

# **MicroTech**

## **MT Demo Boards Hardware Reference**

**Version 1.20**

**[www.mcu.hk](http://www.mcu.hk)**

**Warning:**

**Incorrect power connection to any electronic and electrical equipment may seriously damage them or even cause a fire hazard or explosion. Users must take care to identify the correct pins and supply an acceptable voltage to operate them safely.**

**3<sup>rd</sup> May 2007**

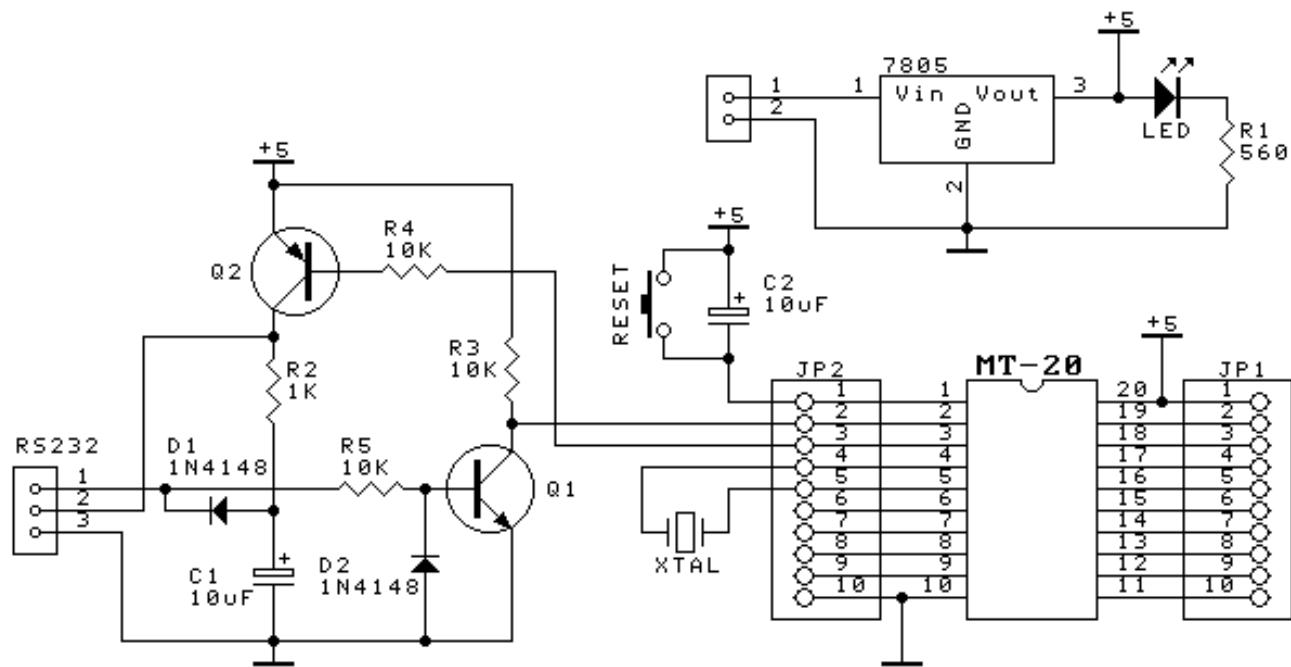
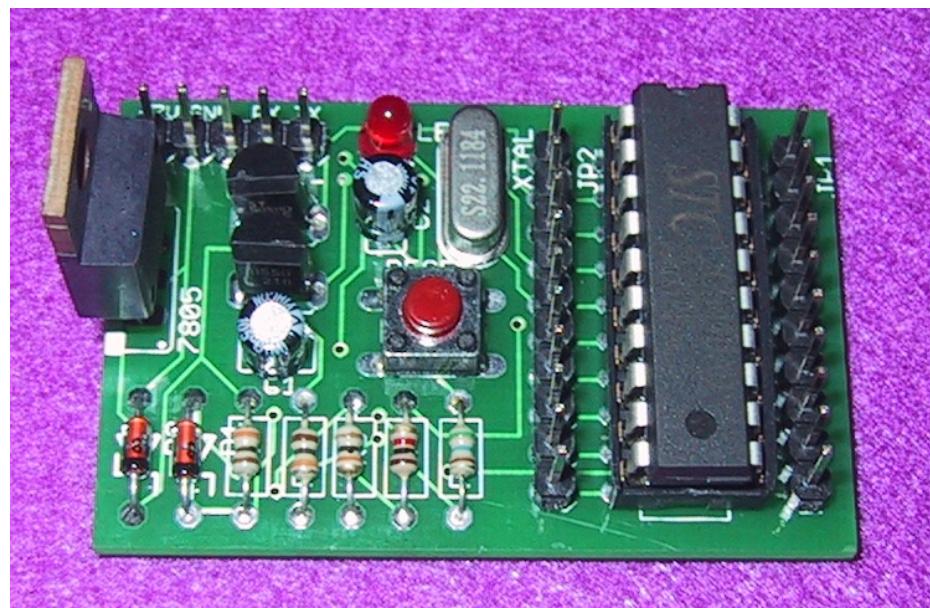
## Introduction

This brief technical guide describes the schematics and layouts for the MT DemoBoards. They are each similar in structure and only differ in the type of MT chip used. These DemoBoards include the minimum components necessary for a basic controller, thus keeping the cost and board size to a minimum. All the pins of the MCU have been brought out side-by-side to standard 0.1" headers for interfacing other circuits. Note that the MT-40 DemoBoard is not suitable to host the MT-40-AD chip, because of different type of MCU chip being used.

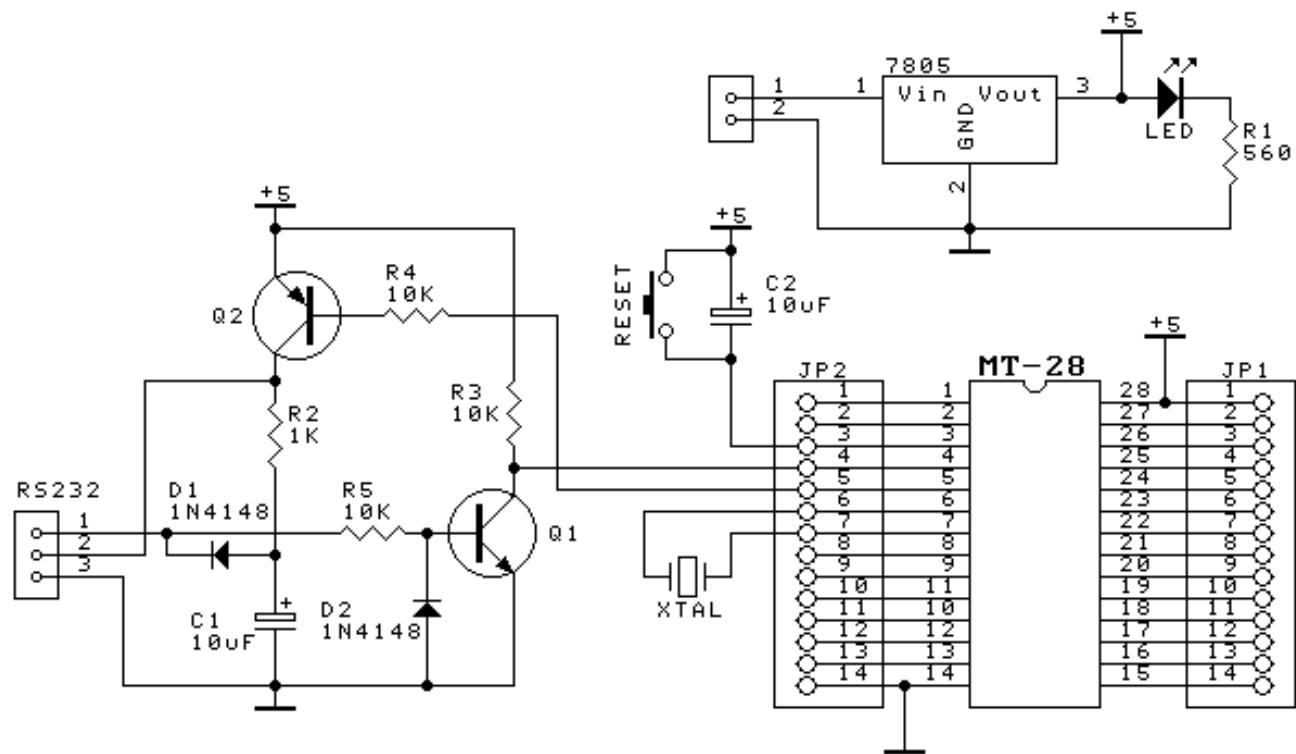
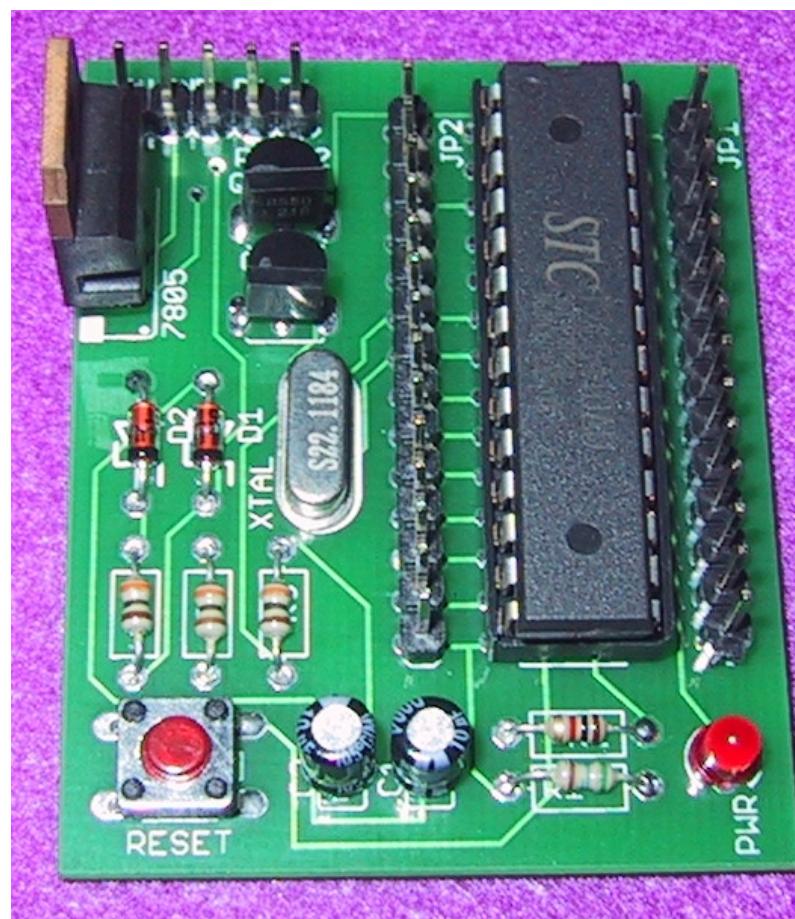
All the DemoBoards have a 7805 voltage regulator which accepts a power supply of 7V to 35V DC, a system reset button and a RS232 communication circuit made of transistors.

Please refer to the “**MT Chips Hardware Reference**” for detailed interfacing information for connection with other components and circuits.

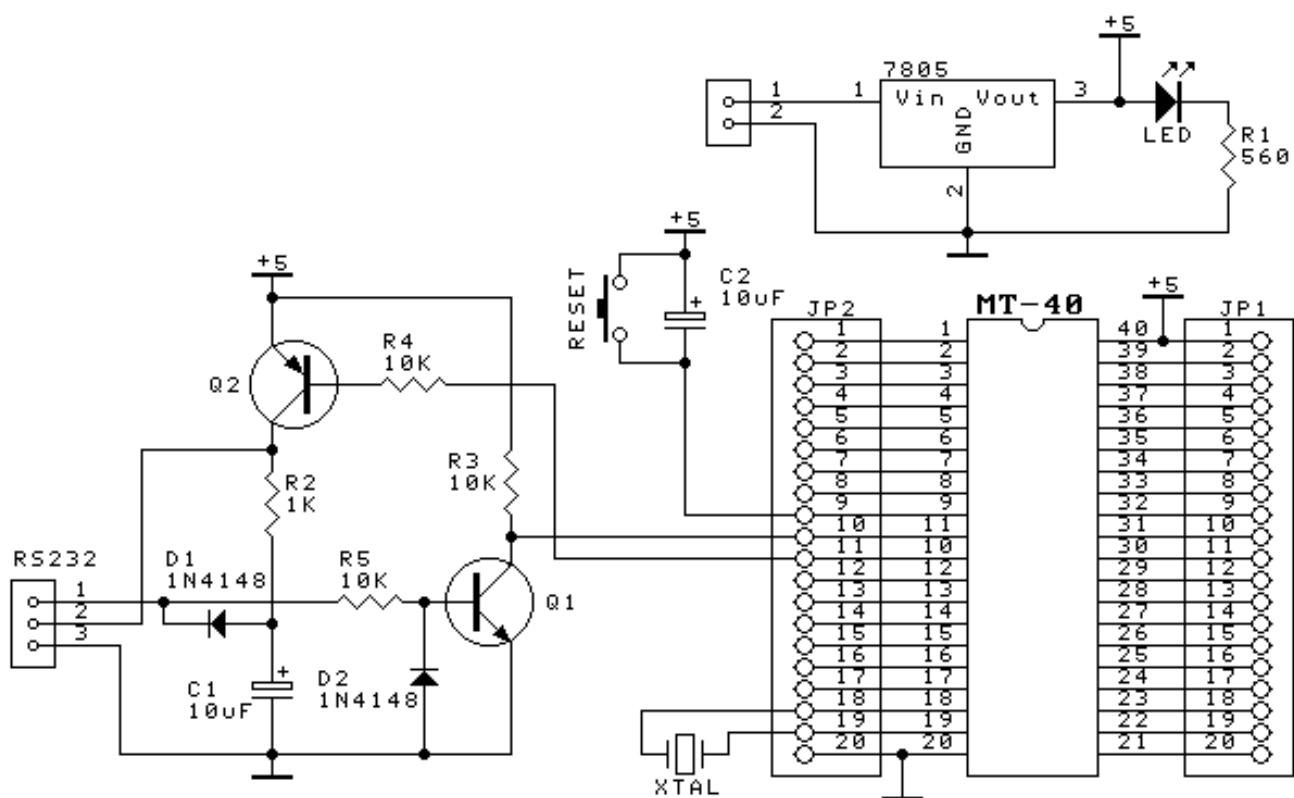
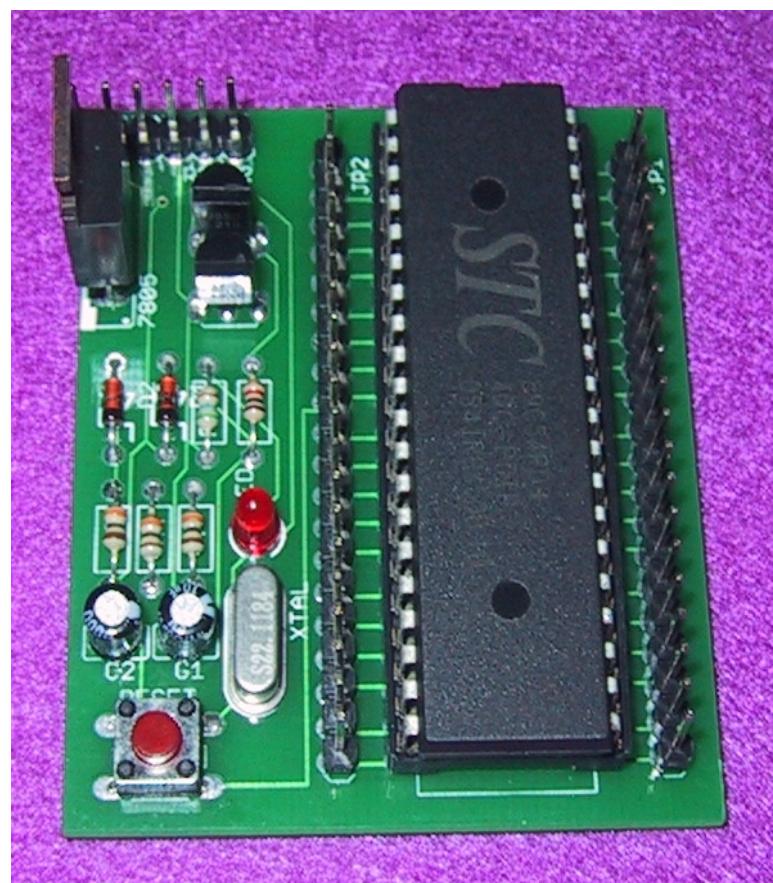
## MT-20 DemoBoard & Schematics



## MT-28 DemoBoard &amp; Schematics

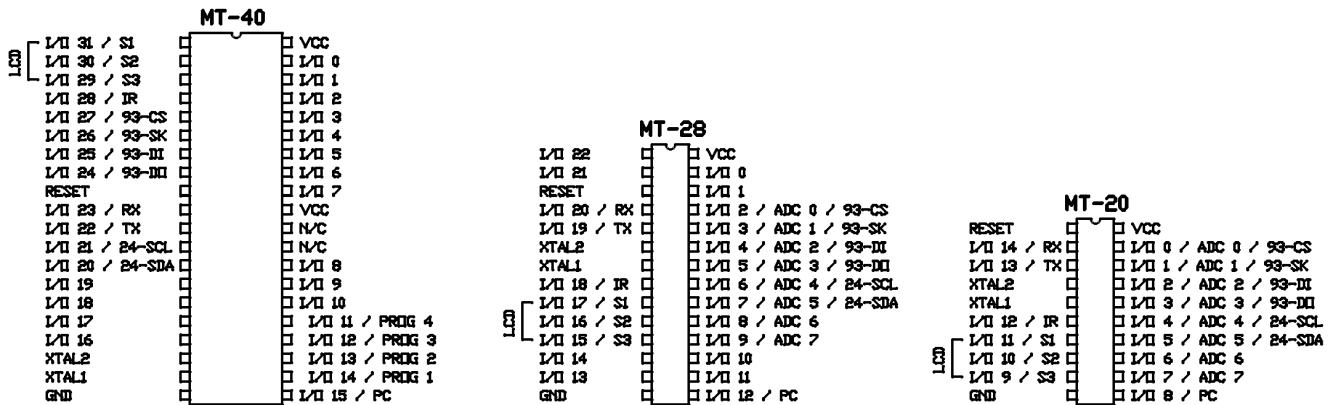


## MT-40 DemoBoard &amp; Schematics



## Configuration and pin connections

	<b>MT-40</b>	<b>MT-28</b>	<b>MT-20</b>
<b>RS232</b>	22-Tx, 23-Rx	19-Tx, 20-Rx	13-Tx, 14-Rx
<b>IR</b>	28	18	12
<b>MT Serial LCD</b>	31-S1, 30-S2, 29-S3	17-S1, 16-S2, 15-S3	11-S1, 10-S2, 9-S3
<b>93C56</b>	27-CS, 26-SK 25-DI, 24-DO	2-CS, 3-SK 4-DI, 5-DO	0-CS, 1-SK 2-DI, 3-DO
<b>24C02</b>	21-SCL, 20-SDA	6-SCL, 7-SDA	4-SCL, 5-SDA
<b>PC Load</b>	15	12	8
<b>Memory Units</b>	512	128	128
<b>Program Storage</b>	1 x 4K words 4 x 1K words	1 x 1K words	1 x 1K words
<b>Operating Voltage</b>	5V	5V	5V
<b>ADC</b>	Nil	8ch x 10-bits	8ch x 10-bits
<b>I/O pins</b>	32	23	15



### Note:

- The I/O pins are designed and counted in a clockwise direction, in contrast to conventional IC pins which are counted anti-clockwise. The bottom-right pin of each MT chip is the PC Load pin.
- The TinyC text output functions, writes(), writei() and writec() output data to a MT serial LCD display via the pins marked 'LCD'.
- The user can disable the three LCD pins and use them for normal I/O by connecting a 10K pull-down resistor on the S1 pin.
- Due to the architectural design of Port 0 of the standard 8051 chip, you might need to connect pull-up resistors (5K-10K) to I/O pins 0-7 of the MT-40 chip for it to operate properly when connecting to other circuits. The rest of the I/O pins have 'weak' internal pull-up resistors.