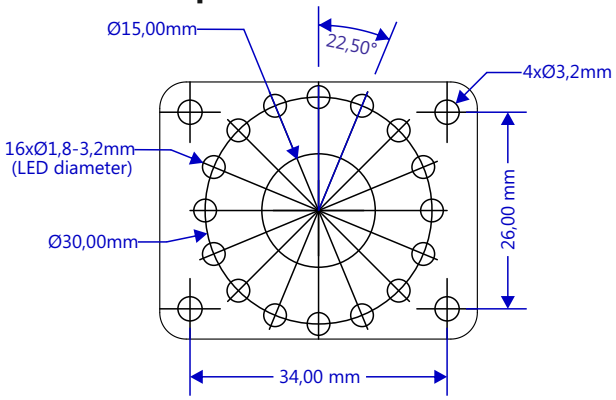
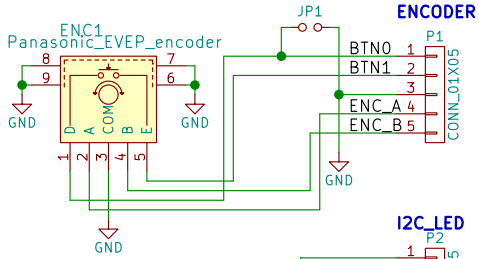
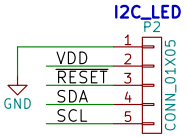
BOM

Id	Designator	Package	Quantity	Designation
1	IC1	QFN65P600X600X100-29VN	1	MCP23017_QFN
2	C1	MLCC 0805 X7R	1	10µ/16V
3	C2	MLCC 0603 X7R	1	100n/16V
4	D1,D2,D3,D4,D5,D6,D7,D8, D9,D10,D11,D12,D13,D14,D15,D16	LED round 1,8-3mm	16	LED THT
5	ENC1	Panasonic EVEP series encoder	1	Panasonic_EVEP_encoder
6	P1,P2	1x5 2,54,mm pin header	2	CONN_01X05
7	R1,R3	R 0603	2	2k2
8	R2	R 0603	1	10k
9	R4,R5,R6,R7,R8,R9,R10,R11,R12, R13,R14,R15,R16,R17,R18,R19	R 0603	16	Adjust values to desired LED brightness
10	MP1,MP2,MP3,MP4	PCB standoff 8mm	4	M3

Drill layout
print in 1:1 scale







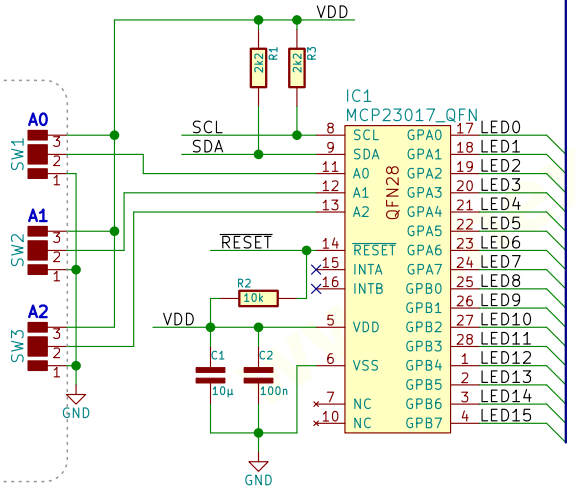
MCP23017 Slave address

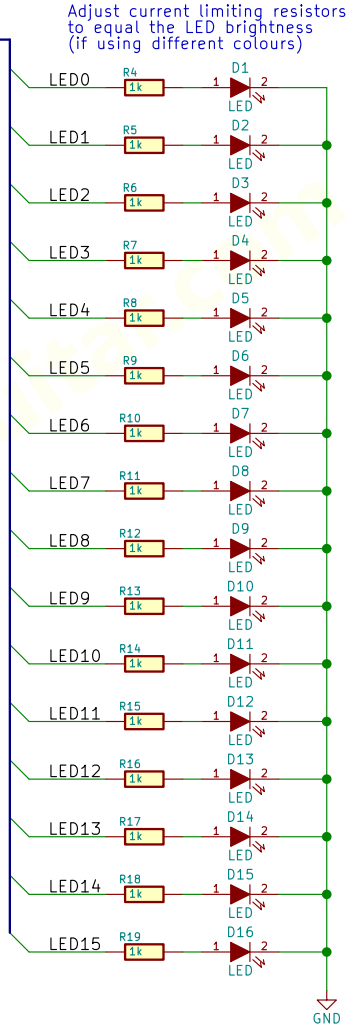
Device opcode:

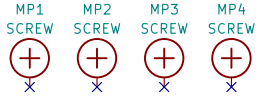
0 1 0 0 A2 A1 A1 R/W

Addr	A2	A1	A0
0x040	0	0	0
0x042	0	0	1
0x044	0	1	0
0x046	0	1	1
0x048	1	0	0
0x04A	1	0	1
0x04C	1	1	0
0x04E	1	1	1

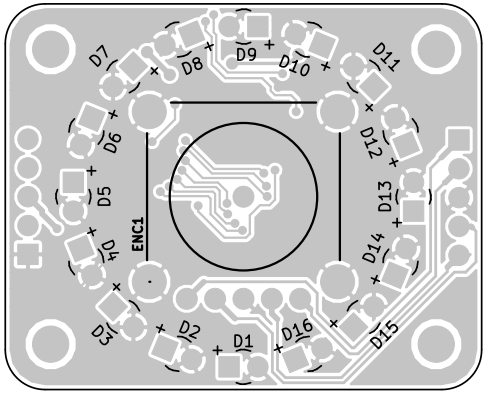
shift the address 1 bit right (or divide by 2) to use it with 7bit I2C device addressing (i..e. Arduino Wire library)



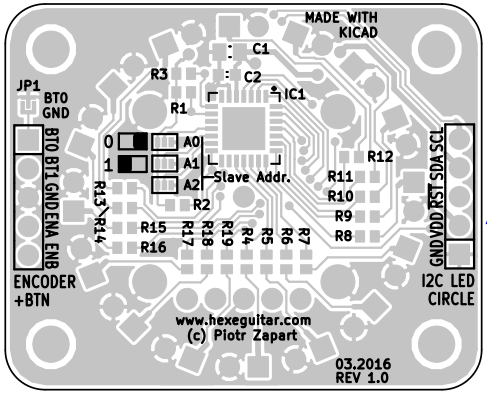




PCB top layer



PCB bottom layer



VDD range: 1.8-5.5V

Link to OSH Park project

www.hexeguitar.com

design: Piotr Zapart

Sheet: /

File: Enc_Pan_Led.sch

Title: Encoder/Circular LED bargraph

Size: A4	Date: 04.2016	Rev: 1.0
KiCad E.D.A. kicad 4.0.2-stable		Id: 1/1