

**BOM PCB Nixie Clock MCU NCM109 v1.1 B5 For NCT3XX + NCT8XX**

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	<del>R2, R4, R6</del>	<del>3</del>	<del>300k</del>	<del>0805</del>	<del>Resistor</del>
	4	<del>R1, R3, R5</del>	<del>3</del>	<del>10k</del>	<del>0805</del>	<del>Resistor</del>
	5	R28	1	150k	0805	Resistor
	6	R23	1	18.2k	0805	Resistor
	7	R22	1	95.3k	0805	Resistor
	8	R9	1	1.5M0hm	0805	Resistor
	9	R21	1	0.082 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	<del>R13</del>	<del>1</del>	<del>10K Opt</del>	<del>0805</del>
2 - Capacitors	1	<del>C1, C2, C3, C8, C26, C27, C12, C16, C18, C20, C21, C22, C23, C28, C29</del>	<del>15</del>	<del>100nF 50V</del>	<del>0805</del>	<del>Ceramic capacitor</del>
	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	SMBJ220CA	SMB	TVS
	2	<del>D16</del>	<del>1</del>	<del>SMAJ18CA</del>	<del>SMA</del>	<del>TVS, not necessary</del>
	3	D15, D19	2	SS26	SMB	Schottky diode
	4	D14	1	ES2F/ or ES2J	SMB	Superfast diode
	5	D13	1	LED Red	1206	Power indicator
	6	<del>D12</del>	<del>1</del>	<del>ZM4764A</del>	<del>DO-213AB</del>	<del>Zener diode 100V</del>
	7	<del>D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D21, D22, D23, D24, D25, D26, D27, D28, D29</del>	<del>20</del>	<del>BAV103</del>	<del>SOD-80C</del>	<del>High Voltage Diode</del>
	8	D20	1	1N4148 Opt	SOD-80C	Install only: LMR12010, LMR12007, MCP16301. See detail in the scheme
4 - IC & Transistors	1	<del>U1</del>	<del>1</del>	<del>HV5122PJ-G</del>	<del>PLCC-44</del>	<del>High Voltage Driver</del>
	2	U2	1	CD4504BM	SOIC-16	Level translator
	3	U4	1	LM3478MM/ or LM3488MM/ LM3478MAX	VSSOP-8 SOIC-8	Already soldered on PCB. 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	DS3231SN/MZ	SOIC-16W/ SOIC-8	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	<del>IR</del>	<del>1</del>	<del>TSOP4836</del>	<del>DIP-3</del>	<del>IR Receiver</del>
	10	<del>T2, T3, T4</del>	<del>3</del>	<del>PMBTA92</del>	<del>SOT-23</del>	<del>High Voltage PNP Transistor</del>
	11	T1	1	FDD6N25	DPAK	MOSFET N-channel Transistor
5 - Coil	1	L2	1	22uH / or 15uH 2A	CDRH104R 10.8x10.8mm	Shielded inductance
	2	L1	1	100uH 2.7A	RCR1616NP-101K 16x16mm	Shielded inductance
	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

<b>6 - Misc</b>	<b>8</b>	<b>ExUSB</b>	<b>1</b>	<b>PH2.0-4p</b>	<b>Pitch 2.0mm</b>	<b>To connect an external USB</b>
	<b>9</b>	<b>ExPow</b>	<b>1</b>	<b>PH2.0-2p</b>	<b>Pitch 2.0mm</b>	<b>To connect an external power 12VDC 1A</b>
	<b>10</b>	<b>ExDOWN, ExMODE, ExUp</b>	<b>3</b>	<b>PH2.0-2p</b>	<b>Pitch 2.0mm</b>	<b>To connect an external buttons</b>
	<b>11</b>	<b>DOWN, MODE, UP</b>	<b>3</b>	<b>SWT-3/13</b>	<b>SWT-3/13, h=13, L=9</b>	<b>Control buttons</b>
	<b>12</b>	<b>BT1</b>	<b>1</b>	<b>CR1220 (KEYS1056)</b>	<b>SMD</b>	<b>Battery Holder CR1220</b>
	<b>13</b>	<b>not marked on PCB</b>	<b>1</b>	<b>Battery Li-ion 3V</b>	<b>CR1220</b>	<b>For installation in Battery Holder BT1</b>
	<b>14</b>	<b>not marked on PCB</b>	<b>1</b>	<b>SIP DIP-28</b>	<b>SIP DIP-28</b>	<b>For installation in place U8</b>
	<b>15</b>	<b>PCB MCU NCM109 v1.1</b>	<b>1</b>			<b>Size 50x100mm</b>