

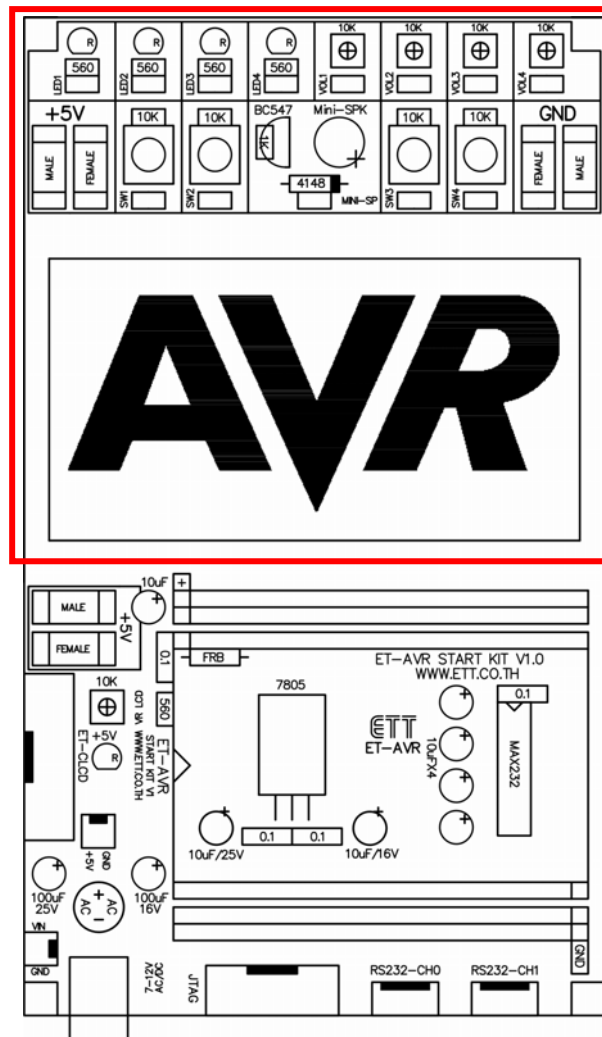
ET-AVR START KIT V 1.0 / EXP

ET-AVR START KIT V1.0 / EXP which is a set of "AVR Base Socket" supports using with Module "**ET-AVR STAMP ATmega64/128**" or other AVR Module in the same size. In the part of "AVR Base Socket" or **ET-AVR START KIT V1.0** and **ET-AVR START KIT V1.0 EXP** include basic and necessary circuit for learning and testing resources of MCU AVR family. There's all necessary circuits inside board for using as following;

- **Power Supply** : 1A Bridge Rectifier with Filter circuit that can use power supply as 7-12V of both AC and DC.
- **+5V /1A Regulate circuit** : It is power supply for LCD Display and +5V I/O components with red LED and both Male /Female Connector to interface.
- **Character LCD with VR** : It uses signal PORTE[2..7] to interface circuit with LCD as 4 Bit Interface.
- **10Pin AVR JTAG Connector (HEADER IDE 2x5)**: It uses to interface with Hardware AVR JTAG set for Programming and Debugging of MCU operation. Signal arrangement is under standard of Atmel and it can connect with Hardware Debugger of AVR that is designed in the same standard.
- **Sink Current LED** : It uses power supply as 5V and there's 4 of 3mm. red LEDs for testing Output operation.
- **0-5V VR** : There's 4 VRs for testing A/D operation.
- **Push Button Switch circuit** : There's 4 of Push Button Switch circuits for testing Input operation.
- **Mini Speaker circuit**
- **PCB** size 8cm. x 4.5cm. or area for installing AD100 Photo Board with 360 points.
- **Header** : It uses for supporting Module "ET-AVR STAMP ATmega64/128" or other module in the same size with Male/Female Connector to interface.

- **Line Driver circuit** : It uses for 2-Channel RS232 Serial Port. Interface signal between PE0(RXD0) and PE1(TXD0) for 1 channel and other 1 channel interface signal between PD2(RXD1) and PD3(TXD1), it uses to test RS232 communication.

Board Structure of ET-AVR START KIT V1.0/EXP

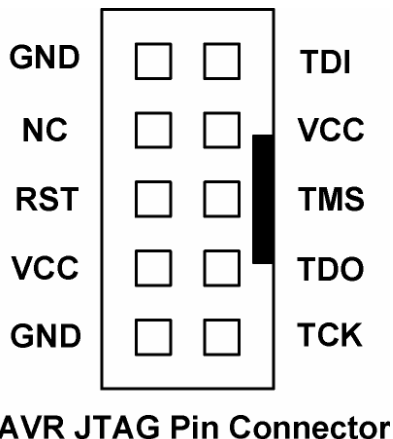


Picture display board structure of ET-AVR START KIT V1.0 / EXP.

*****NOTICE*****

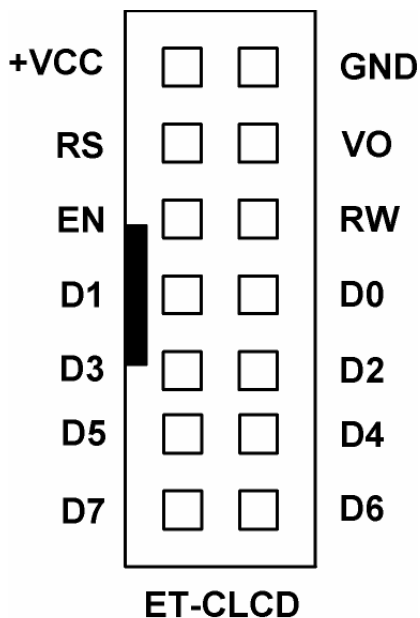
Devices inside the red box, there's in "ET-AVR START KIT V1.0 EXP" only.

AVR JTAG Connector



AVR JTAG Connector uses to interface with Hardware AVR JTAG for Programming and Debugging of MCU operation. Signal arrangement is under standard of Atmel (JTAG ICE) and it can connect with ETT Hardware Debugger as **"ET-AVR JTAG (RS232) V1.0"** or other Hardware Debugger that is designed in the same standard.

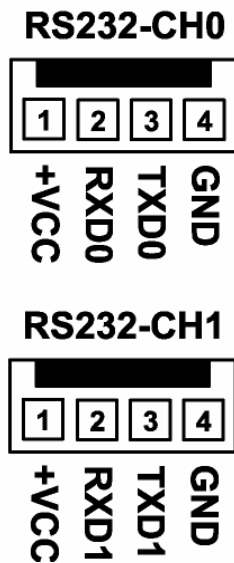
LCD Connector



This LCD Connector can interface with all Character LCD that uses Hitachi Controller No.HD44780 or be equals. This connector uses to be connecting point between **ET-AVR STAMP ATmega64/128** and Character LCD.

To interface MCU signal into Character LCD, it is designed circuit as 4 Bit Interface and uses signal PORTE[2..7] from MCU to control LCD Display.

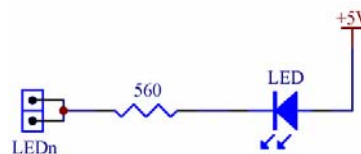
RS232 Connector



RS232 Connector of Board ET-AVR START KIT V1.0 is connecting point of signal to send/receive data that is transformed signal into RS232. Its feature is 4 PIN CPA Connector that uses for connecting point to send/receive data with devices from external Its Pin arrangement is as in the picture.

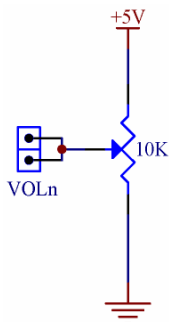
Using LED Display

LED Display of board is connected as Sink Current by using power supply +5V. It runs with Logic "0" (0V) and stops running with Logic "1" (+5V) and there 's totally 4 sets. This circuit uses for testing I/O operation that its result is Logic Output.



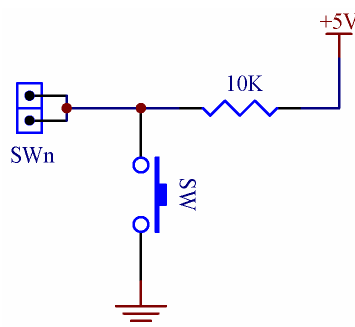
Using VR Circuit (0V-5V)

There's 4 of VRs circuit of board and uses power supply +5V. Default value of Output is between 0V to +5V up to adjustable VR. It uses for testing operation of A/D circuit.



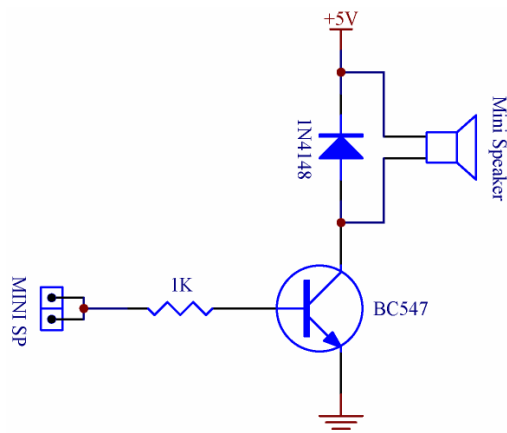
Using Circuit of Push Button Switch

Circuit of Push Button Switch uses Push Button Switch with Pull-Up circuit and uses power supply as +5V. If do not press any Switch, status Logic is "1" but if press any Switch, status Logic is "0". There's 4 sets for testing I/O operation that controls circuit operation with Logic Input.



Using Circuit of Sound Generator

There's Mini Speaker with NPN Transistor circuit. It uses power supply as +5V and runs with Logic "1" and stops running with Logic "0". Its operation is sending signal Logic as frequency into Mini Speaker and transform into sound.



Circuit of Power Supply

It can use power supply as 7-12V both AC and DC. For power supply that is Regulate circuit is a part of +5V to supply electricity into circuits.

