

2.5 Chinese clones with text display

The second version of rebuilded tester is build with SMD components. Also the fix installed ATmega168 is a SMD type with 32TQFP body. Fortunately on the board is a 10-pole ISP connector provided for the programming. I have analysed the board version "2.1 2012/11/06". One error is the assembly of the part "D1", which should be a precision 2.5V voltage reference. Assembled is only a zener diode. This part should be removed. You can mount a LM4040AIZ2.5 or LT1004CZ-2.5 precision voltage reference at this place. A missing voltage reference is noticed by the software, so that you must not install the voltage reference. My exemplar was delivered with software version 1.02k. The 10-pole ISP plug was not assembled and I must install a jumper from ISP pin 6 to ISP pin 10. My programmer expect a GND connection at pin 10, but the board has GND level only on pin 4 and pin 6 of the ISP. The label of the ATmega168 was rub away and there was no documentation delivered with the part. The lock fuses of the ATmega were set, so no readout was possible. But I could install the software version 1.05k without any problems. Another user has problems with the same software version 1.05k. This user has the chinese board "2.2 2012/11/26". The software runs only without problems, if a additional 100nF ceramic capacitor was placed between the pin 18-AVCC and 21-GND near by the ATmega. The software 1.05k uses the sleep state of the ATmega for waiting time. For this reason the current alternates often and the voltage regulator is stressed more. Further I have noticed, that the VCC voltage is blocked with a 100nF ceramic capacitor and with a 220μF electrolytic capacitor nearby the 78L05 voltage regulator. The 9V supply voltage is blocked with the same capacitors, but not at the input of the regulator but at the emitter of the PNP transistor (parallel with the battery). The printed circuit board track from the ATmega168 to the test port is very thin, so that a resistance of 100mΩ could be measured for one path. This will be the reason for measuring a resistance of 0.3Ω for two direct connected pins. The ESR measuring can usually consider this by zero compensation. Beginning with version 1.07k the software does respect this offset for measuring resistors below 10Ω too.