

BOM PCB Nixie Clock MCU NCM109 v1.1 B1 For NCT4XX						
Stage	#	Designator	Qty	Value	Package	Comment
1 - Resistors	1	R14, R16, R26, R27, R30	5	4.7k	0805	Resistor
	2	R29, R31, R33, R34, R35, R8	6	1k	0805	Resistor
	3	R2, R4, R6	3	300k	0805	Resistor
	4	R1, R3, R5	3	10k	0805	Resistor
	5	R28	1	150k	0805	Resistor
	6	R23	1	18.2k	0805	Resistor
	7	R22	1	95.3k	0805	Resistor
	8	R9	1	1.5MOhm	0805	Resistor
	9	R21	1	0.1 Ohm	2512	Resistor
	10	R12	1	150 Ohm	0805	Resistor
	11	R10	1	1 Ohm	1206	Resistor
	12	R0	1	0 Ohm	1206	Resistor
	13	R13	1	10K Opt	0805	Install only: LMR12010, LMR12007, MCP16301. See detail in the scheme.
2 - Capacitors	1	C1, C2, C3, C8, C26, C27, C12, C16, C18, C20, C21, C22, C23, C28, C29	15	100nF	0805	Ceramic capacitor
	2	C5, C9, C11, C14	4	10uF 16V	0805	Ceramic capacitor
	3	C24, C25	2	22pF 50V	0805	Ceramic capacitor
	4	C10	1	10nF 50V	0805	Ceramic capacitor
	5	C7	1	100nF 250V	1206	Ceramic capacitor
	6	C17, C19, C15	3	10uF 16V Tantalum	Size-A (SMD3216)	Tantalum capacitor
	7	C6	1	10uF 250V	TH & SMD 10.8x10.8mm	Aluminum capacitors
	8	C4	1	220uF 16V	TH & SMD 6.3x7.7mm	Aluminum capacitors
	9	C13	1	1000uF 16V	TH & SMD 10.8x10.8mm	Aluminum capacitors
3 - Diodes	1	D17	1	SMBJ200CA/SMBJ220CA	SMB	TVS
	2	D16	1	SMAJ18CA	SMA	TVS, not necessary
	3	D15, D19	2	SS26	SMA or SMB	Schottky diode
	4	D14	1	ES2F /ES2J	SMA or SMB	Superfast diode
	5	D13	1	LED Red	1206	Power indicator
	6	D12	1	ZM4764A	DO-213AB	Zener diode 100V
	7	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D21, D22, D23, D24, D25, D26, D27, D28, D29	20	BAV103	SOD-80C	High Voltage Diode
	8	D20	1	1N4148 Opt	SOD-80C	Install only: LMR12010, LMR12007, MCP16301. See detail in the scheme
4 - IC & Transistors	1	U1	1	HV5122PJ-G	PLCC-44	High Voltage Driver
	2	U2	1	CD4504BM	SOIC-16	Level translator
	3	U4	1	LM3478MM/ LM3488MM/ LM3478MA	VSSOP-8/ SOIC-8	High Voltage DC-DC converter
	4	U5	1	RT8258GE	SOT23-6	Already soldered on PCB. DC-DC converter. Replace: LMR12010/07, MCP16301. See detail in the scheme
	5	U6	1	DS3231S/ SN	SOIC-16W	IC RTC
	6	U7	1	FT230XS	SSOP-16	Already soldered on PCB. USB-UART Converter
	7	U8	1	ATmega328P-PU	DIP-28	Microcontroller
	8	U9	1	ULN2003D	SOIC-16	IC RGB Driver
	9	U9	1	TSOP4836	DIP-3	IR Receiver, Not Include
	10	T2, T3, T4	3	PMBTA92	SOT-23	High Voltage PNP Transistor
	11	T1	1	FDD6N25	DPAK	MOSFET N-channel Transistor
5 - Coil	1	L2	1	22uH /15uH 2A	CDRH104R 10.8x10.8mm	Shielded inductance
	2	L1	1	220uH 1.2A	CDRH127 12x12mm	Shielded inductance
6 - Misc	1	R17	1	10k	3296W or 3266	Variable Resistor
	2	Z1	1	16Mhz	SMD 6x3.5mm	Crystal
	3	MAIN	1	PBD-38	Pitch 2.54mm	Socket for Tubes Boards NCT4XX
	4	TLS	1	PH2.0-3p	Pitch 2.0mm	For DS18B20
	5	J2	1	MX-105017-0001	SMD USB Micro Type B	Already soldered on PCB. To connect to a PC
	6	J1	1	DJK-02A	DC Connector 5.5x2.1mm	Power connector 12VDC 1A
	7	B1	1	HCS0903G or STD0833C	SMD 8.5x8.5mm	Buzzer passive
	8	ExUSB	1	PH2.0-4p	Pitch 2.0mm	To connect an external USB
	9	ExPow	1	PH2.0-2p	Pitch 2.0mm	To connect an external power 12VDC 1A
	10	ExDOWN, ExMODE, ExUp	3	PH2.0-2p	Pitch 2.0mm	To connect an external buttons
	11	DOWN, MODE, UP	3	SWT-3/13	SWT-3/13, h=13, L=9	Control buttons
	12	BT1	1	CR1220 (KEYS1056)	SMD	Battery Holder CR1220

	13	not marked on PCB	1	Battery Li-ion 3V	CR1220	For installation in Battery Holder BT1
	14	not marked on PCB	1	SIP DIP-28	SIP DIP-28	For installation in place U8
	15	PCB MCU NCM109 v1.1	1			Size 50x100mm