ET-MINI TPIC6B595

This is 8Bit POWER Shift Register that is Serial-IN, Parallel-Out for SPI Interface. It receives the incoming data serially and then it sends data out to Output as parallel. Each Output Bit is Open Drain type that supports the maximum of Load Current at 500mA and then supports the maximum of Load Voltage at 50V. Moreover, this Shift Register number has Driver inside itself, so it is unable to drive Load Current and Load Voltage that is higher than the specified values above.
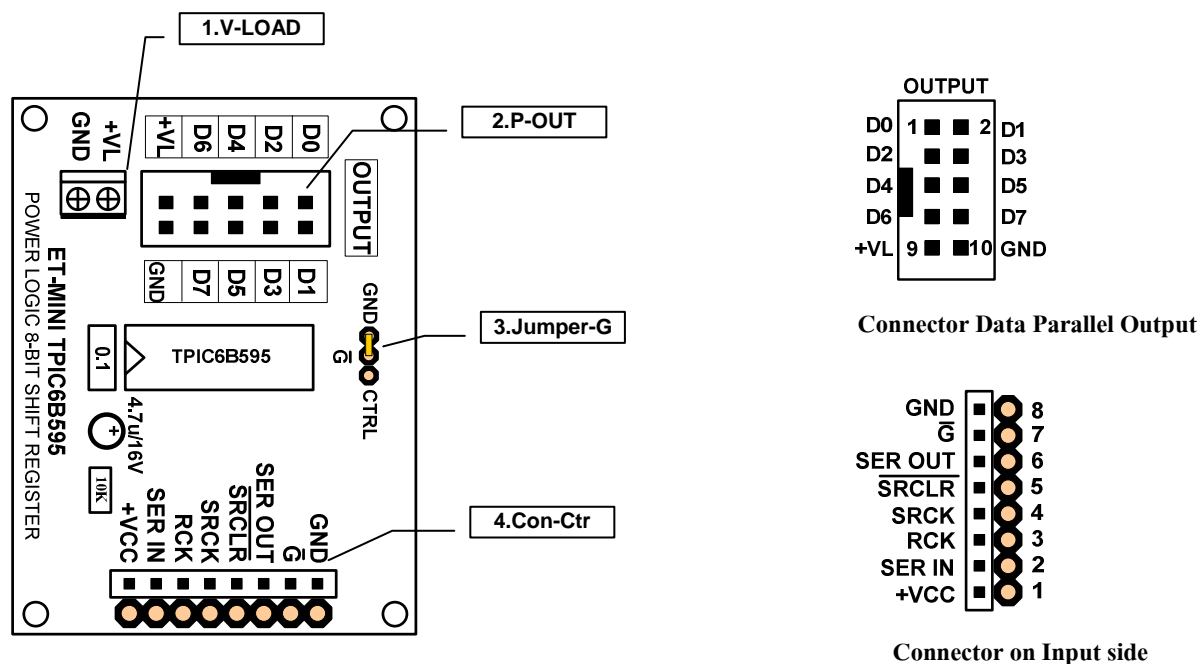

Connector Data Parallel Output

Connector on Input side

Figure displays the structure of ET-MINI TPIC6B595 and pin position of Port.

1. **V-LOAD**: It is Connector Input Voltage to supply power to Load on the Output side (voltage that is interfaced with Load must be equivalent to the real usage). It is able to receive the maximum voltage at 50V/500mA. The voltage that is supplied through this connector is released through Connector +VL of PORT No.2 P-OUT that is the Port to interface Load through Output.

2. **P-OUT**: It is Connector Data Parallel Output or it is interfaced to control Load. Pin D0-D7 is Pin Data; Pin +VL and GND is the part of voltage that is supplied to Load (it always supplies Input Voltage for Load to the Connector No.1 first because it makes the voltage be released from this Pin).

NOTE: If user does not interface Power Supply with board directly to support Load, user can interface it with Load from external

board; see more information from the end of this manual. However, in the part of Ground, it has to interface all together.

3. **Jumper-G̅**: It is Jumper to choose the format of controlling Shift Register; it needs to Enable/Disable according to user's control. If Jumper is set to the CTRL position, it interfaces Pin G with Connector No.4 Pin G; so, user can control the operation of Enable or Disable Shift Register as required. If Pin G receives Logic 0, it is set as Enable; on the other hand, if it receives Logic 1, it is set as Disable. If Jumper is set to GND position, it interfaces Pin G with Ground; so, it makes Shift Register be enabled all the times.

4. **Con-Ctr**: It is Connector to control the operation of Shift Register that consists of pins as follows;
   - *Pin +VCC,GND*: It is Connector 5VDC Power Supply for board.
   - *Pin G̅:* It receives Logic Low to Enable Shift Register.
   - *Pin SER OUT*: It sends data out to Output serially; it interfaces Cascade to the next Shift Register to expand Output Port.
   - *Pin S̅R̅C̅L̅R̅:* It receives Logic Low to Clear Input Data to be 0.
   - *Pin SRCK*: It receives Signal Clock at the Rising Edge Pin (from 0 to 1) to shift the Input data into Register bit by bit.
   - *Pin RCK:* It receives Signal Clock at the Rising Edge Pin to release data that has been shifted and then send it to Output Port as parallel type.
   - *Pin SER IN*: It receives Data Input bit by bit; in this case, Bit 7 is the first bit that is sent out.

Initial Application

1) Interface 5V Power Supply with board; set Jumper Pin G̅ into Ground to Enable Shift Register; and then set Pin S̅R̅C̅L̅R̅ to be 1 for not Reset Input Data.
2) Interface Power Supply for Load at Connector VL according to the real usage and then interface Load to control the operation with Block 10PIN (Parallel OUTPUT).
3) Send Data Input to Pin SER IN; in this case, Bit 7 is the first bit that is sent out.
4) Send Signal Clock at the Rising Edge Pin (from 0 to 1) to Pin SRCK to shift data into Register.
5) Return to Step 3 and Step 4 and then repeat the processes. It shifts the next Data Bit to the Shift Register until all 8Bit Data are shifted completely.

6) Send Signal Clock at the Rising Edge Pin (from 0 to 1) to Pin RCK to release data to Pin Data Parallel Output.

__NOTE__: It should not drive Coil Loading such as motors directly because the internal structure of this Shift Register number has not any Diode on the Output side to protect the reverse voltage from Load. If user requires using with Coil Loading, it needs to straddle Diode between each bits of Load to protect Shift Register from damaged.
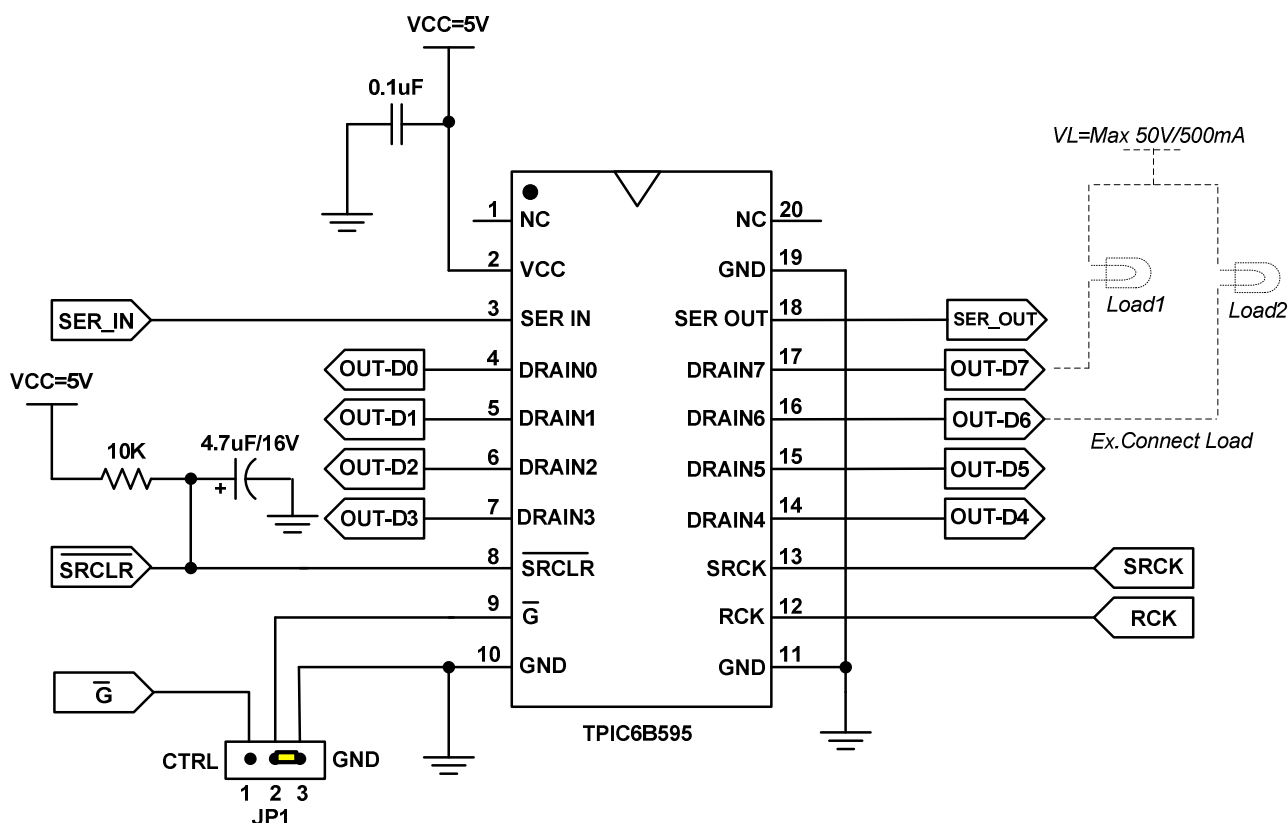

Figure displays the Circuit of ET-MINI TPIC6B595.