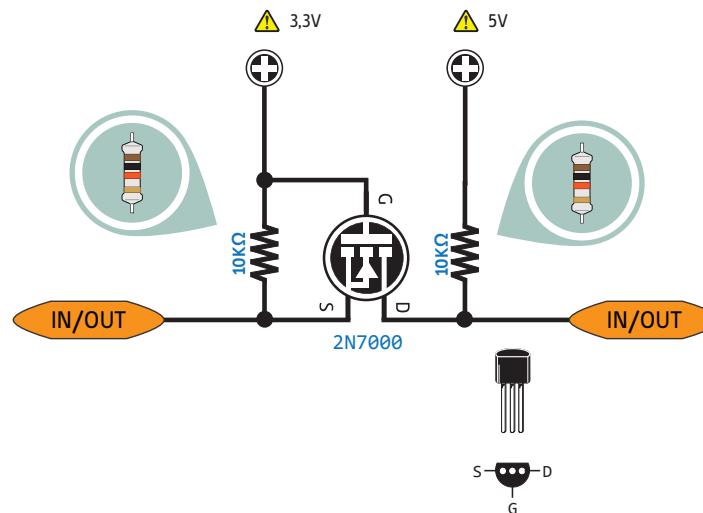
Connect a RGB Led Strip



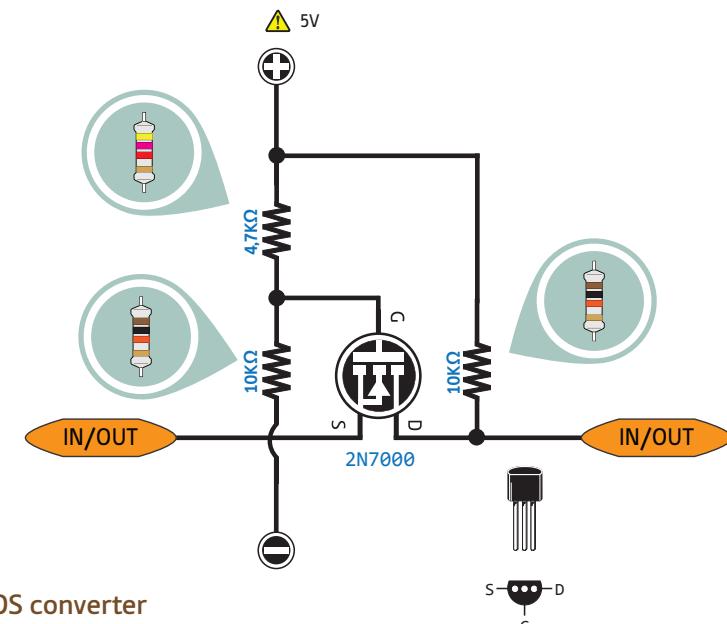
Connect an Encoder



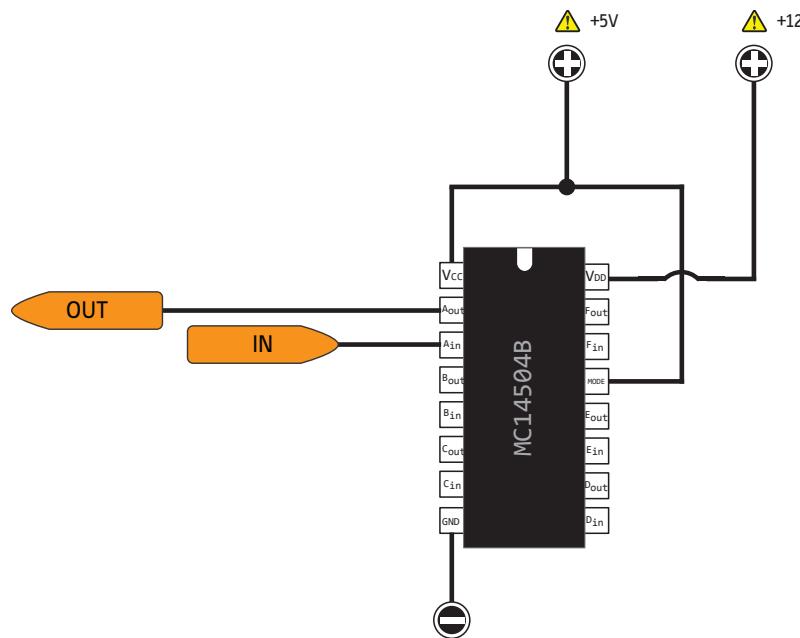
Bi-Directional Voltage Level Converter 3.3V to 5V



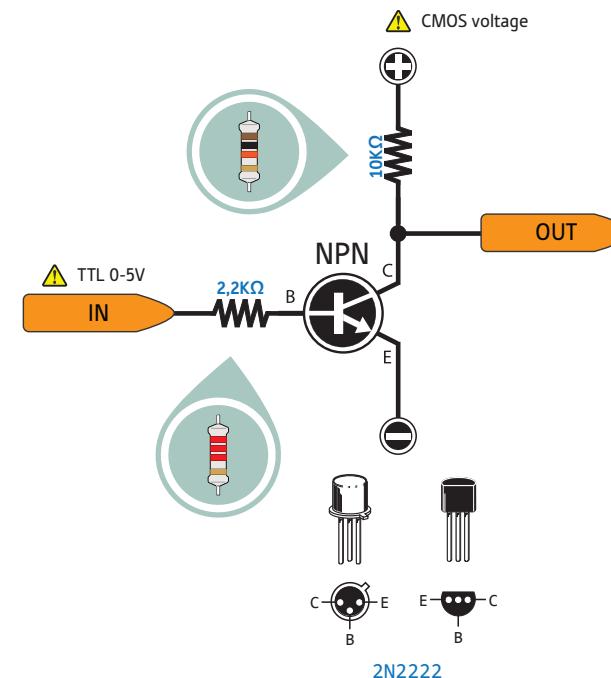
Bi-Directional Voltage Level Converter 3.3V to 5V
with voltage divider



TTL / CMOS converter (6 inputs/outputs)



TTL / CMOS converter



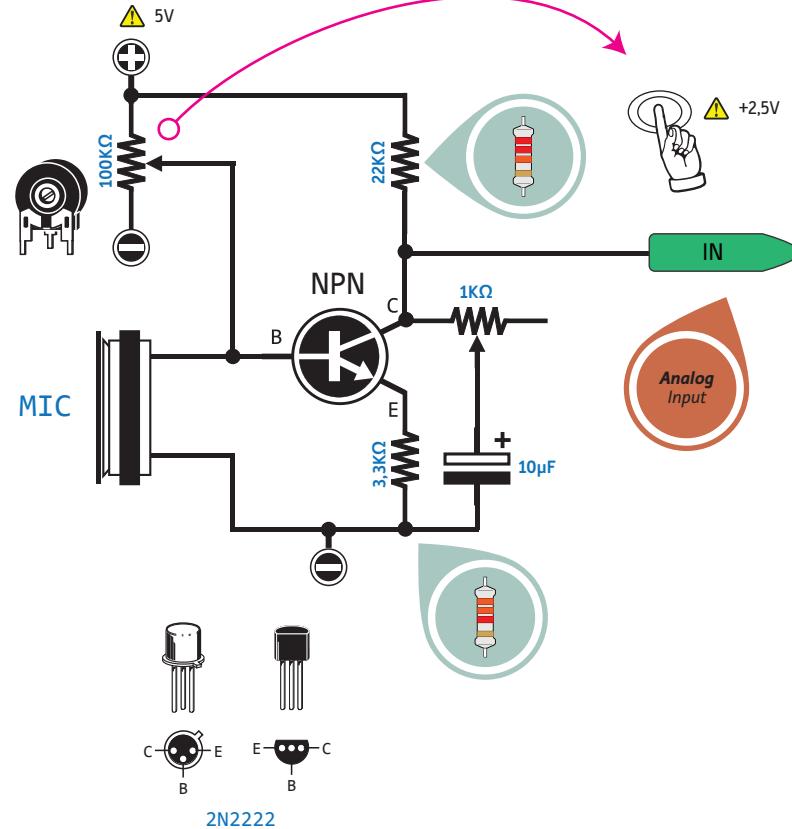
www.pighixxx.com



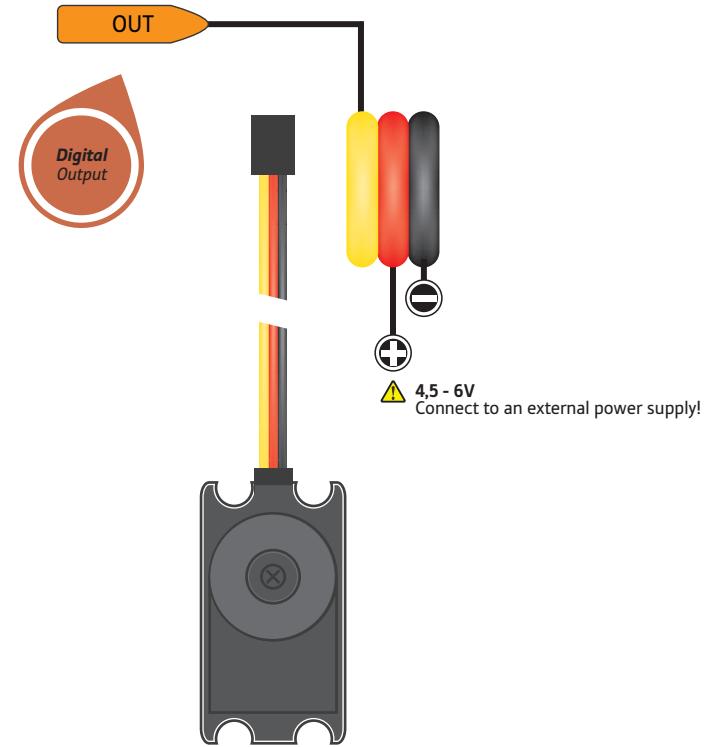
03 APR 2013

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Connect a Microphone



Connect a Servo



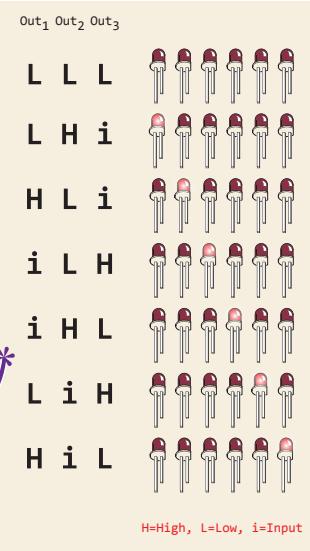
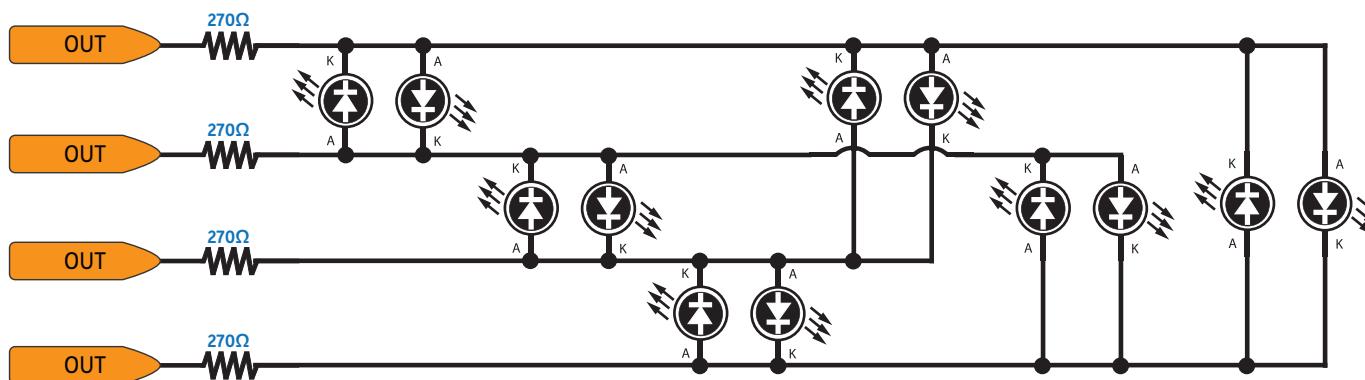
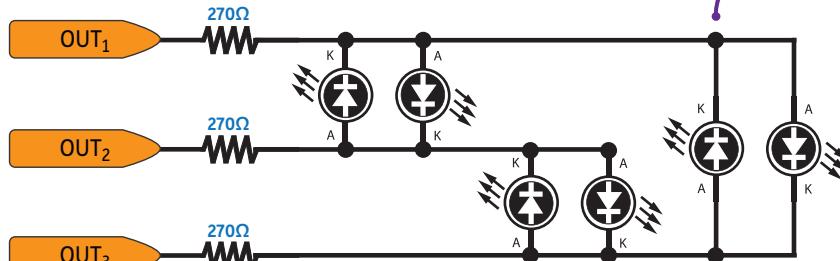
www.pighixxx.com



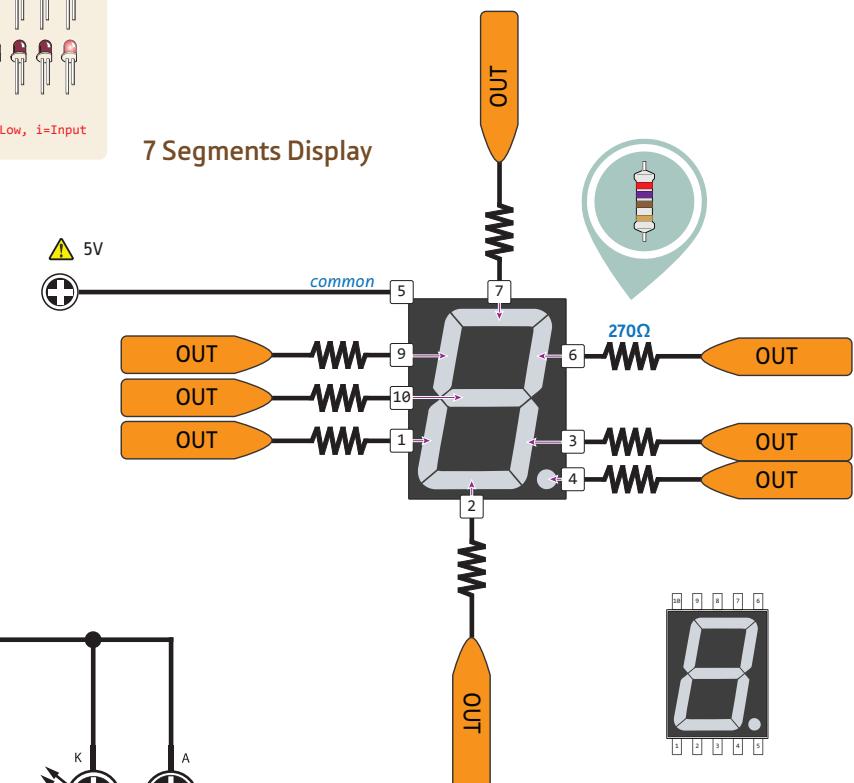
03 APR 2013

ver 1 rev 0

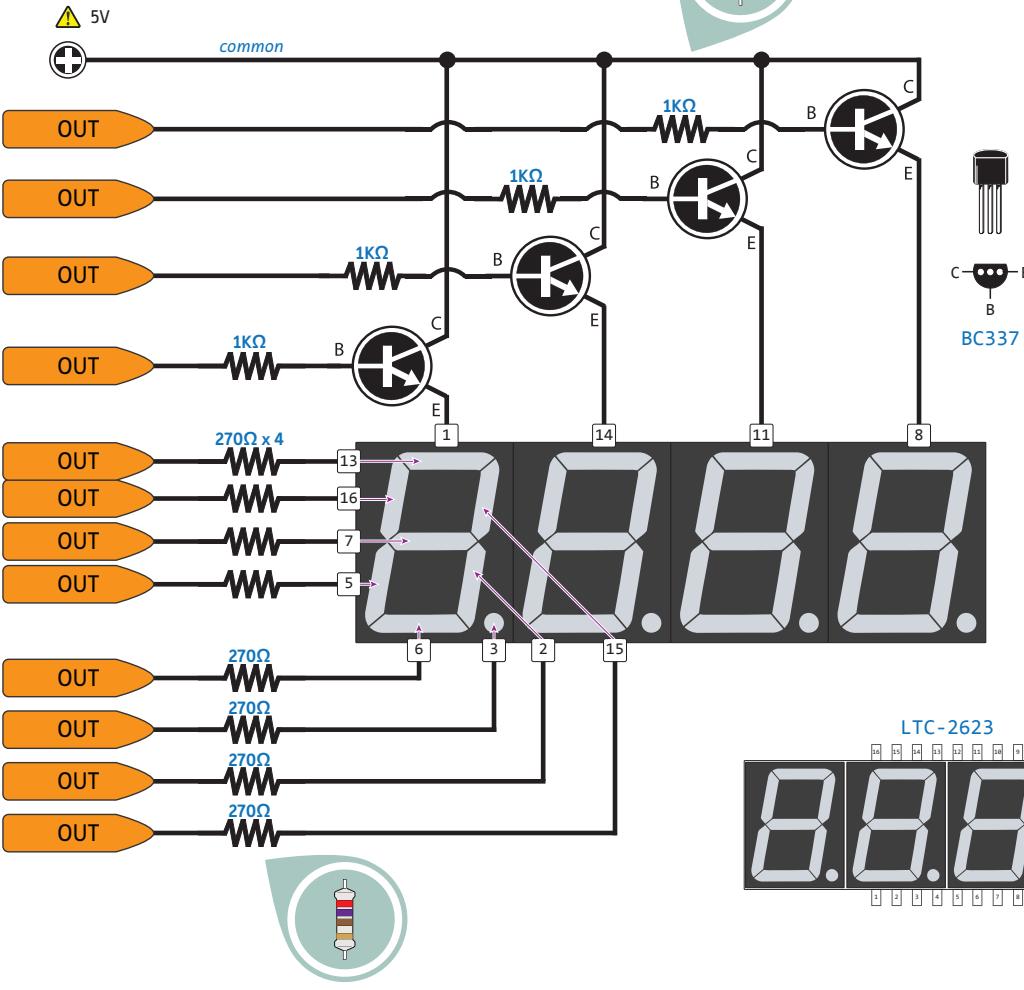
Charlieplexing



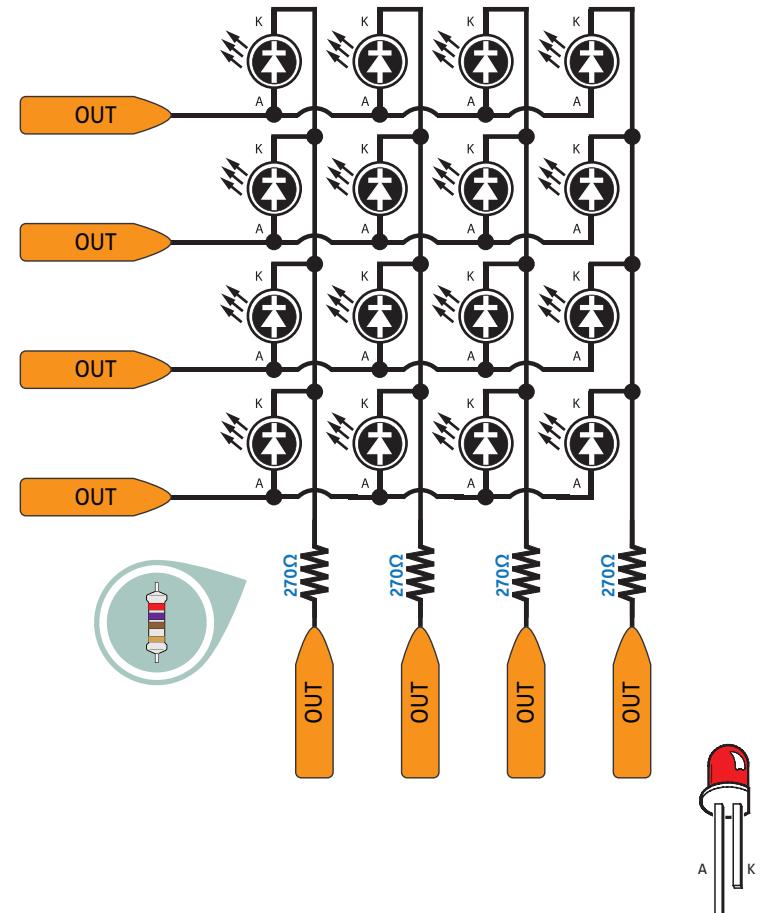
7 Segments Display



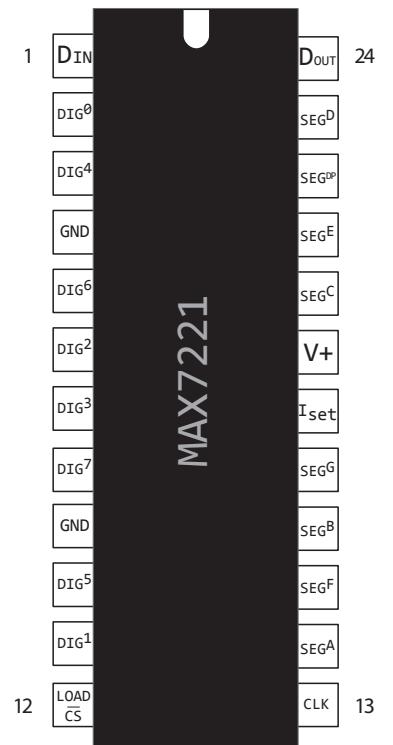
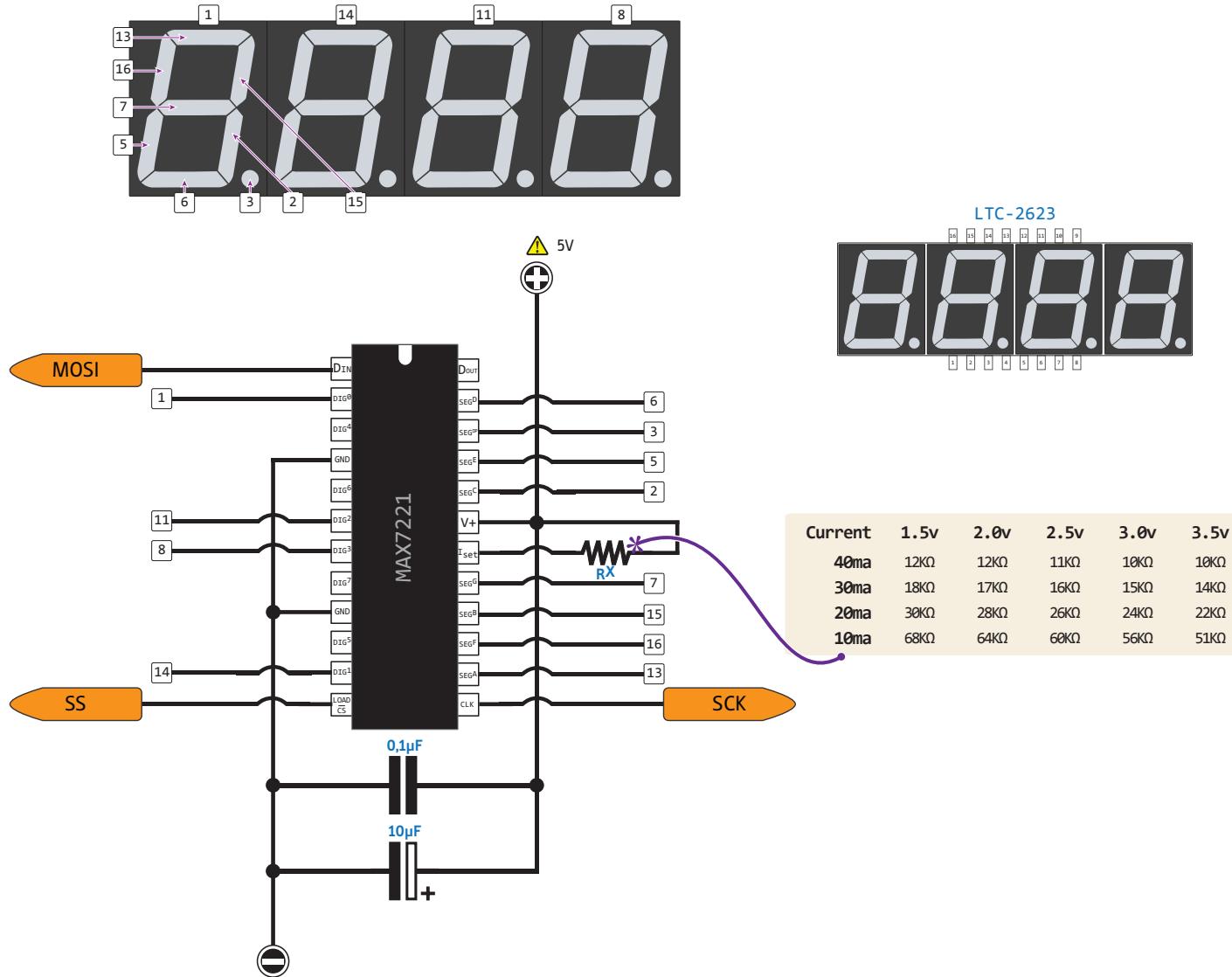
7 Segments Display (Common Anode) with Multiplexing



LED Array



7 Segments Display (Common Anode) with MAX7221



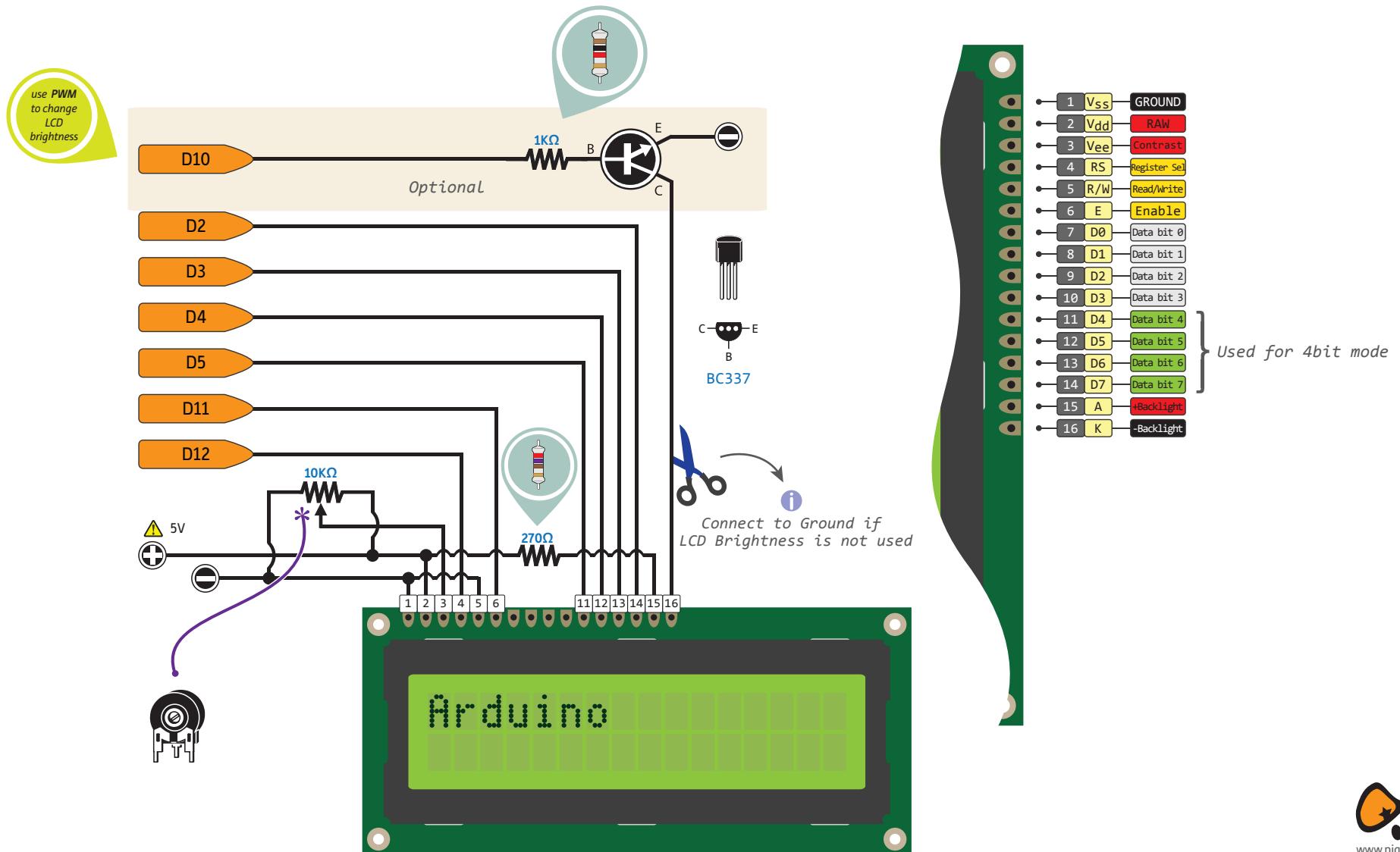
www.pighixxx.com



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Connect a LCD HITACHI 44780 compatible



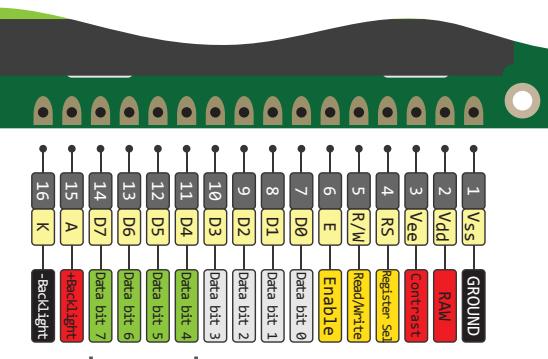
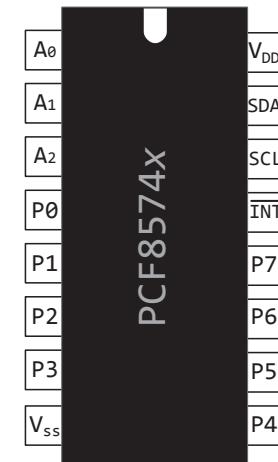
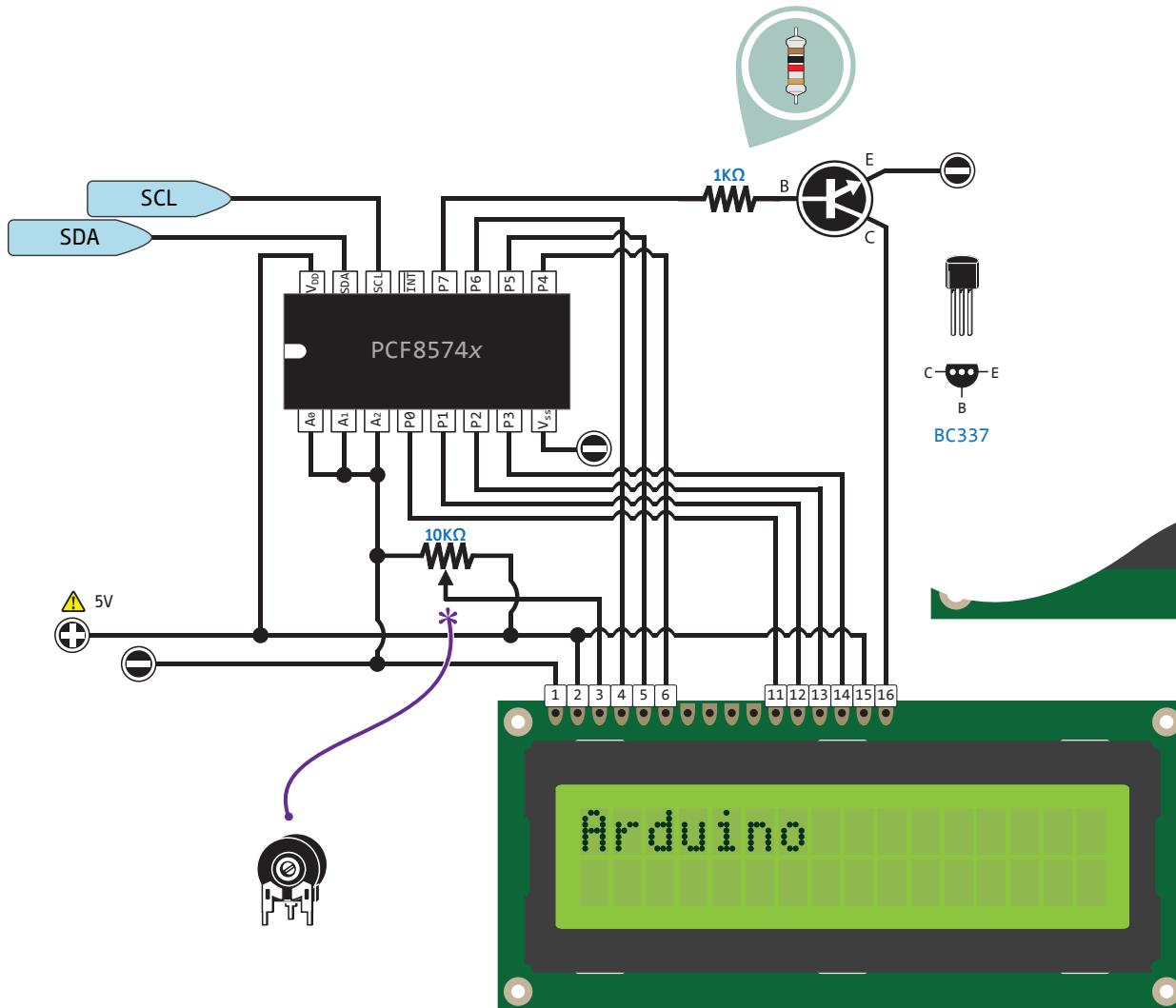
www.pighixxx.com



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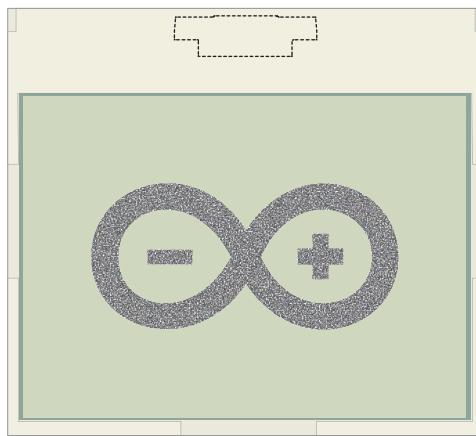
ver 1 rev 0

Connect via I2C a LCD HITACHI 44780 compatible

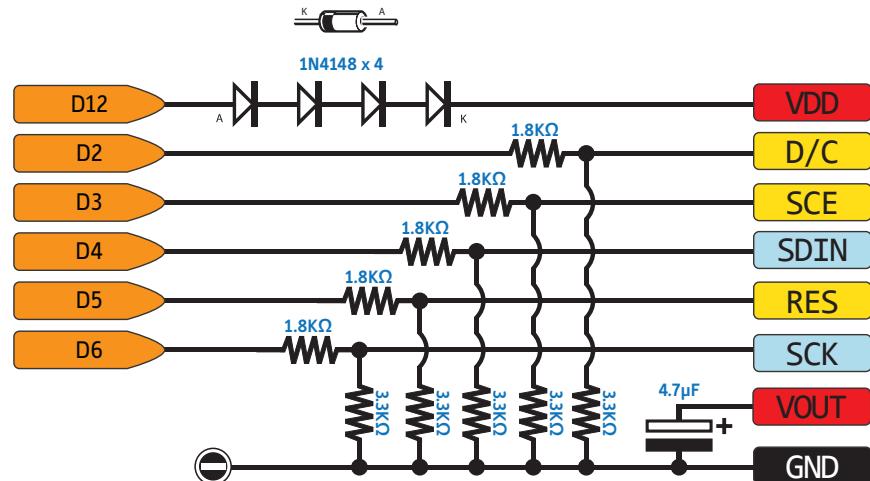


Connect a NOKIA LCD (Basic)

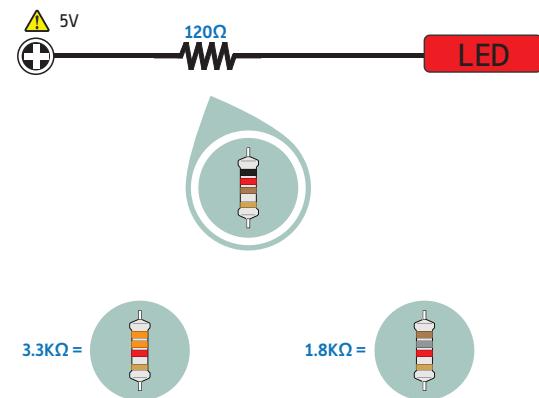
⚠ Only for 5V Arduino



NOKIA 3110



NOKIA 5110



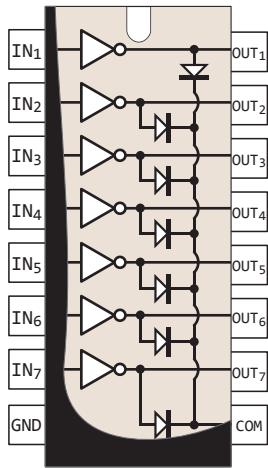
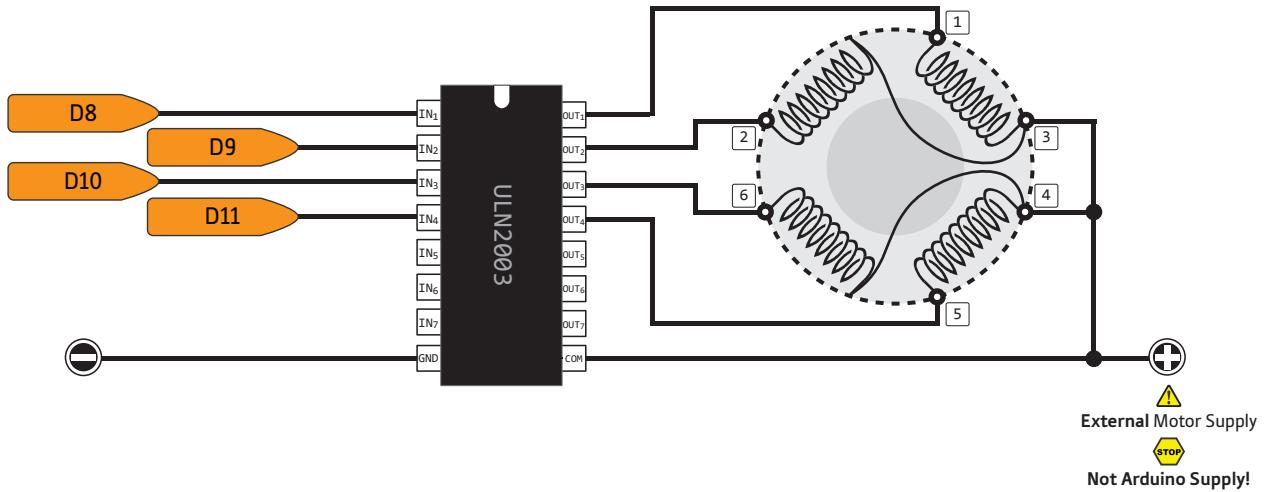
www.pighixxx.com



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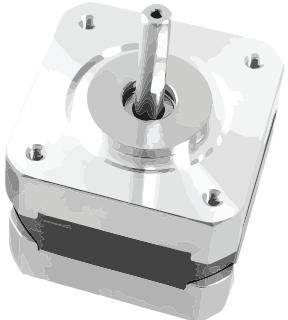
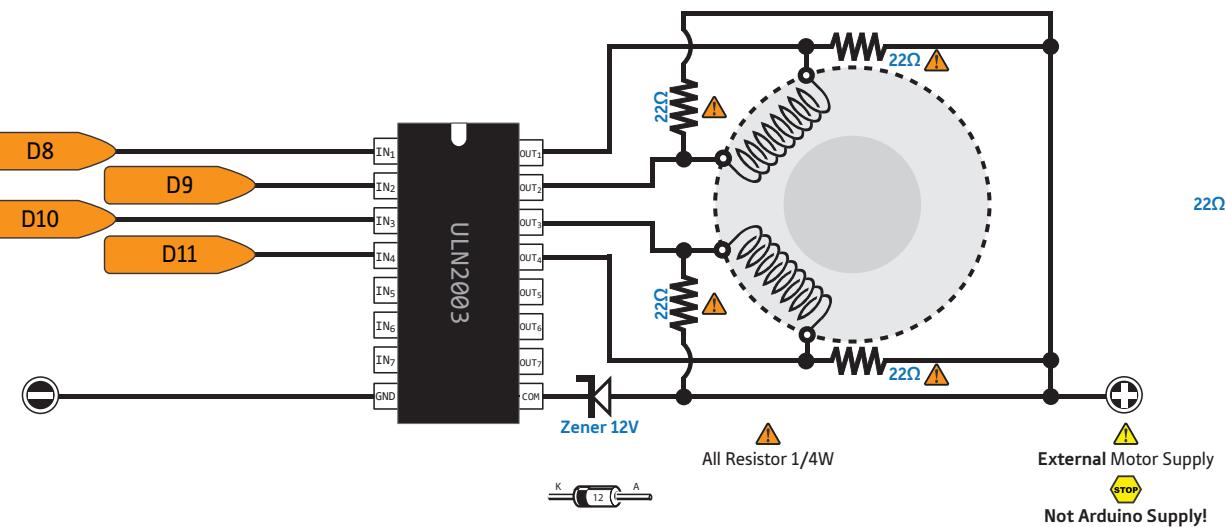
ver 1 rev 0

Drive a Unipolar Stepper (Basic 1)



ULN2003

Drive a Bipolar Stepper (Basic 1)



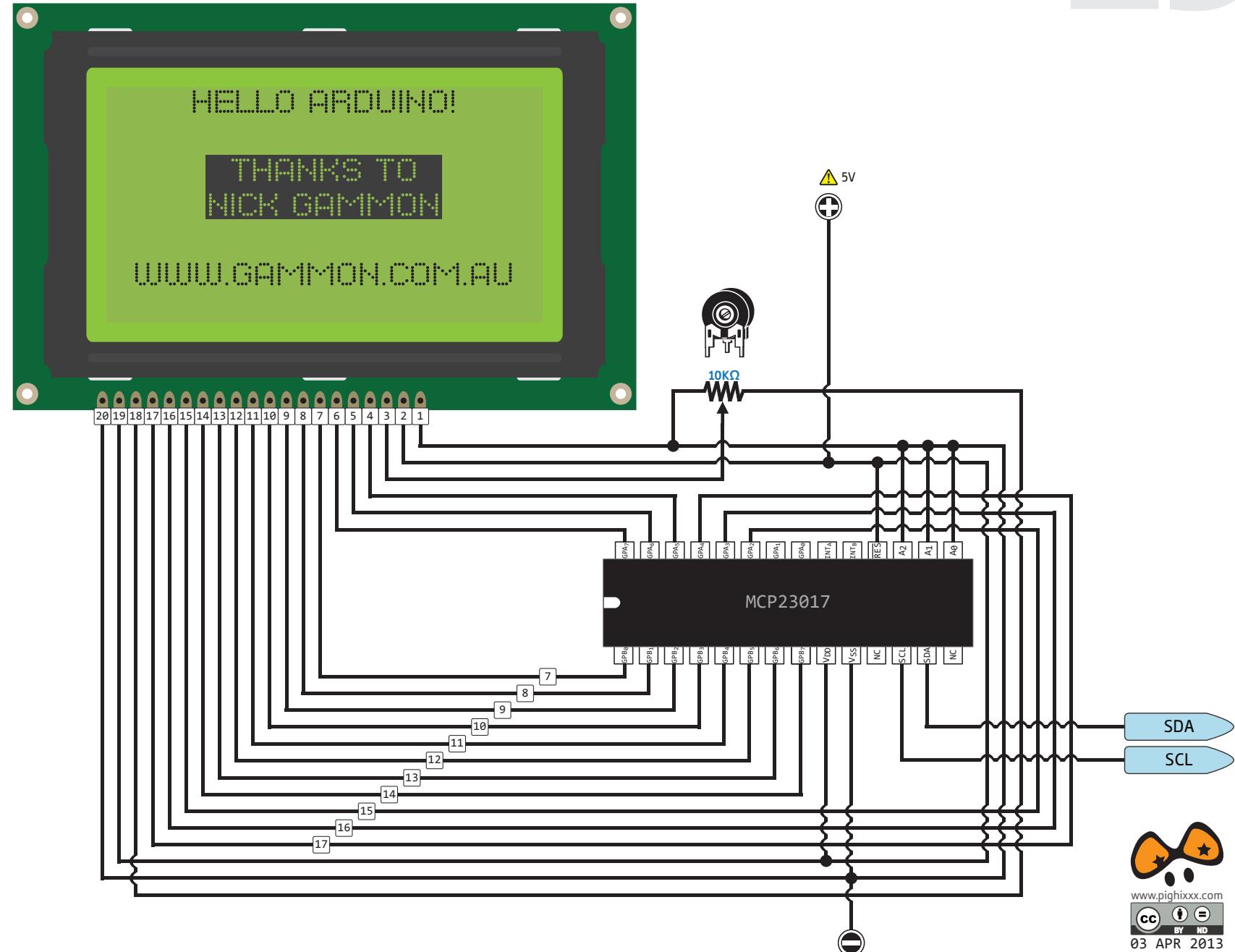
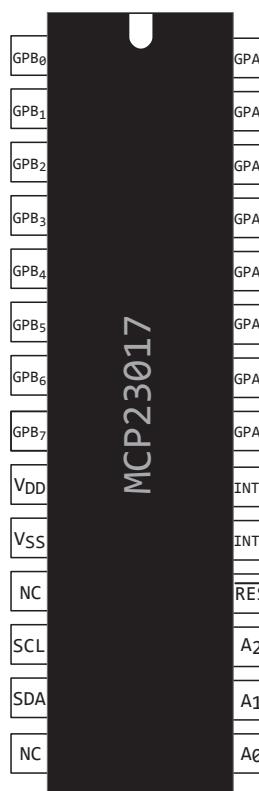
www.pighixxx.com



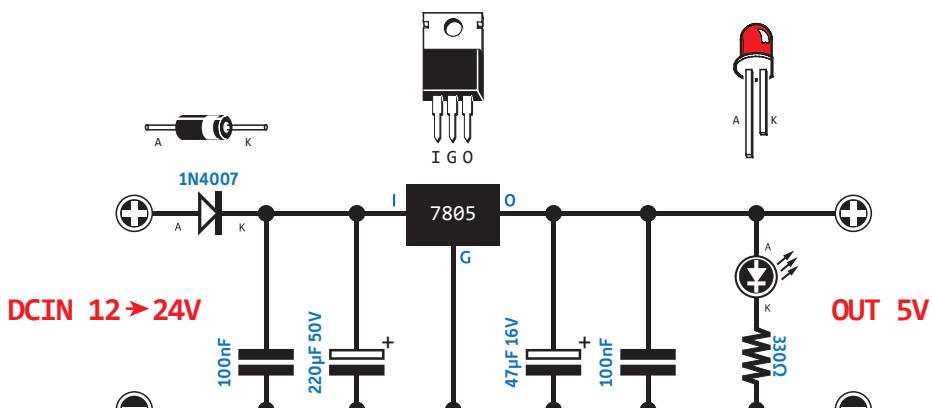
03 APR 2013

ver 1 rev 0

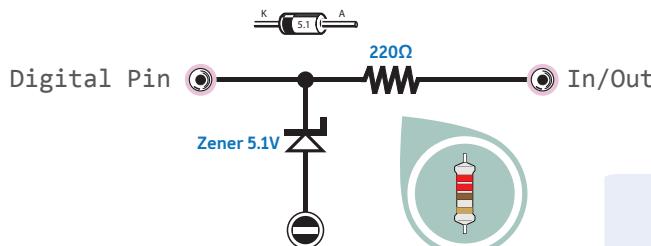
Connect a graphical LCD via I₂C



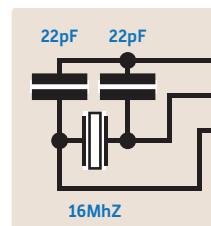
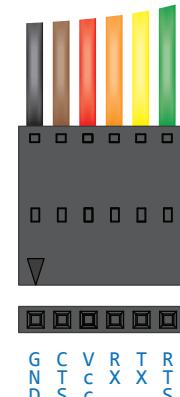
Simple 5V Power Supply



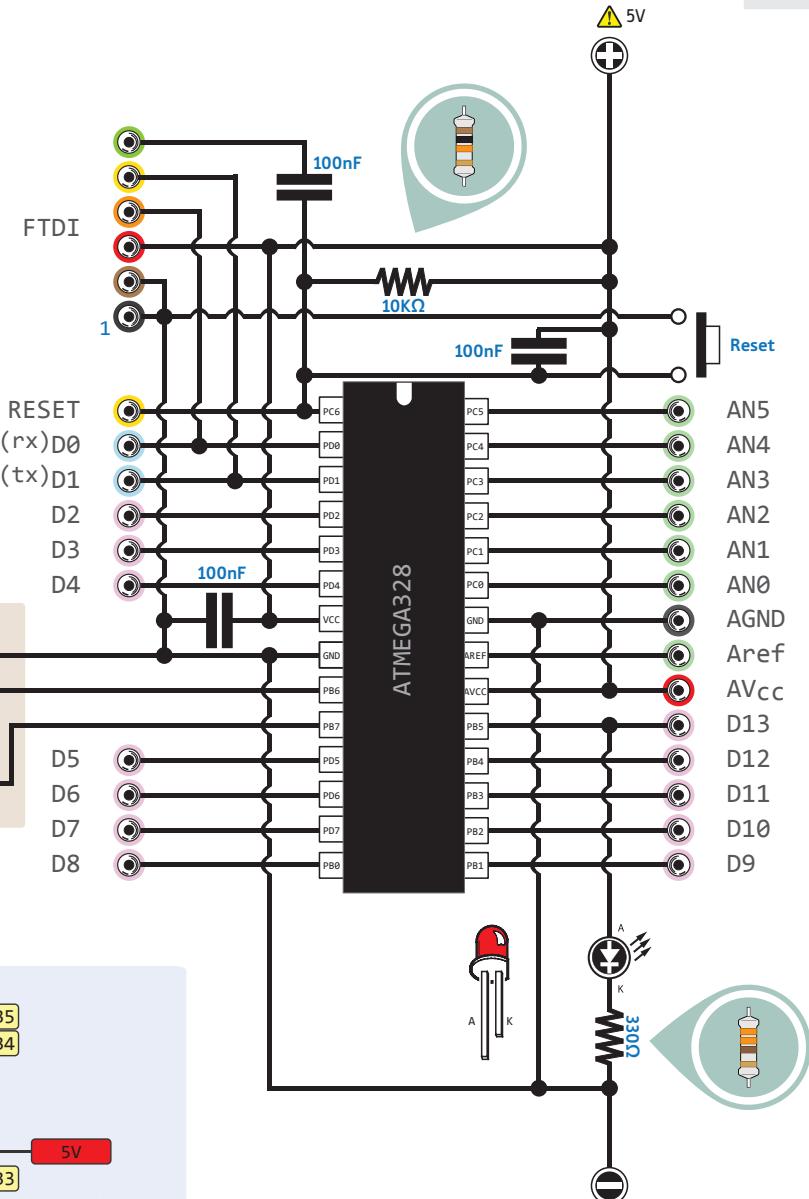
Protect a I/O Pin



FTDI Connector



DIY Arduino

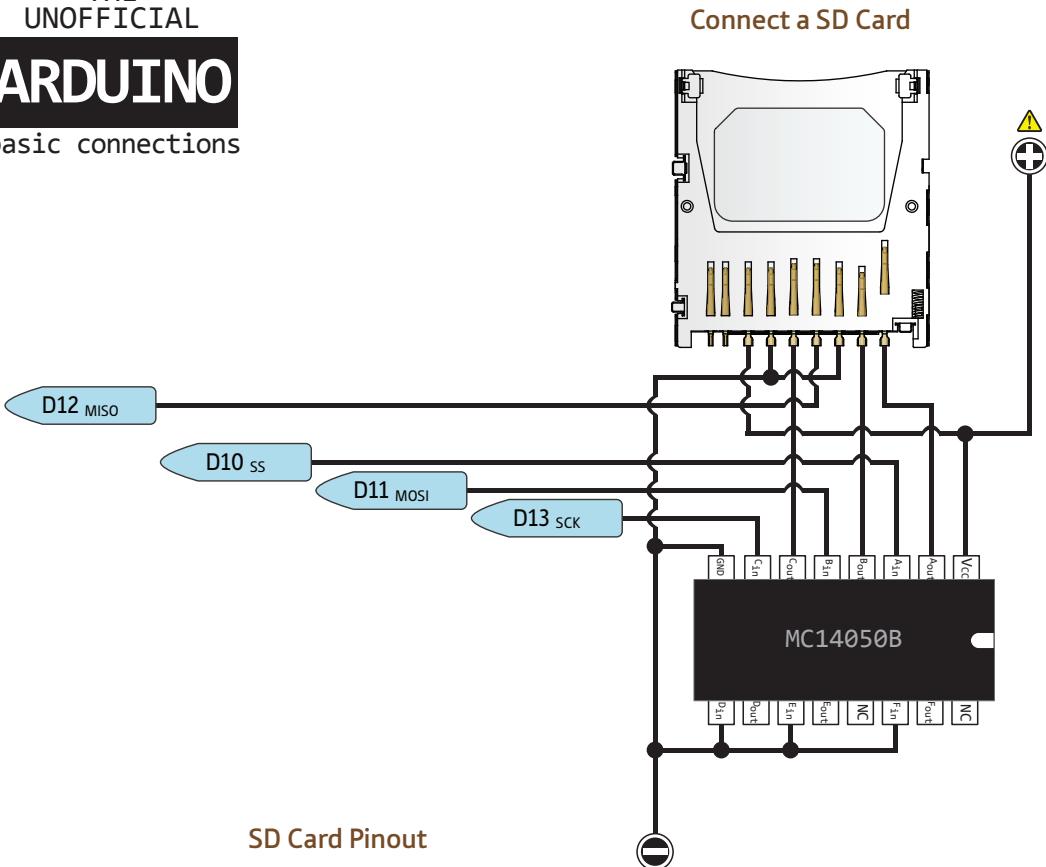


www.pighixxx.com

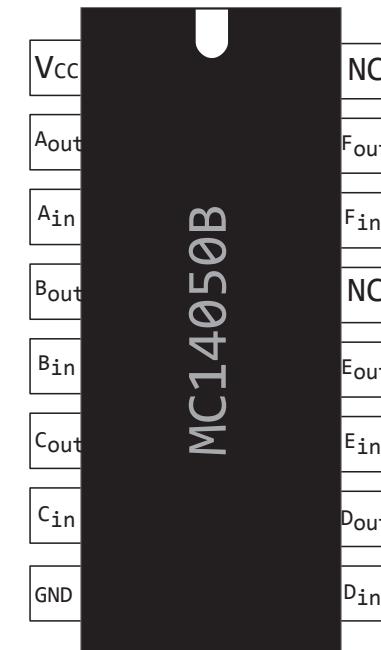
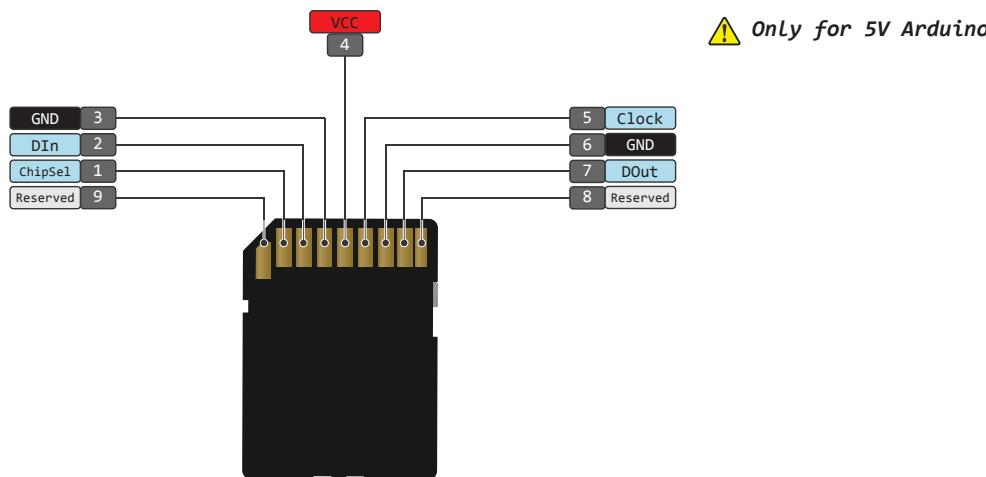


03 APR 2013

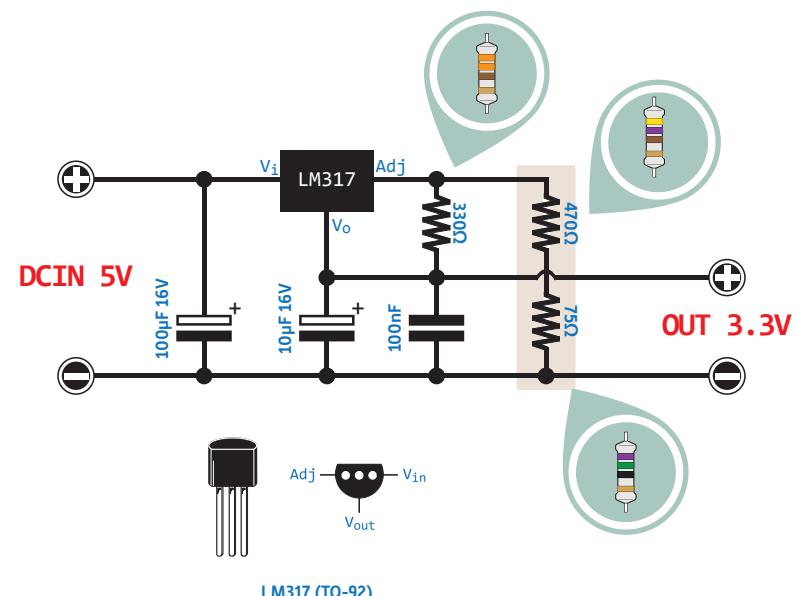
ver 1 rev 2



SD Card Pinout



Simple 3.3V Power Supply



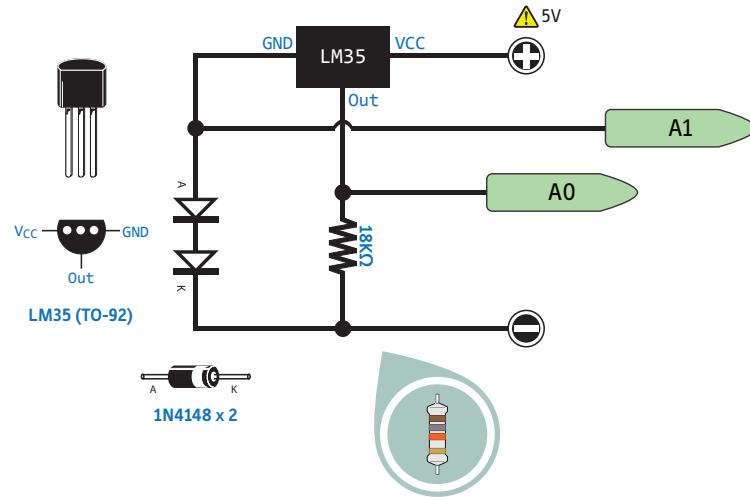
www.pighixxx.com



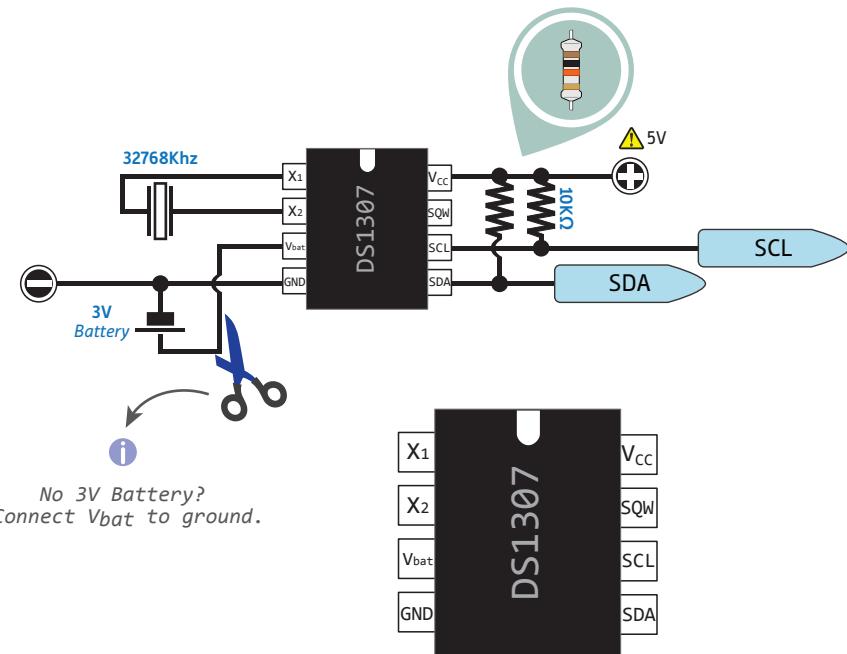
03 APR 2013

ver 1 rev 0

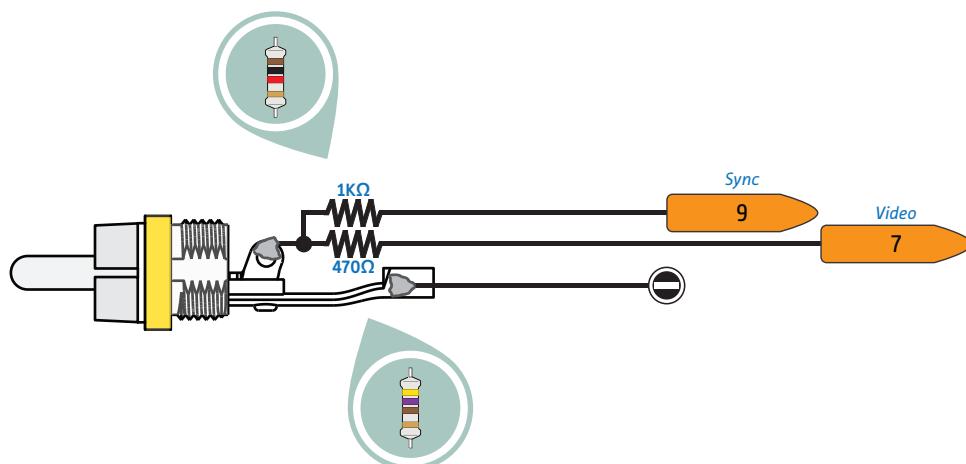
Connect a Temperature Sensor (LM35)



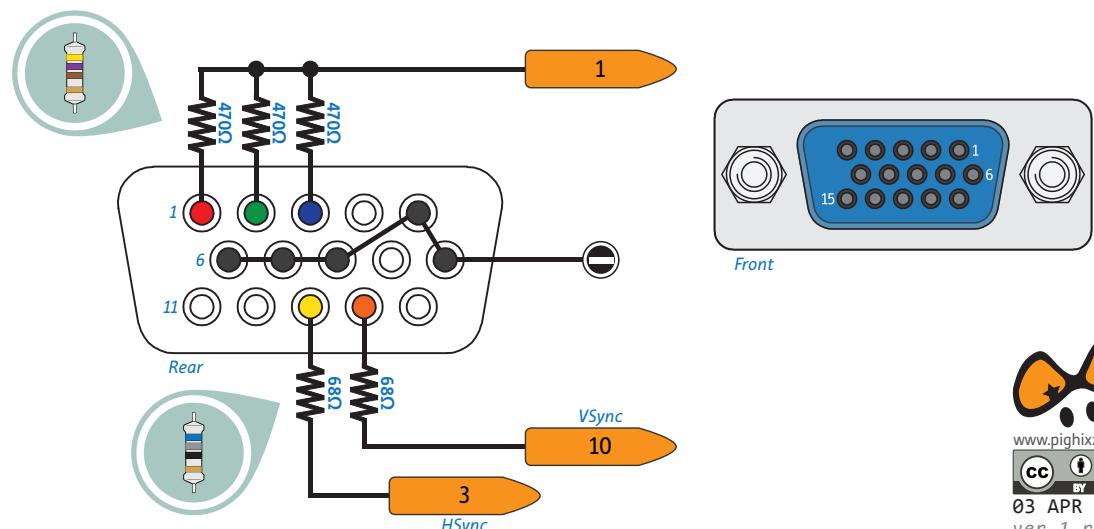
Connect a RTC (DS1307)



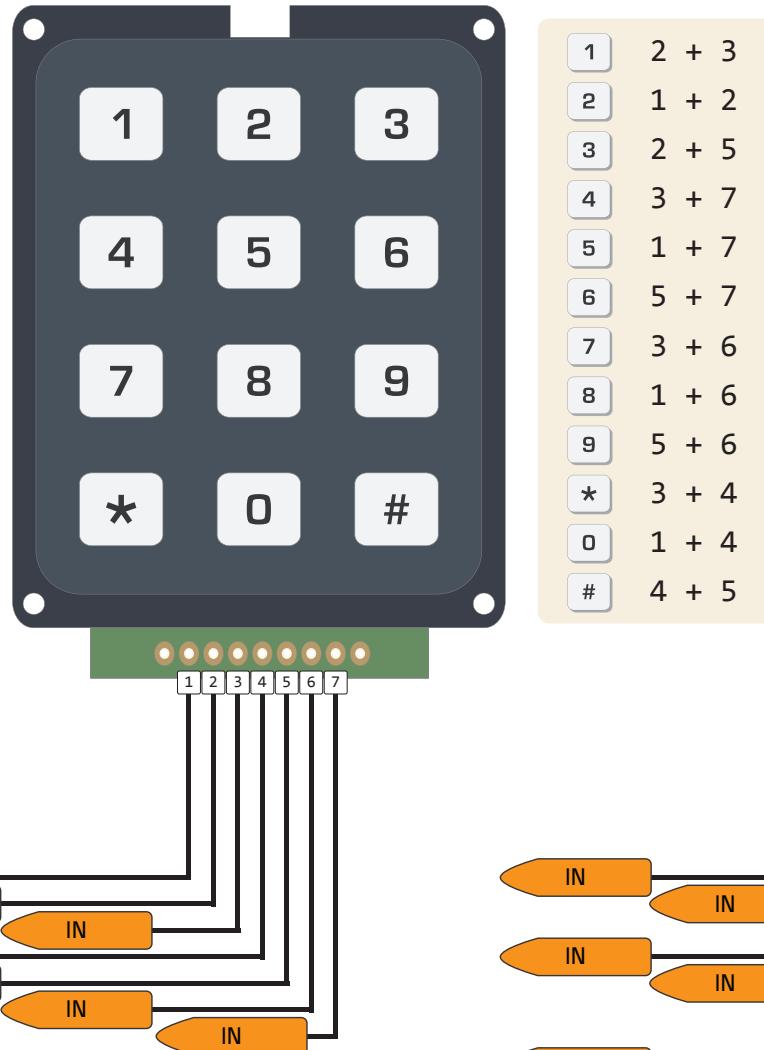
Connect to Composite Video



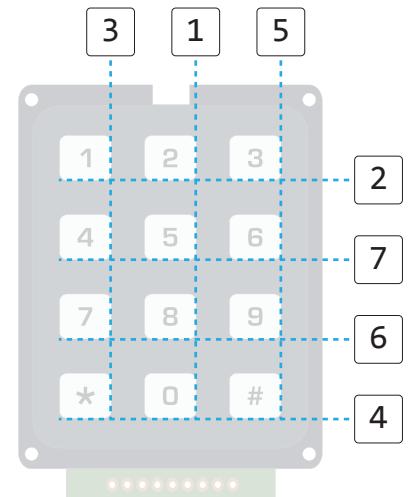
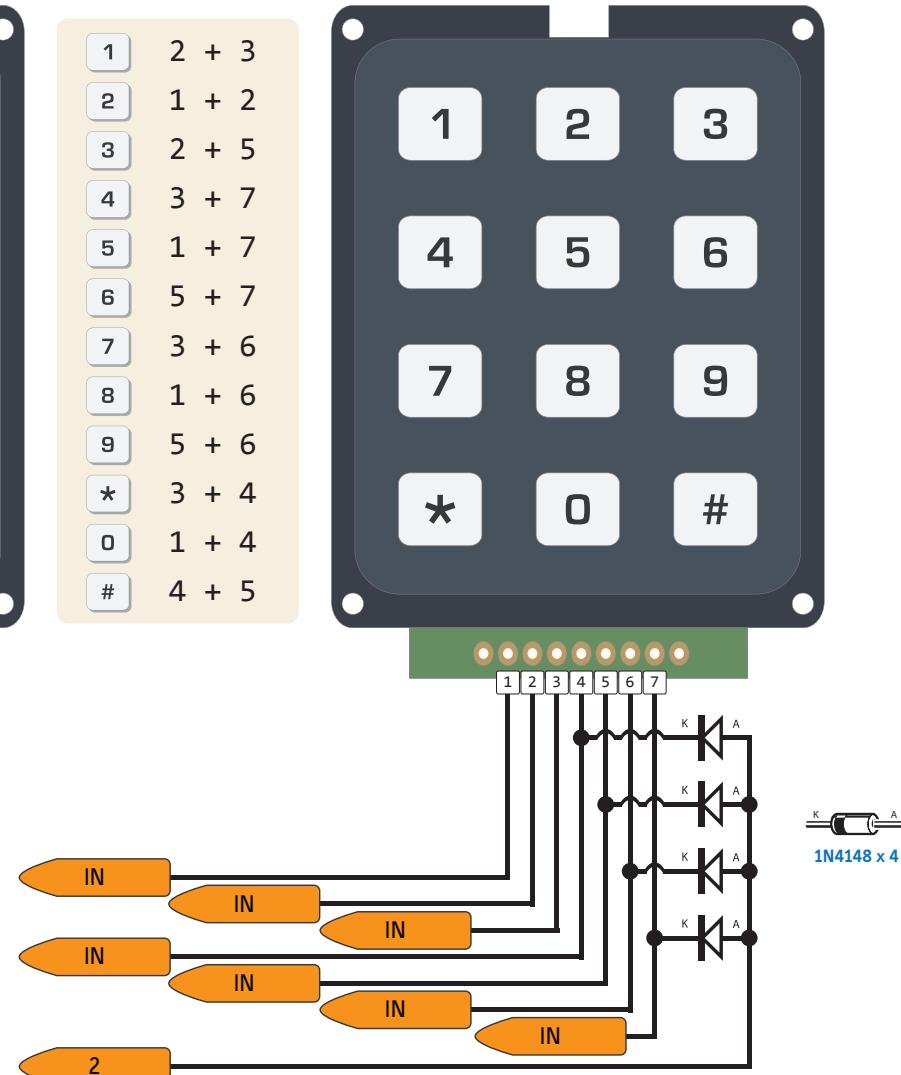
Connect to VGA



Connect a Keypad



Connect a Keypad (with Interrupt)



TSOP4836

SFH5110



S - +

TSOP1836

NJL61H380



S - +

TSOP1736

SFH506



- + S

SFH505A



+ - S

IS1U60



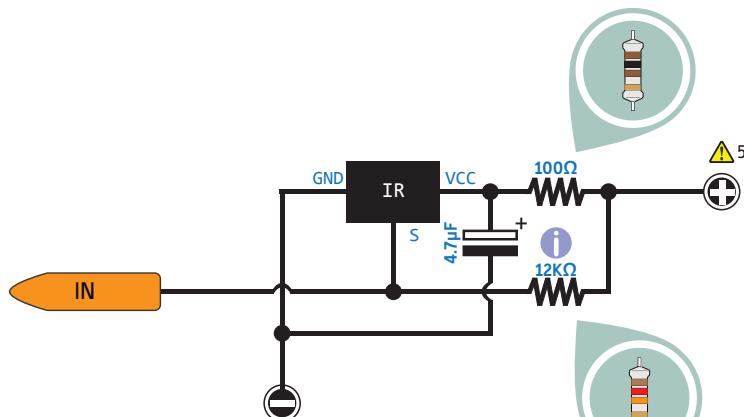
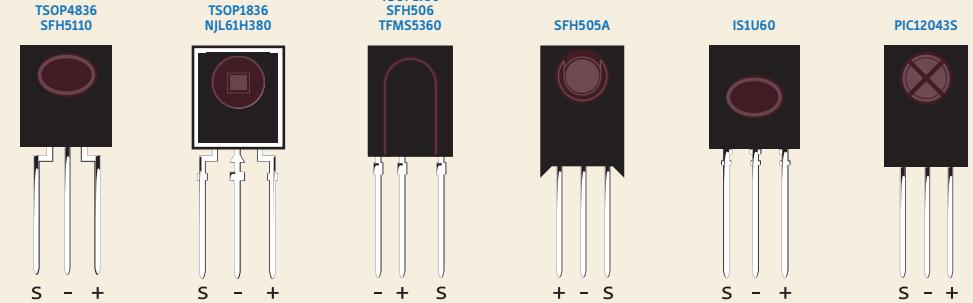
S - +

PIC12043S



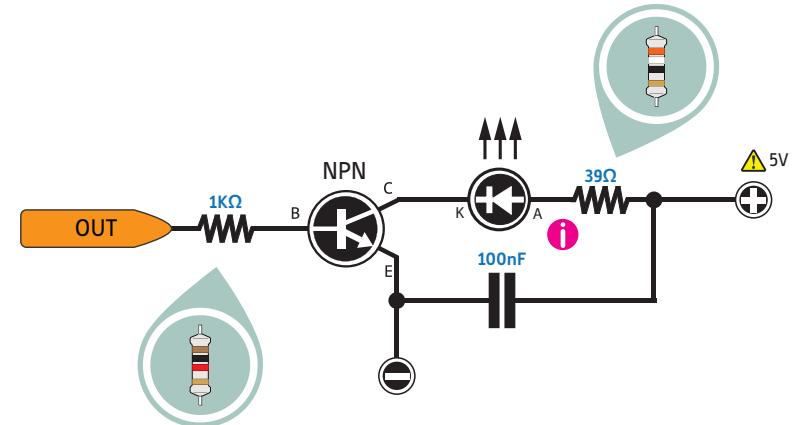
S - +

Connect a IR Sensor



i
Reccomended
to suppress
power supply
disturbances

Connect a IR Emitter



$$R = \frac{V_{in} - V_F}{I_F} * 1000$$

V_{in} Source Voltage
 V_F Forward Voltage Led
 I_F Forward Current Led



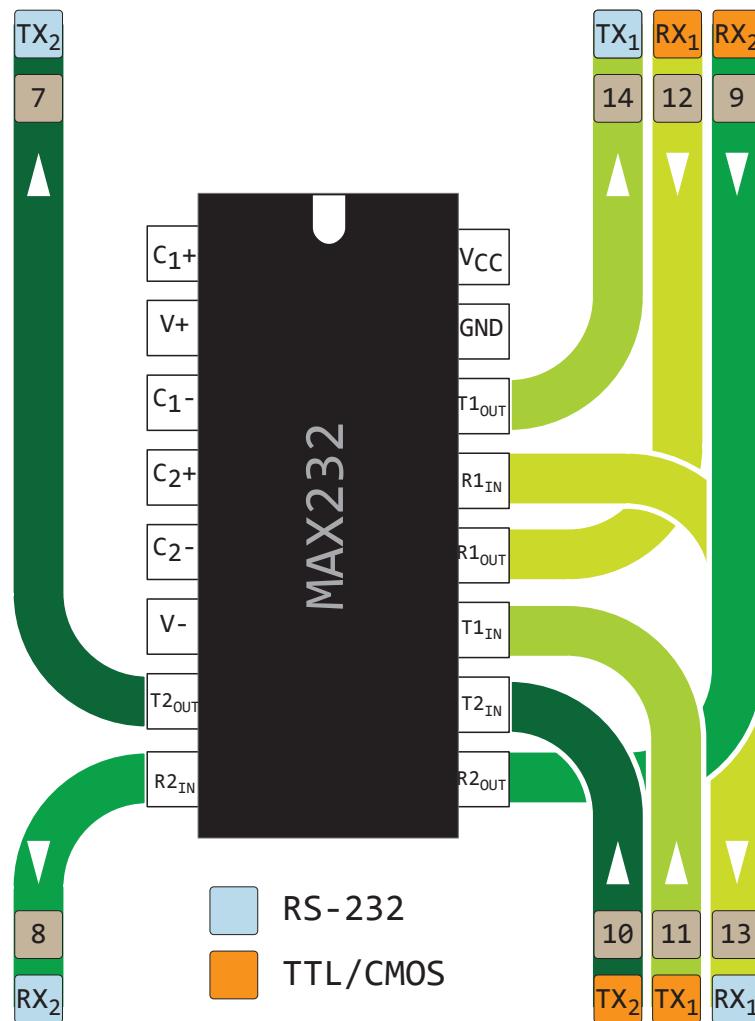
www.pighixxx.com



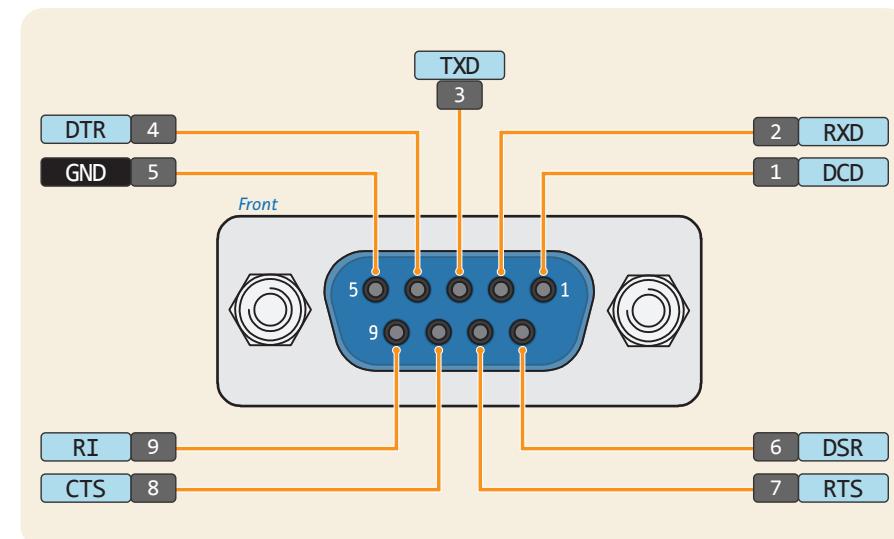
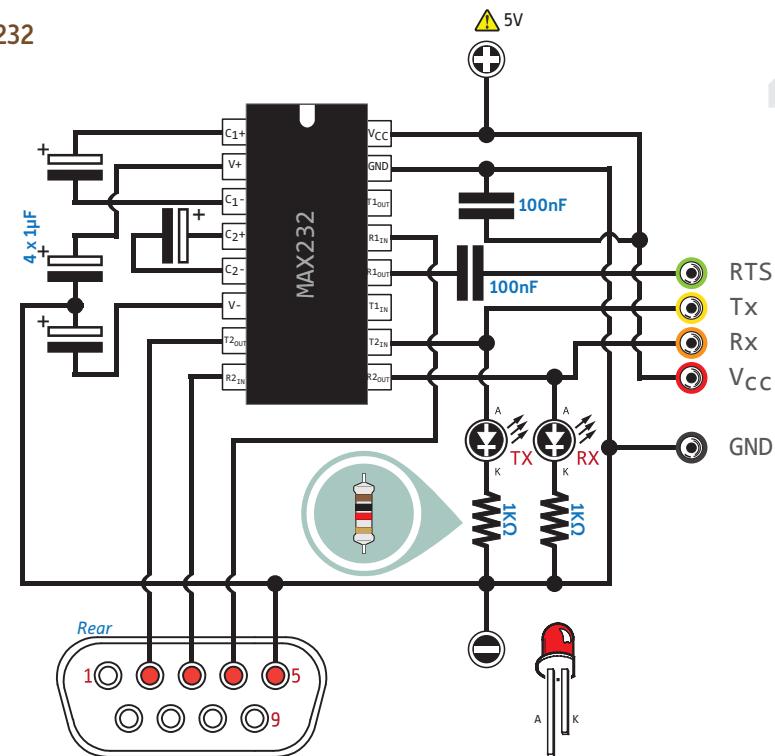
03 APR 2013

ver 1 rev 0

THE
UNOFFICIAL
ARDUINO
basic connections



Connect a MAX232



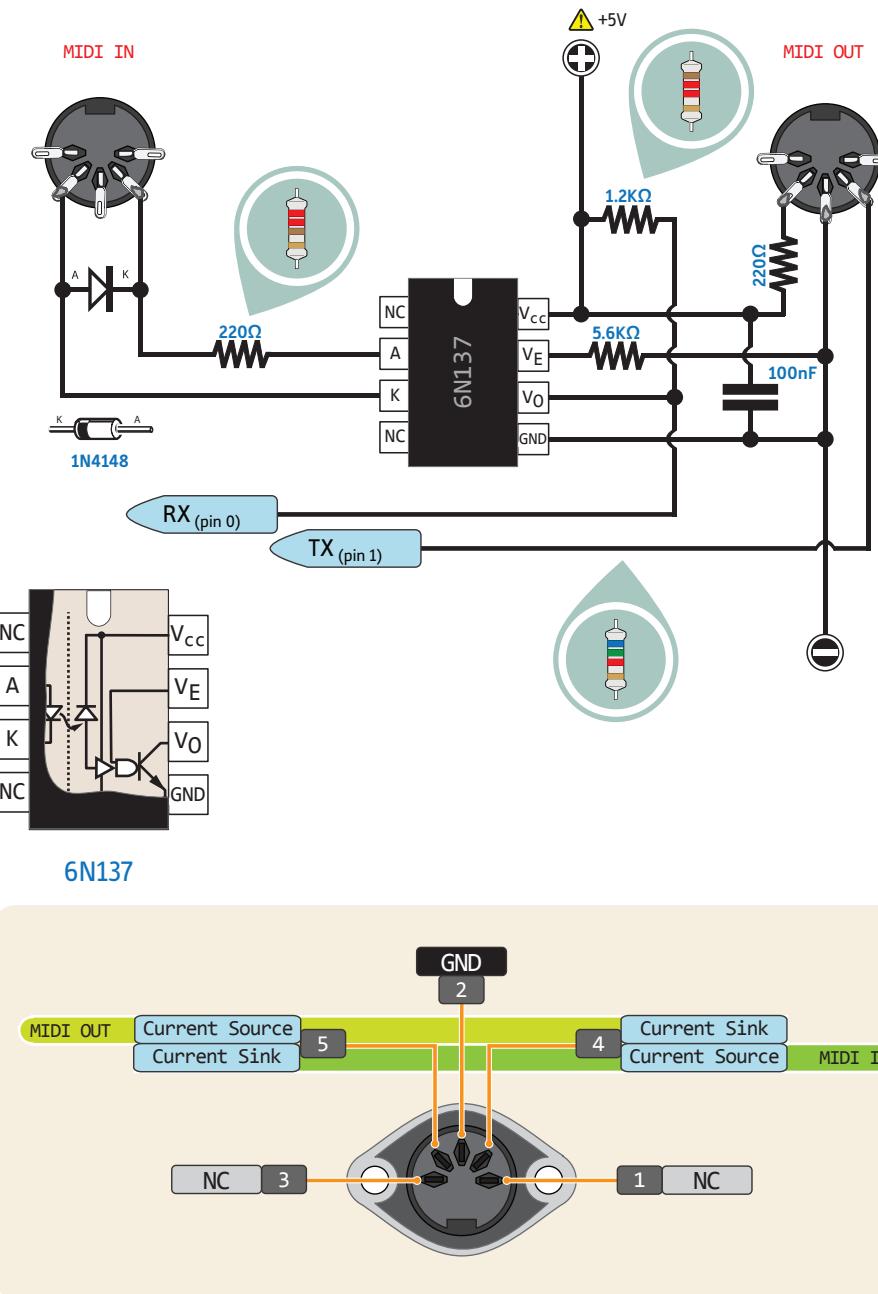
www.pighixxx.com



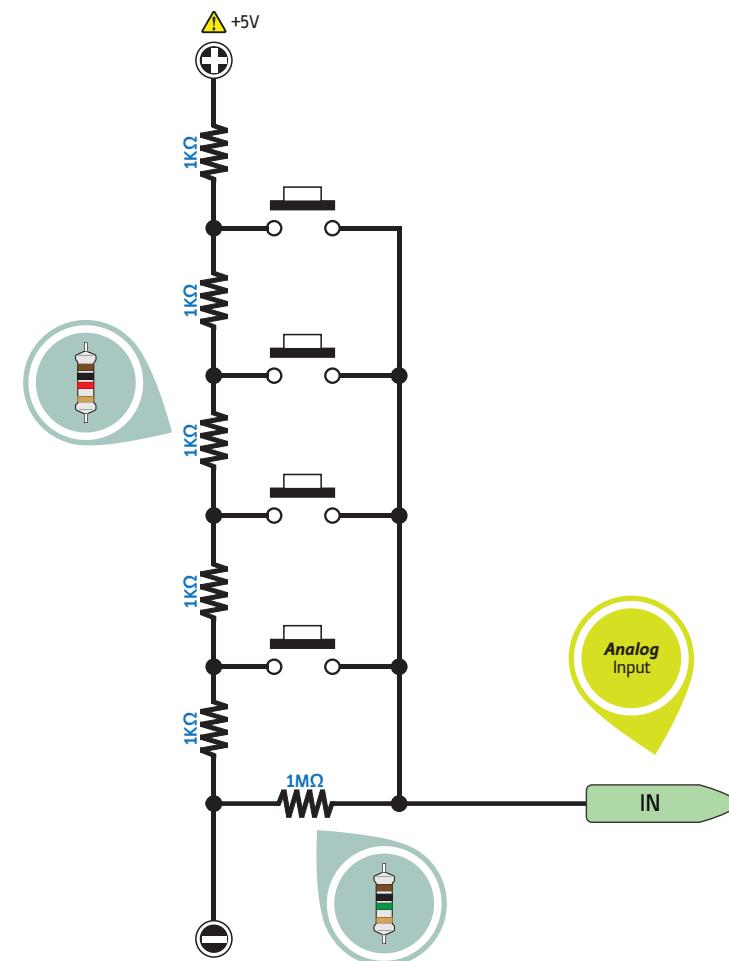
05 APR 2013

ver 1 rev 0

MIDI Interface



Multiple Buttons using 1 Analog Input



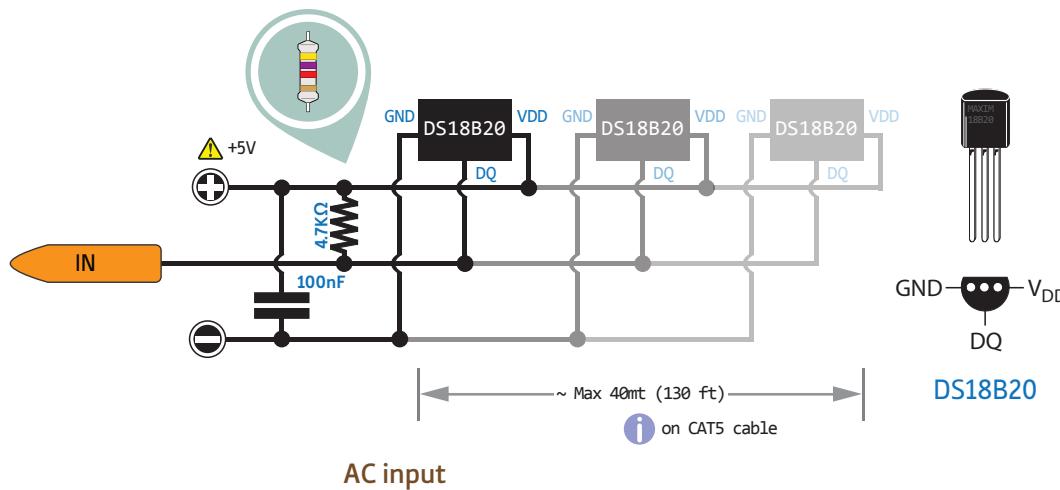
www.pighixxx.com



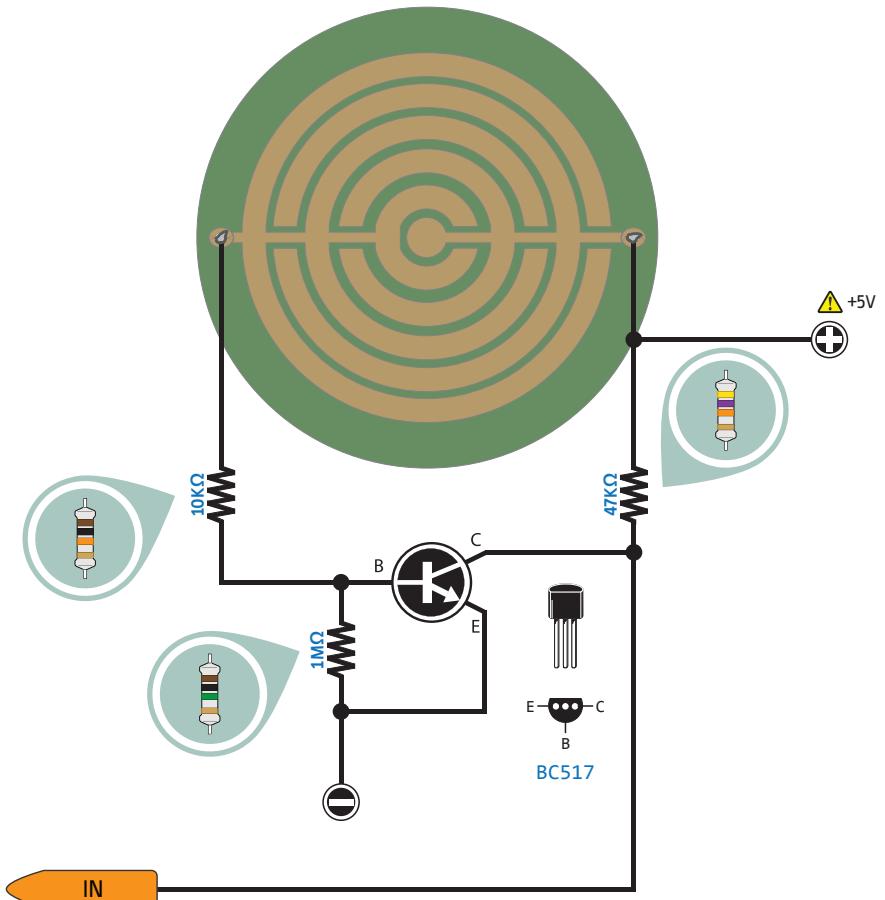
06 APR 2013

ver 1 rev 0

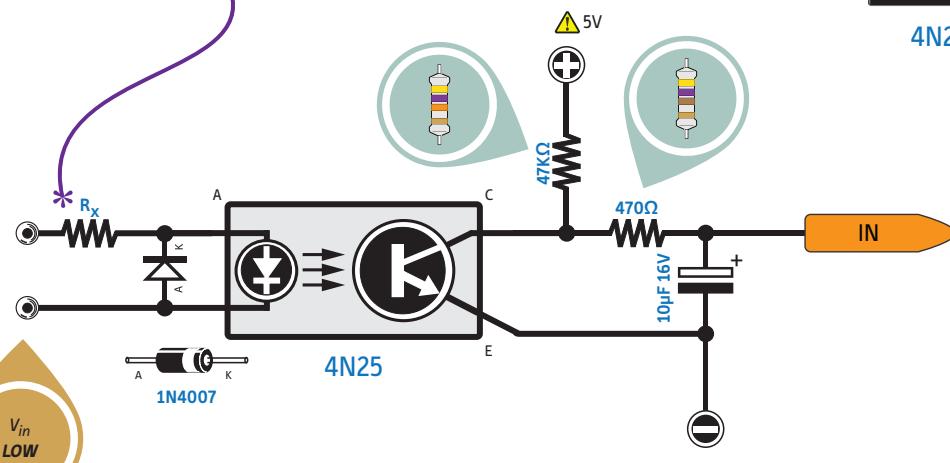
Connect a Digital Temperature Sensor (DS18B20)



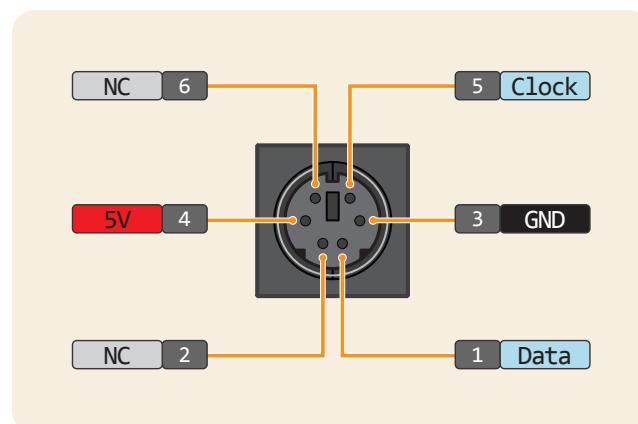
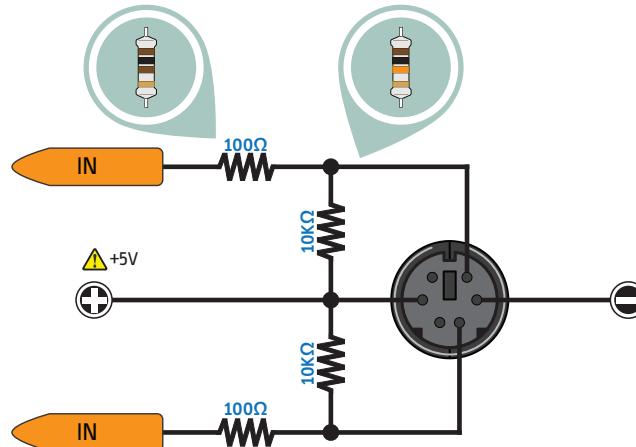
A simple Rain Sensor with Arduino



V _{in}	Resistor Value
12	470Ω
24	1kΩ
48	2.2kΩ



Connect a PS2 Keyboard



Scan Codes



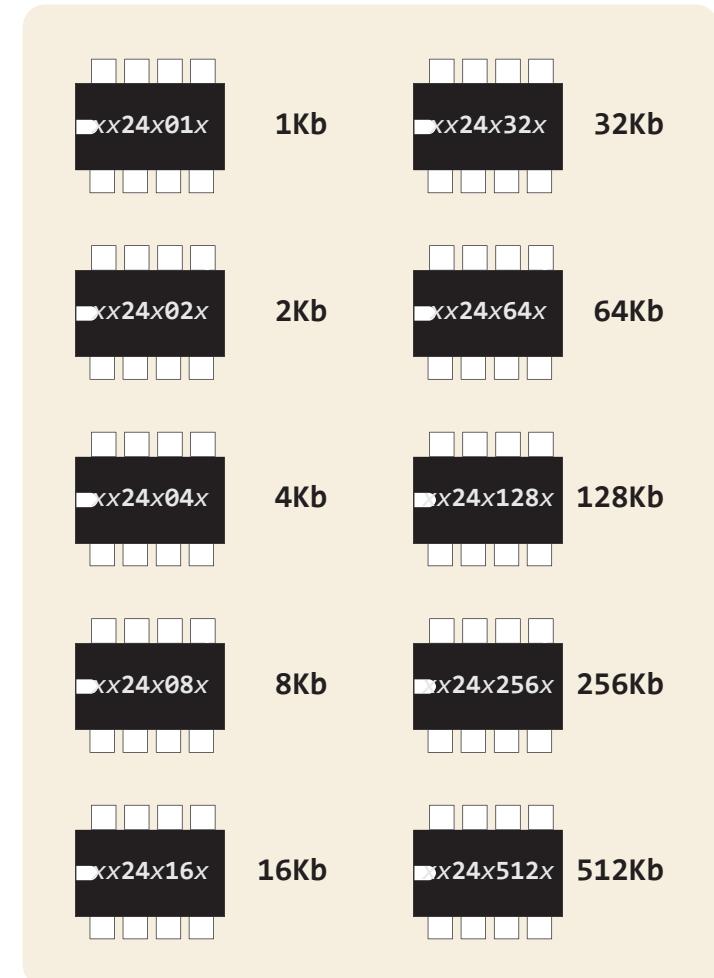
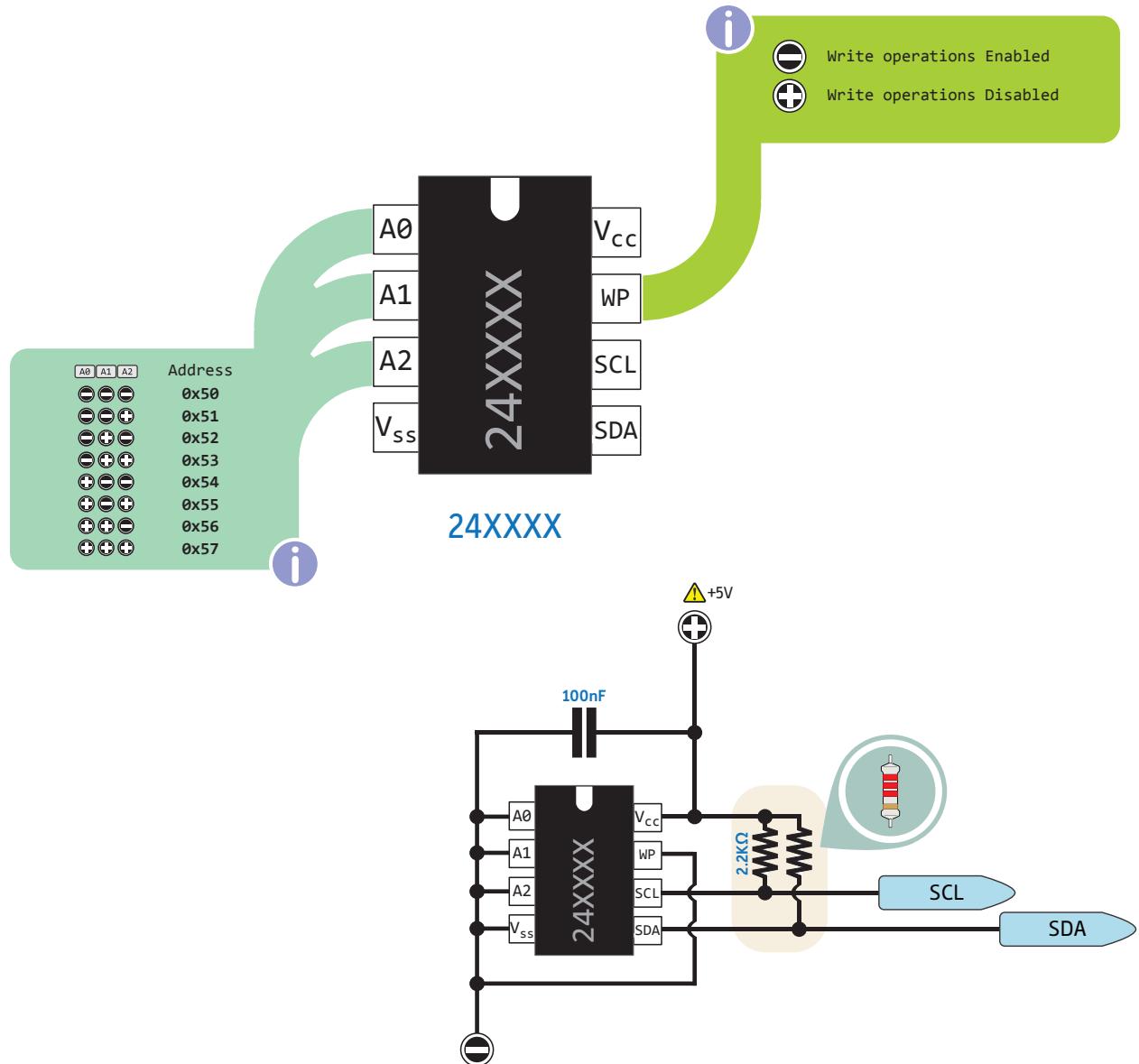
www.pighixxx.com



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Connect a EEPROM via I²C



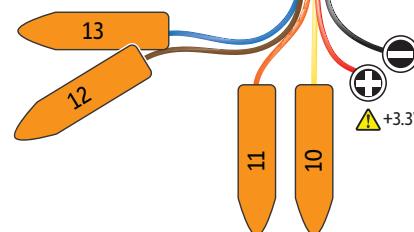
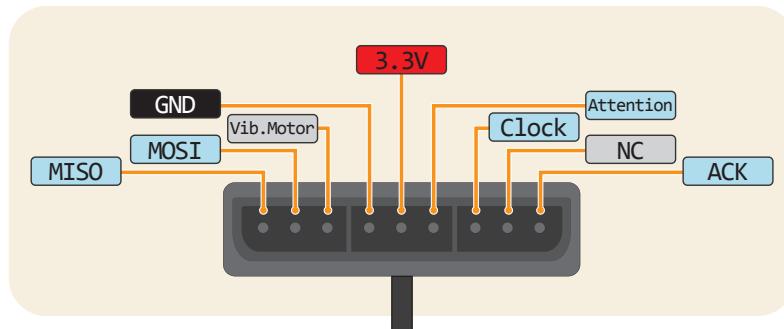
www.pighixxx.com



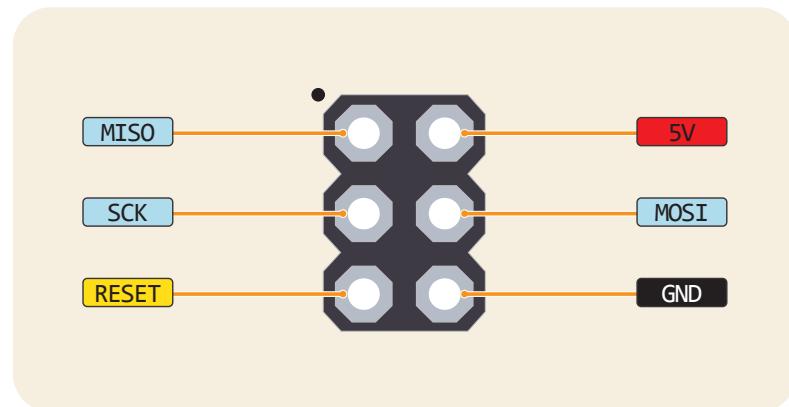
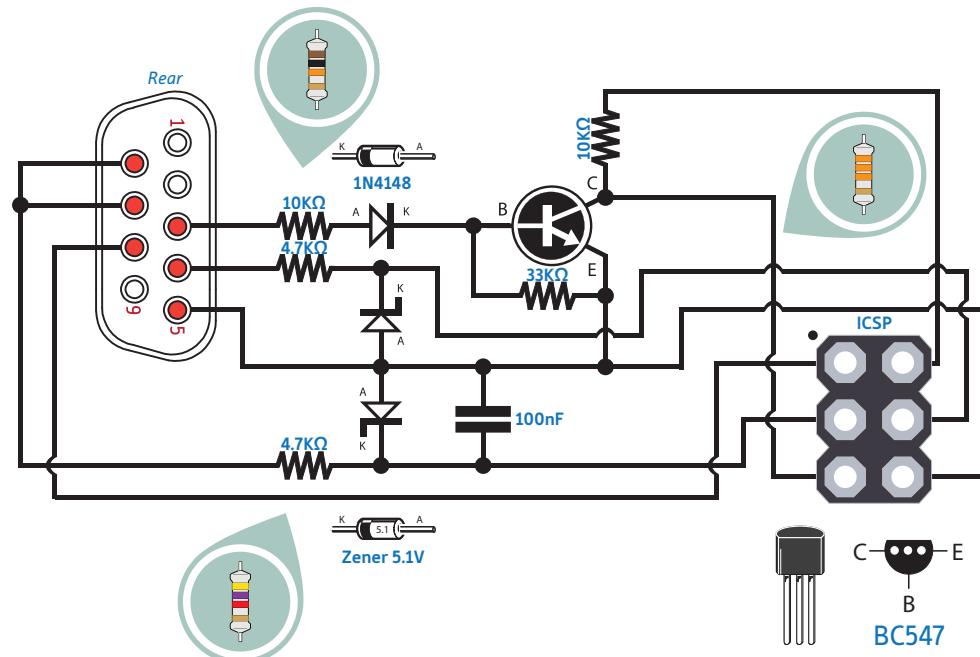
07 APR 2013

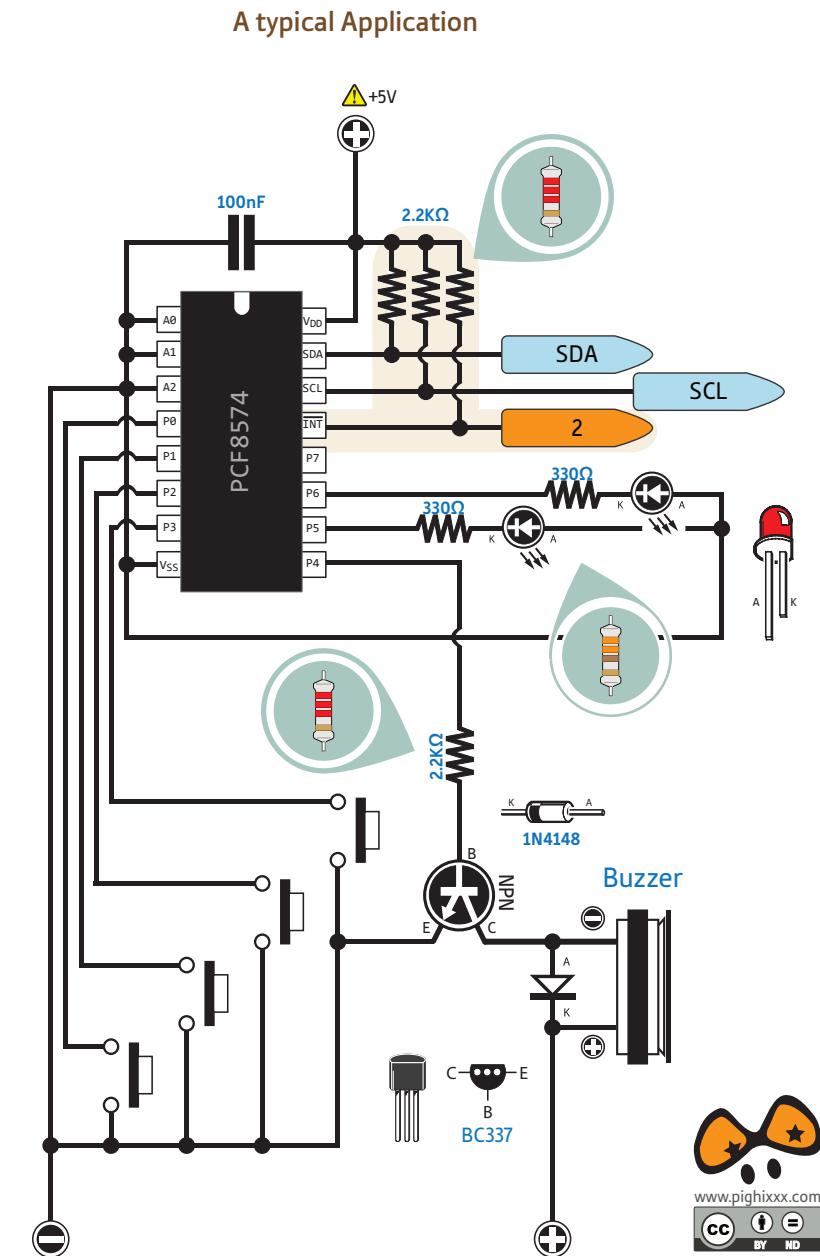
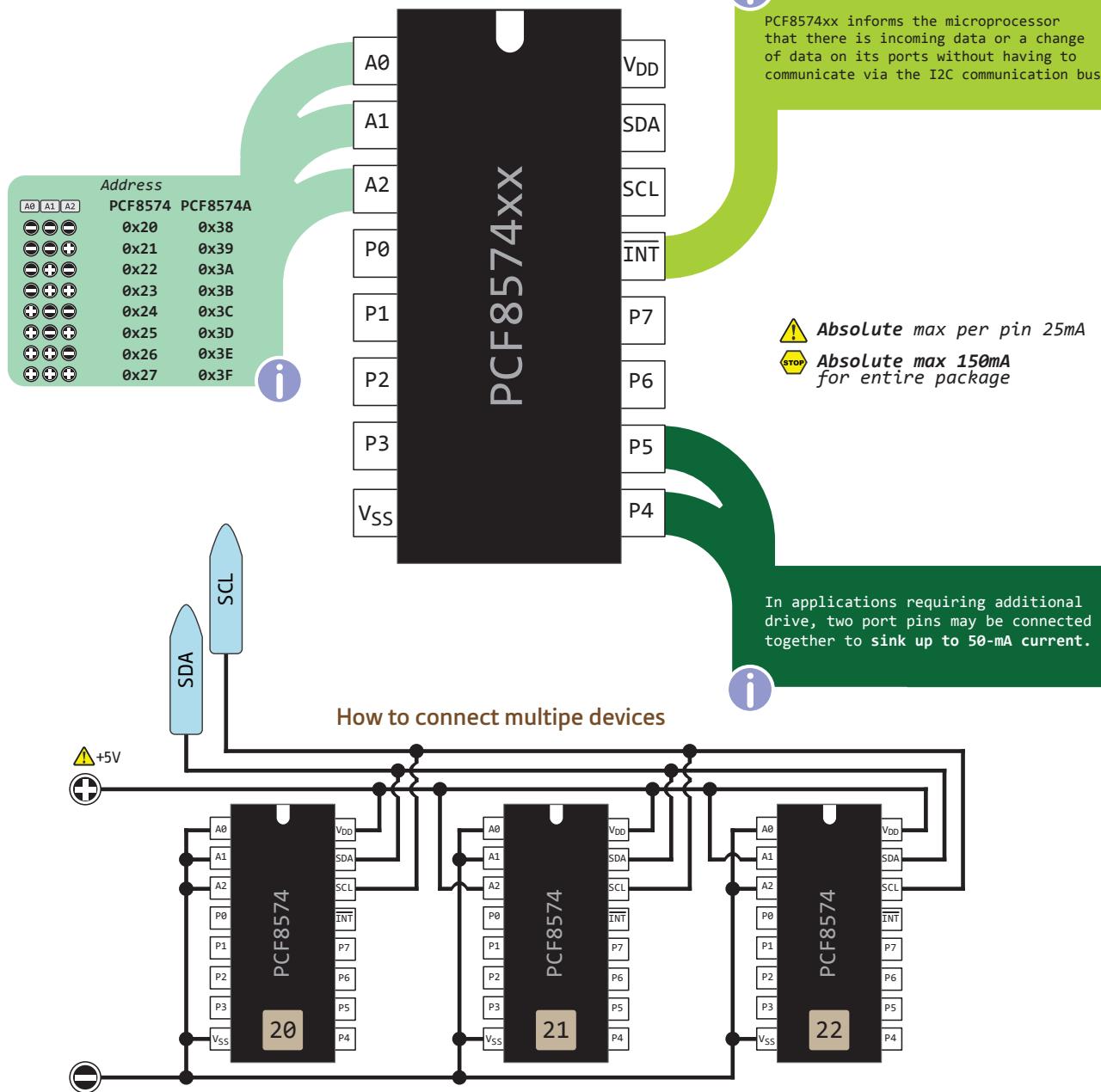
ver 1 rev 0

Connect a PS2 Dualshock® controller

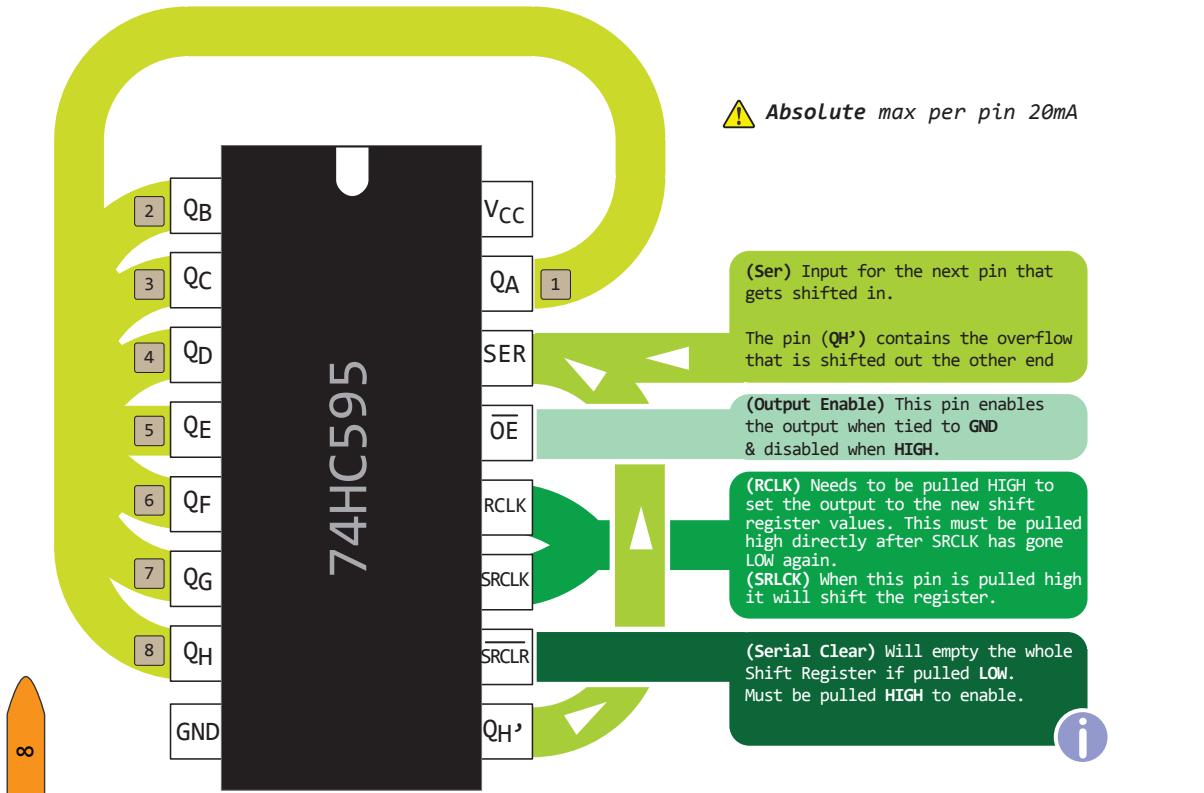


A Simple programmer

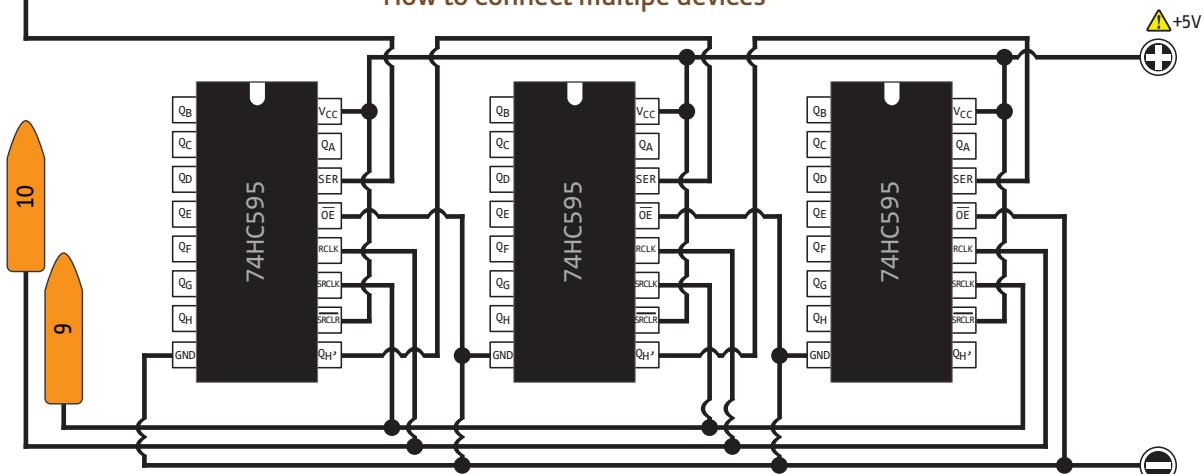




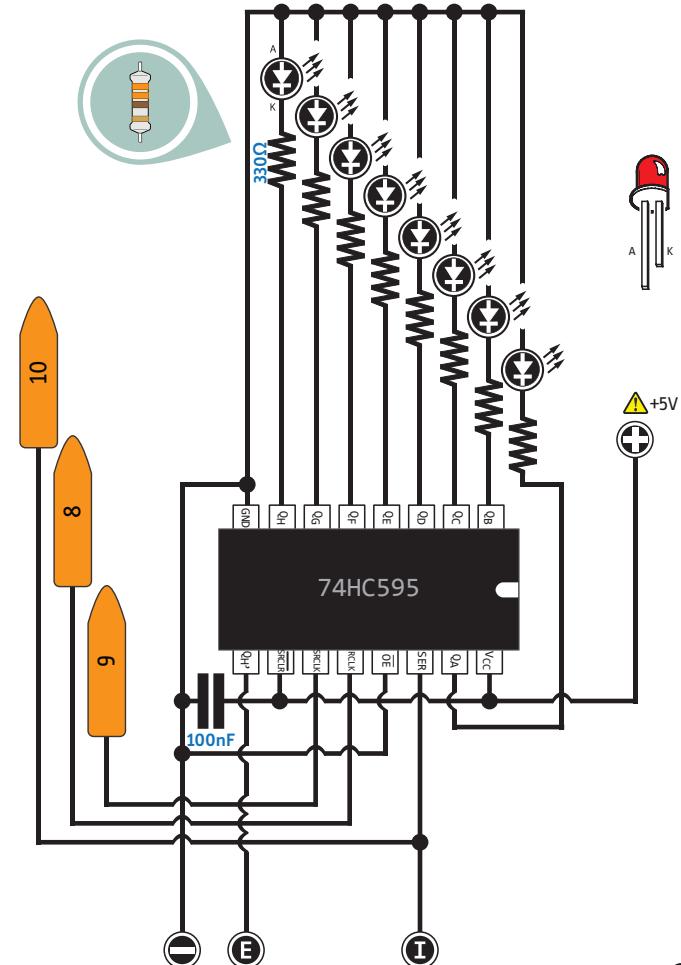
Shift Register (74HC595)



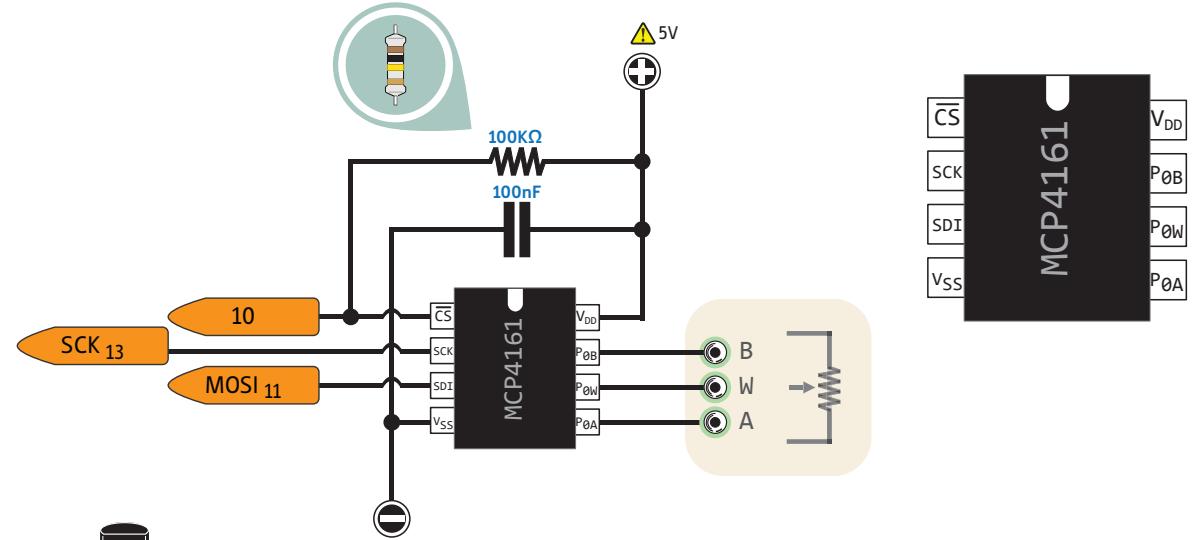
How to connect multiple devices



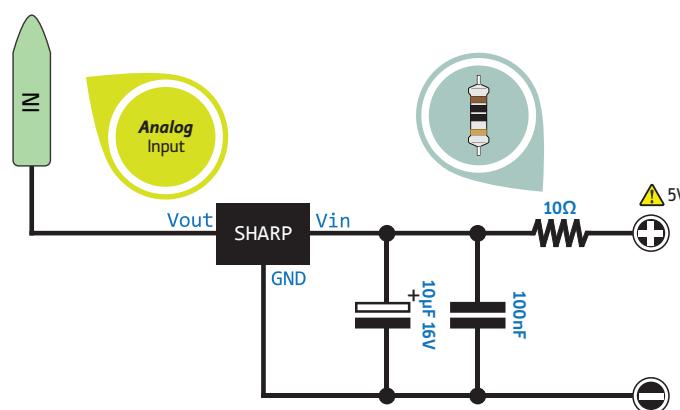
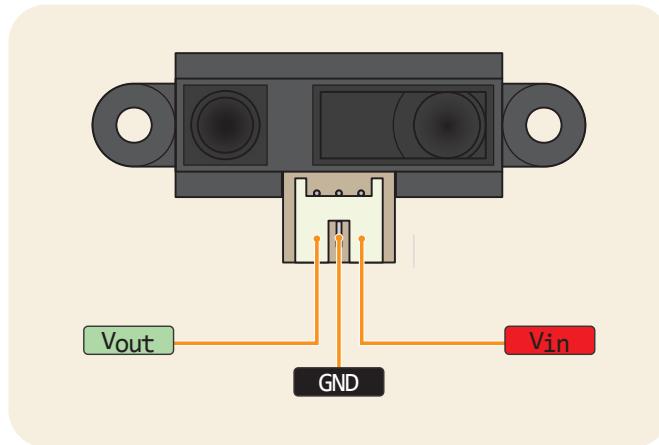
A typical Application



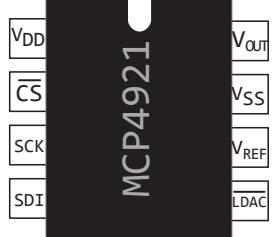
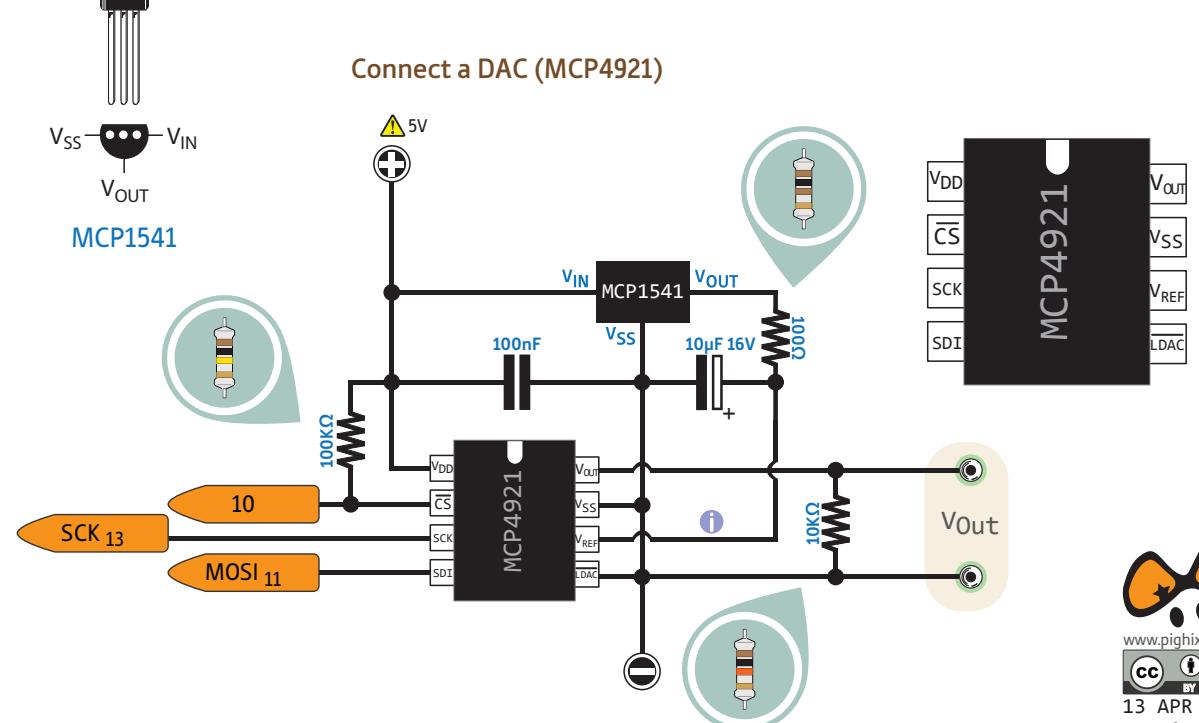
Connect a Digital Potentiometer (MCP4161)

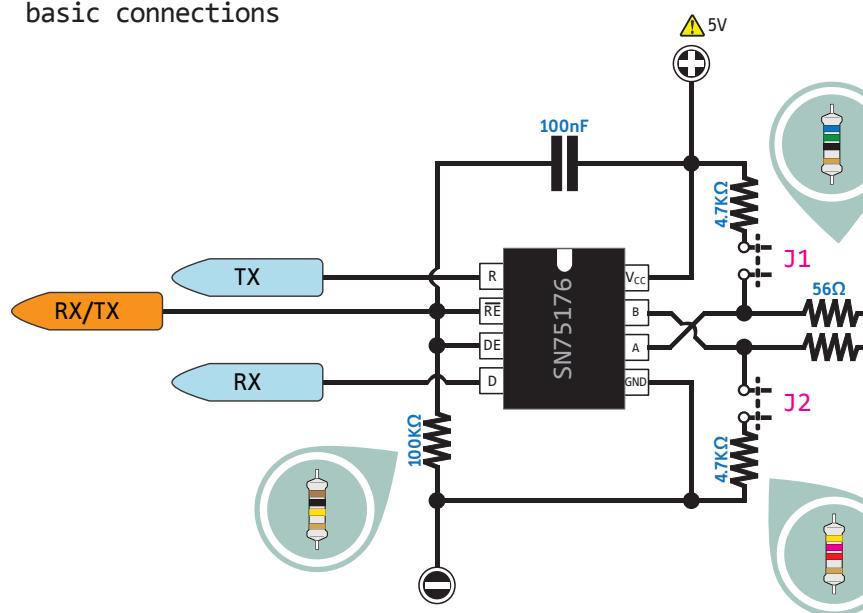


Connect a Distance Sensor (Sharp GP2Y0A21)

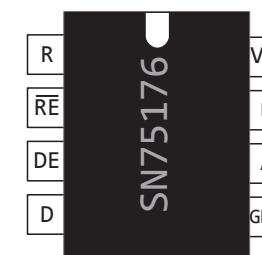


Connect a DAC (MCP4921)



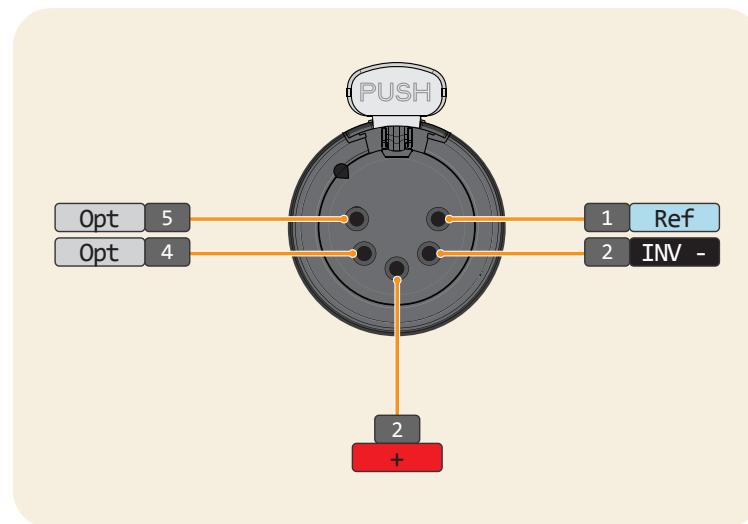


RS485 Node

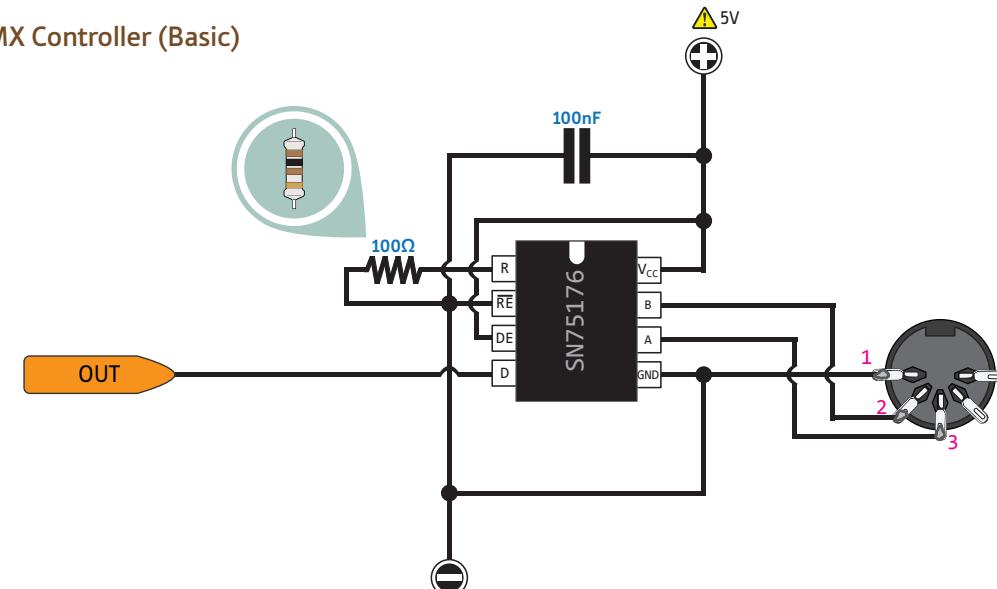


Node termination jumpers config

First	Middle	Last
Node	Node	Node
J1 on J2 on J3 on	J1 off J2 off J3 off	J1 off J2 off J3 on



DMX Controller (Basic)



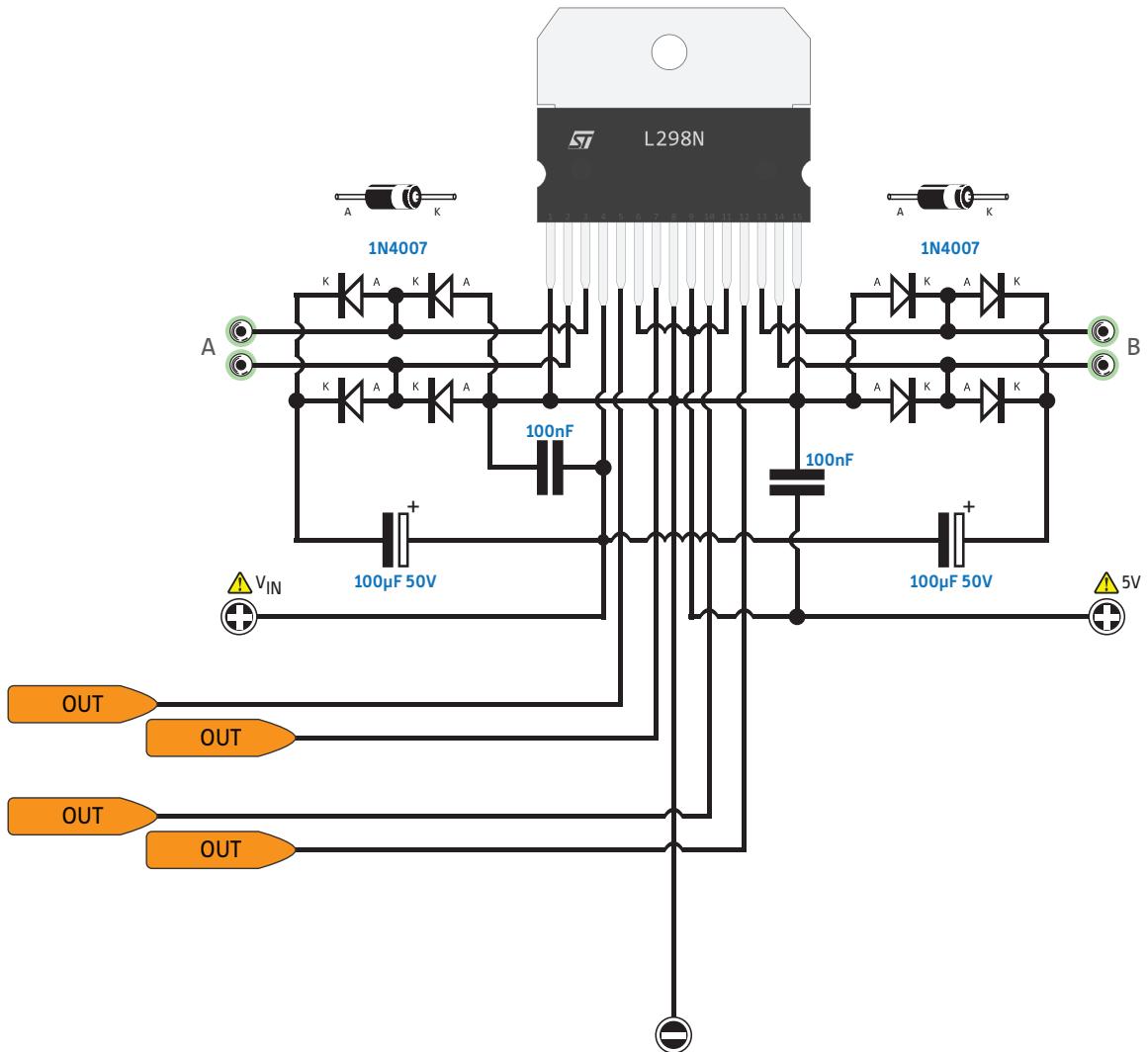
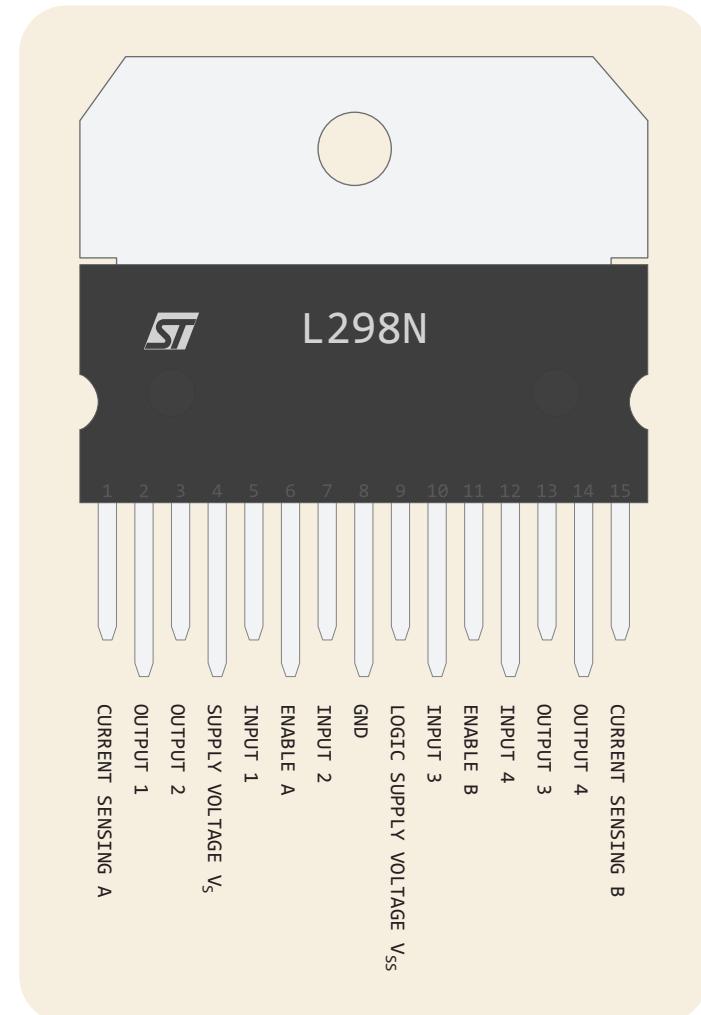
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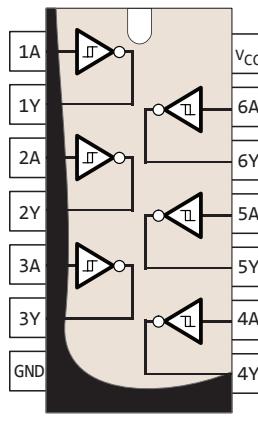


14 APR 2013

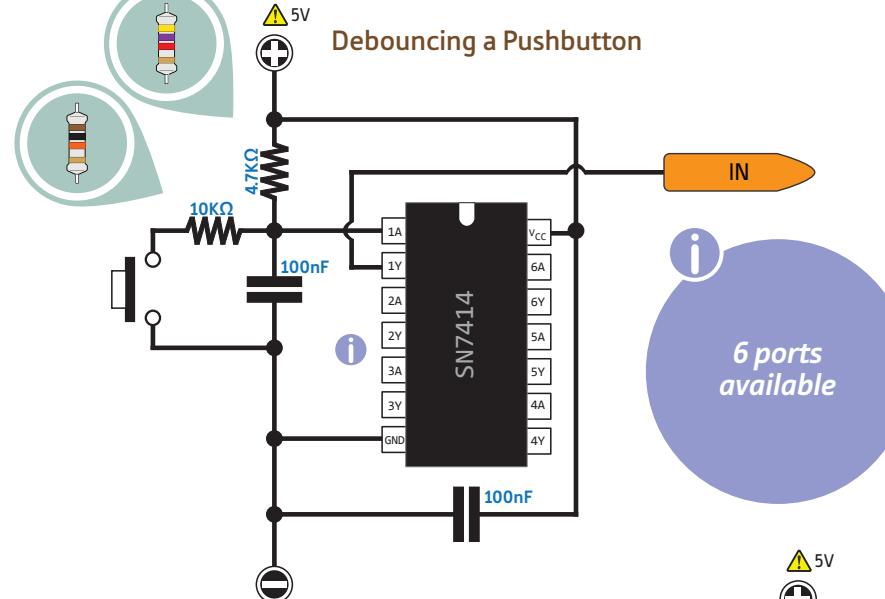
ver 1 rev 1

Drive a Motor (L298)

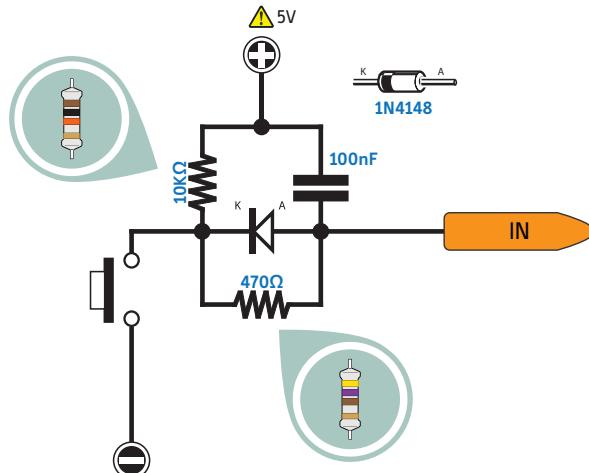




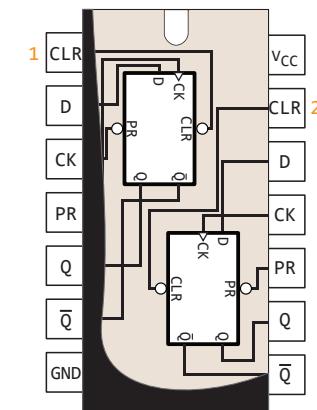
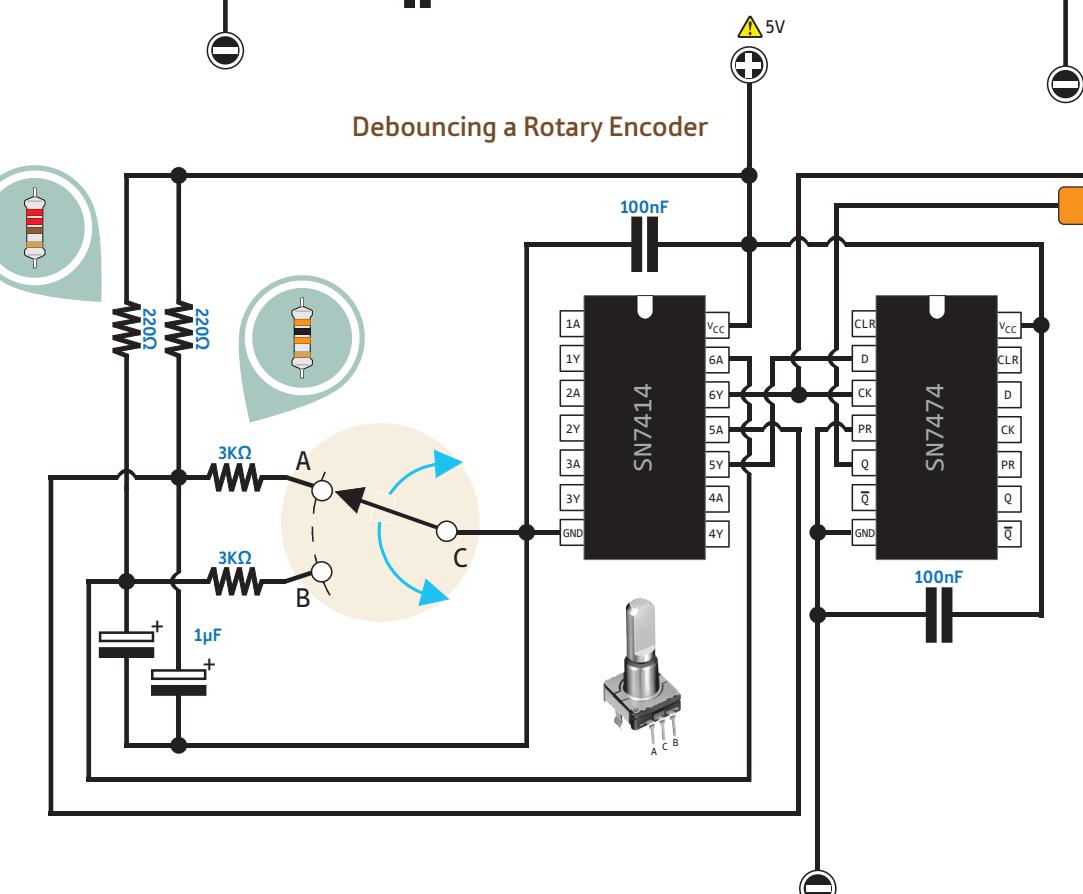
SN7414

6 ports
available

Simple Debouncer

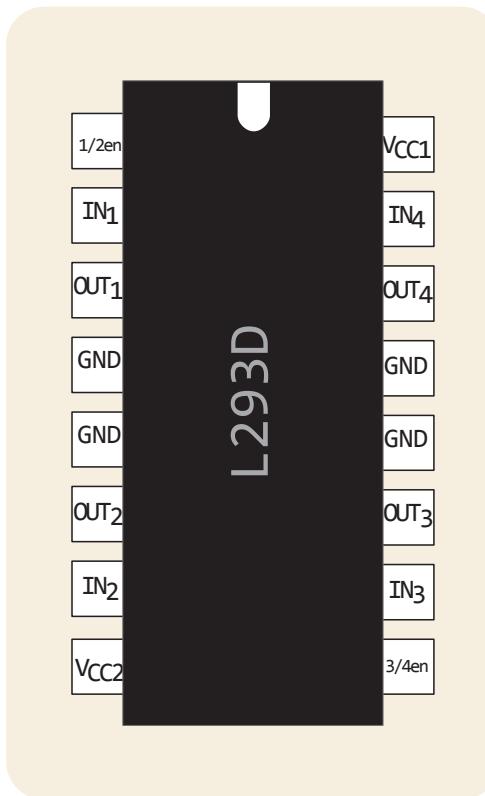


Debouncing a Rotary Encoder

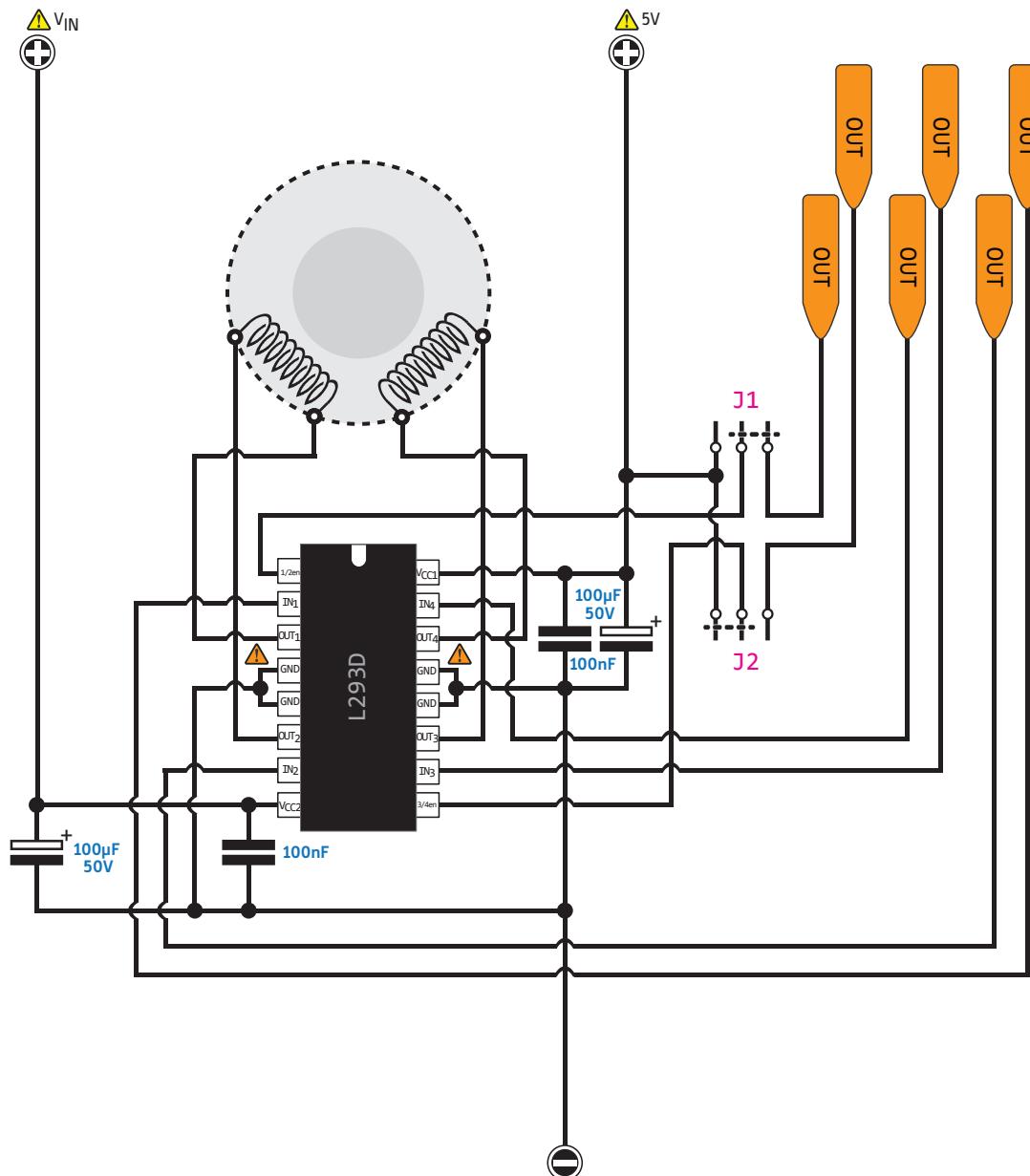


SN7474





Drive a Stepper (L293)



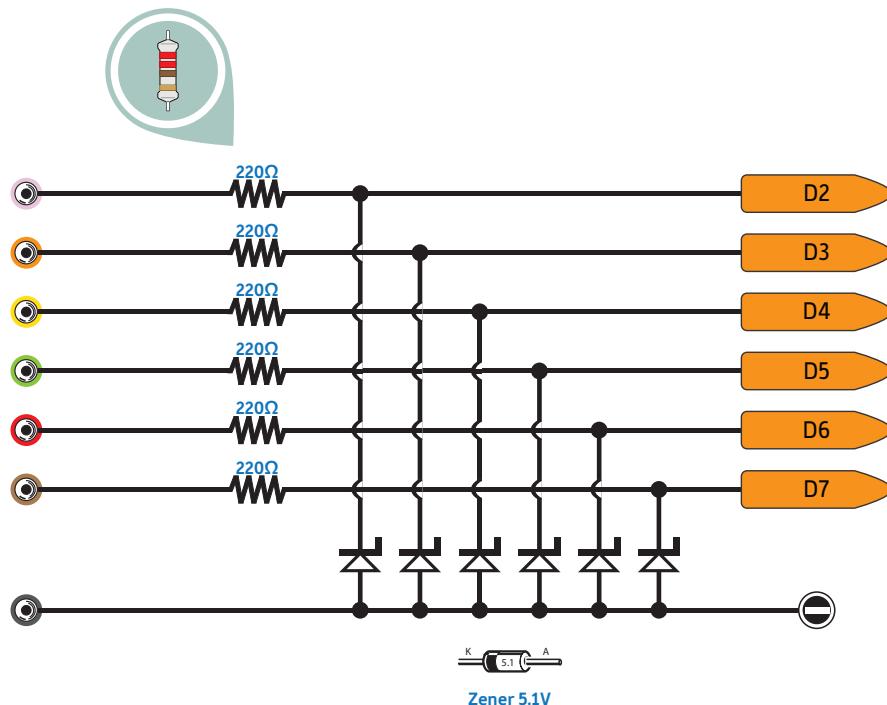
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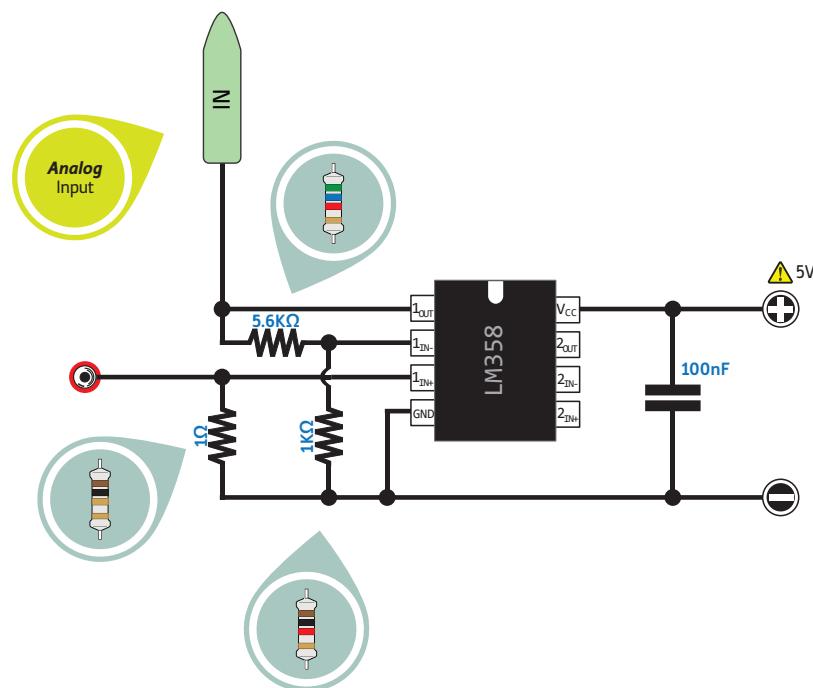
16 APR 2013

ver 1 rev 1

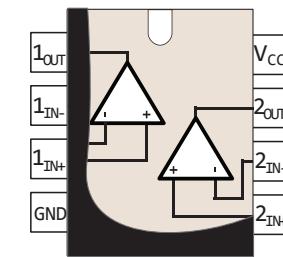
Arduino Logic Analyzer



Current Sense



i
See instructions
at
la.pighixxx.com



LM358





TOLERANCE

GOLD

 $\pm 5\%$

SILVER

 $\pm 10\%$ 

BLACK	0	0	$x1\Omega$
BROWN	1	1	$x10\Omega$
RED	2	2	$x100\Omega$
ORANGE	3	3	$x1,000\Omega$
YELLOW	4	4	$x10,000\Omega$
GREEN	5	5	$x100,000\Omega$
BLUE	6	6	$x1,000,000\Omega$
VIOLET	7	7	
GRAY	8	8	
WHITE	9	9	

$$K\Omega = x1,000\Omega$$

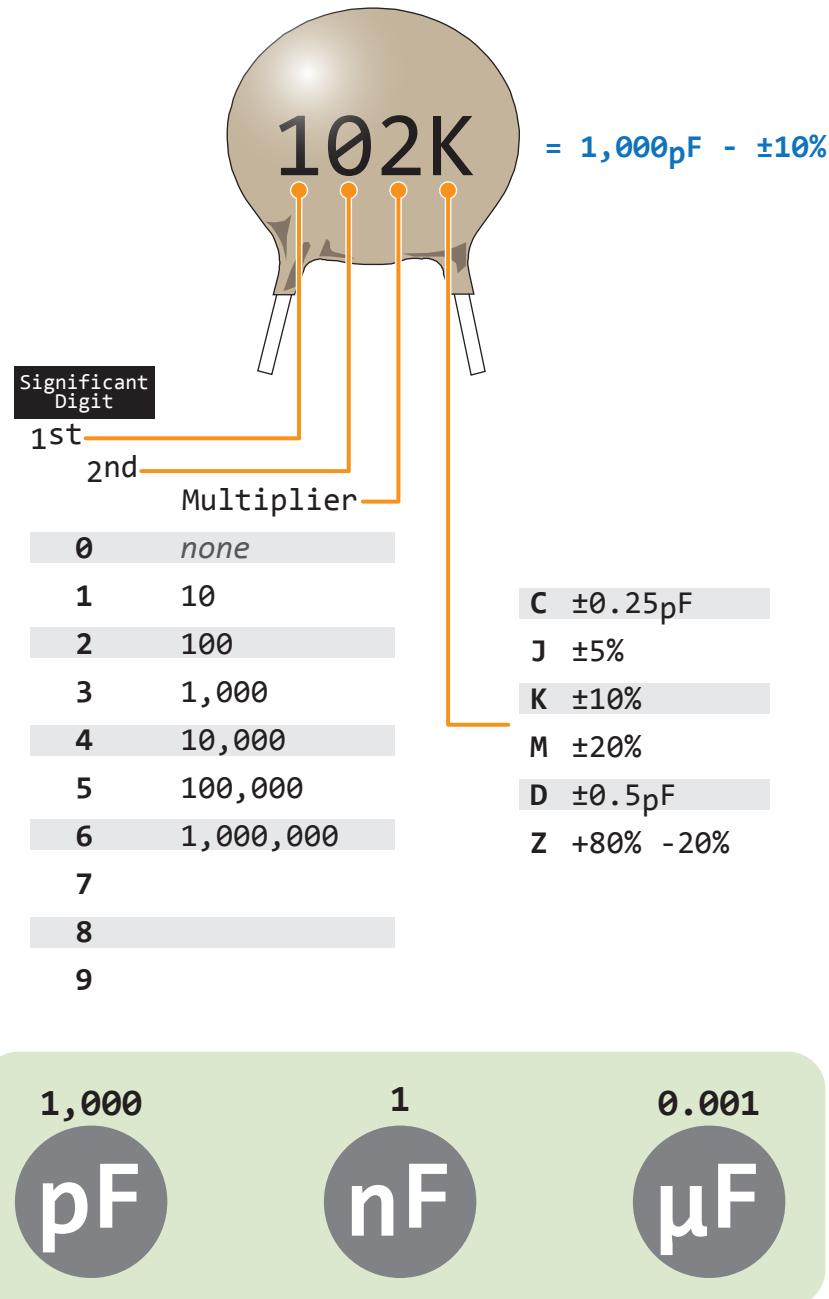
$$M\Omega = x1,000,000\Omega$$

MULTIPLIER





Ceramic Capacitor Code

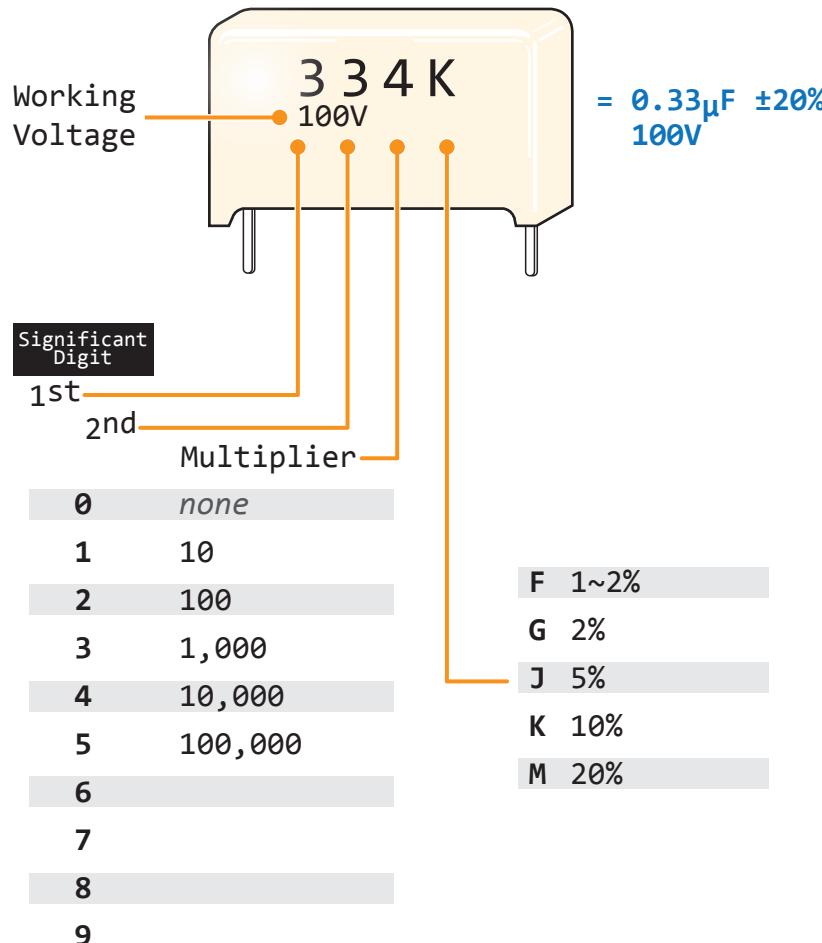


1	1p0	1pF	10	10pF	101	n10	100pF
1.2	1p2	1.2pF	12	12pF	121	n12	120pF
1.5	1p5	1.5pF	15	15pF	151	n15	150pF
1.8	1p8	1.8pF	18	18pF	181	n18	180pF
2.2	2p2	2.2pF	22	22pF	221	n21	220pF
2.7	2p7	2.7pF	27	27pF	271	n27	270pF
3.3	3p3	3.3pF	33	33pF	331	n33	330pF
3.9	3p9	3.9pF	39	39pF	391	n39	390pF
4.7	4p7	4.7pF	47	47pF	471	n47	470pF
5.6	5p6	5.6pF	56	56pF	561	n56	560pF
6.8	6p8	6.8pF	68	68pF	681	n68	680pF
8.2	8p2	8.2pF	82	82pF	821	n82	820pF

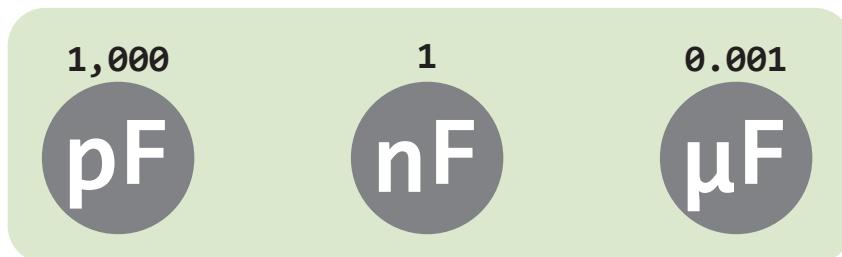




Polyester Film-Mylar Capacitor Code



102	1n	.001	1,000pF	103	10n	.01	10,000pF	104	100n	.1	100,000pF
122	1n2	.0012	1,200pF	123	12n	.012	12,000pF	124	120n	.12	120,000pF
152	1n5	.0015	1,500pF	153	15n	.015	15,000pF	154	150n	.15	150,000pF
182	1n8	.0018	1,800pF	183	18n	.018	18,000pF	184	180n	.18	180,000pF
222	2n2	.0022	2,200pF	223	22n	.022	22,000pF	224	220n	.22	220,000pF
272	2n7	.0027	2,700pF	273	27n	.027	27,000pF	274	270n	.27	270,000pF
332	3n3	.0033	3,300pF	333	33n	.033	33,000pF	334	330n	.33	330,000pF
392	3n9	.0039	3,900pF	393	39n	.039	39,000pF	394	390n	.39	390,000pF
472	4n7	.0047	4,700pF	473	47n	.047	47,000pF	474	470n	.47	470,000pF
562	5n6	.0056	5,600pF	563	56n	.056	56,000pF	564	560n	.56	560,000pF
682	6n8	.0068	6,800pF	683	68n	.068	68,000pF	684	680n	.68	680,000pF
822	8n2	.0082	8,200pF	823	82n	.082	82,000pF	824	820n	.82	820,000pF



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ver 1 rev 1