

Bill of Materials PCB MCU NCM107 v1.1

	Creation Date: 19.05.2017				
#	Designator	Quantity	Comment	Footprint	Comment
1	B1	1	Buzzer HCS0903G	SMD 8.5x8.5mm	Buzzer passive
2	BT1	1	Battery Holder CR1220	Battery Holder CR1220	Battery Holder
3	C2, C3, C26, C27, C12, C16, C18, C20, C21, C22, C23, C29	12	100nF 50V	0805	Ceramic Capacitor
4	C4	1	220uF 16V	SMD 6.3x7.7mm (or TH Capacitor)	Aluminium Capacitor
5	C5, C9, C11, C14	4	10uF 16V	0805	Ceramic Capacitor
6	C6	1	10uF 250V Nichicon UUX2E100MNL1GS	10x10.5mm (or TH Capacitor)	Aluminium Capacitor
7	C7, C28	2	100nF 250V	1206	Ceramic Capacitor
8	C10	1	10nF 50V	0805	Ceramic Capacitor
9	C13	1	1000uF 16V	10x10.5mm (or TH Capacitor)	Aluminium Capacitor
10	C15, C17, C19	3	10uF 16V	Size-A (SMD3216)	Tantalum Capacitor
11	C24, C25	2	22pF 50V	0805	Ceramic Capacitor
12	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D21, D22, D23, D24, D25, D26, D27, D28, D29	20	BAV103	SOD80/MLL34	Diode, Not necessary
13	D12	4	ZM4764A	DO-213AB	Diode, Not necessary
14	D13	1	LED RED	1206	LED Diode
15	D14	1	ES2J	DO-214AA(SMB)/SMA	Fast Diode
16	D15, D19	2	SS26	DO-214AA(SMB)/SMA	Schottky Diode
17	D16	1	SMAJ18CA	DO-213AC (SMA)	TVS Diode
18	D17	1	SMBJ220CA	DO-214AA (SMB)	TVS Diode, Not necessary
19	D20	4	DL4148	SOD80/MLL34	Diode, See Scheme
20	DOWN, MODE, UP	3	SWT-3	SWT-3 L= 6mm	Buttons
21	ExDOWN, ExMODE, ExUp, ExPow	4	PH2.0-2p	PH2-2p	Not necessary
22	ExUSB	1	PH2.0-4p	PH2-4p	Not necessary, for external power 12V
23	F1	1	0 ohm	1206 (or Fuse 3A 36V)	Resistor
24	J1	1	DJK-02A KLS	DC Power Socket 5.5x2.1mm	DC Power Socket 5.5x2.1mm
25	J2	1	Mini USB/M-1J KLS	SMD	Mini USB Socket
26	L1	1	100uH 2,7A Sumida RCR1616NP-101K	RCR1616 16x16mm	Power Inductor
27	L2	1	22uH 2A (or 15uH)	CDRH104R 10x10mm	Power Inductor
28	MAIN	1	PBD-38 KLS	PBD-38, pitch 2.54mm	Socket
29	Q1	1	FQD18N20	DPAK	Power Transistor
30	R1, R2, R3, R4, R5, R8, R29, R31, R33, R34, R35	11	1k	0805	Resistor
31	R6, R7, R19, R20	4	300k 0805	0805	Resistor
32	R9	1	1.5 MOhm 0805	0805	Resistor
33	R10	1	1 Ohm	1206	Resistor
34	R11	4	450k 0805	0805	Resistor
35	R12, R14, R15, R16, R18, R26, R27, R30	8	10k 0805	0805	Resistor
36	R13	4	10K Opt 0805	R_0805	Resistor, See Scheme
37	R17	1	10k	3296W or 3266W	Resistor Adjust
38	R21	1	0.05 Ohm	R2512	Resistor
39	R22	1	95.3k 0805	0805	Resistor
40	R23	1	18.2k 0805	0805	Resistor
41	R24, R25	2	27 Ohm 0805	0805	Resistor, Not necessary
42	T1, T3, T5	3	PMBTA92	SOT23-3N	Transistor, Not necessary
43	T2, T4, T6, T7, T8	5	PMBTA42	SOT23-3N	Transistor, Not necessary
44	TLI	1	PH2.0-3p	PH2-3p	Socket for Temperature, Light Sensor or IR. Not necessary
45	U1	4	HV5812WG	SOIC-28W	Not necessary

46	U4	1	MAX1771CSA	SOIC-8	IC HV DC-DC
47	U5	1	RT8258GE (Replace see scheme)	SOT23-6	IC LV DC-DC (Replace see scheme)
48	U6	1	DS3231S	SOIC-16W	IC RTC
49	U7	1	FT230XS	SSOP-16	IC USB-UART
50	U8	1	ATmega328P-PU	DIP-28	IC MCU
51	U9	1	ULN2003D	SOIC-16	IC Driver
52	Z1	1	16Mhz	Quartz SMD 6x3.5mm	Quartz
53	not marked on PCB	1	SIP DIP-28	Install to U8	Sockets for U8
54	not marked on PCB	1	Battery Li-ion CR1220	Install to BT1	Battery for RTC
55	PCB MCU NCM107 v1.1	1			100x50mm

Bill of Materials PCB Tubes Board NCT318 v1.1					
#	Designator	Quantity	Comment	Footprint	Comment
1	NX1, NX2, NX3, NX4, NX5, NX6	6	IN-18	NIXIE Tubes	NOT Include
2	not marked on PCB	84	Socket pin	Install to NX1-NX6	Socket for IN-18
3.0	DS2, DS3	2	IN-3	Options 1 -Without Column	Default Options
3.1	DS1, DS2, DS3, DS4	4	NE-2H/C2A	Options2 - With Column	Options
		2	Column 10x65mm	- DS2, DS4 solder legs at full length	Options
		2	Column Holder NCH1	DS1, DS3 solder below DS2, DS4	Options
		8	Screw		Options
		8	Nut M2,5		Options
4	MAIN1	1	PLD-18	PLD-18, pitch 2.54mm	Connector
5	EDIT1	1	PBD-12R	PBD-12R. Socket Rotated by 90 deg, pitch 2.54mm	Options (Need for NCT818).
6	D1, D2, D3, D4, D5, D6, D7, D8	8	LED RGB 3528	3528 = 3.5x2.8mm	LED RGB
7	U2, U3	2	HV5122JP	PLCC-44	IC HV Driver
8	not marked on PCB	2	PLCC-44 DIP	Install to U2, U3	Socket for HV5122PJ
9	U1	1	CD4504BM	SOIC-16	IC Level Translator
10	C1, C2, C3, C4	4	100nF 50V	0805	Ceramic Capacitor
11	R11-R18, R27-34, R19-R26	24	150 Ohm	0805	Resistor
12	R5-R10	6	15k	1210/1206	Resistor
13	R1-R4	4	150k	0805	Resistor
14	not marked on PCB	4	Hex pillar M3x8mm	IN-OUT	Mechanical connection
15	not marked on PCB	4	Hex pillar M3x20mm	IN-IN	Mechanical connection
16	not marked on PCB	4	Hex pillar M3x30mm	IN-IN	Mechanical connection
17	not marked on PCB	8	Screw M3x6mm	L=6mm	Mechanical connection
18	PCB TUBES NCT318 v1.1	1			264x50mm

Bill of Materials PCB Tubes Board NCT818 v1.0					
#	Designator	Quantity	Comment	Footprint	Comment
1	NX7, NX8	2	IN-18	NIXIE Tubes	NOT Include
2	not marked on PCB	28	Socket pin	Install to NX7, NX8	Socket for IN-18
3.0	DS2, DS3	1	IN-3	Options 1 -Without Column	Default Options
3.1	DS1, DS2, DS3, DS4	2	NE-2H/C2A	Options2 - With Column	Options
		1	Column 10x65mm	- DS2, DS4 solder legs at full length	Options
		1	Column Holder NCH8	DS1, DS3 solder below DS2, DS4	Options
		2	Screw		Options
		2	Nut M2,5		Options
4	U4	1	HV5122PJ-G	PLCC-44	IC HV Driver
5	not marked on PCB	1	PLCC-44 DIP	Install to U4	Socket for HV5122PJ
6	R811, R812, R813, R827, R828, R829, R819, R820, R821	9	150 Ohm	0805	Resistor
7	R85, R86	2	15k	1210 / 1206	Resistor
8	R81, R82	2	150k	0805	Resistor
9	EDIT1-1	1	PLD-12R	PLD-12R. Rotated by 90 deg. Pitch 2.54mm	Connector
10	D9, D10, D11	3	LED RGB 3528	3528 = 3.5x2.8mm	LED RGB
11	C83	1	100nF 50V	0805	Ceramic Capacitor

12	+12V, DATA_OUT2, DOUT3, GND, HV, LEO, SCKO	7	Test Point	Test Point	Measuring and testing, if necessary.
13	not marked on PCB	4	Hex pillar M3x30mm	IN-IN	Mechanical connection
14	not marked on PCB	4	Screw M3x6mm	L=6mm	Mechanical connection
15	PCB TUBES NCT818 v1.0	1			<i>94x50x1.6mm</i>