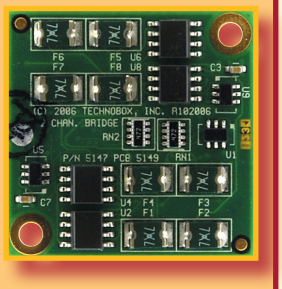
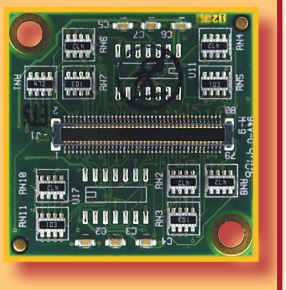
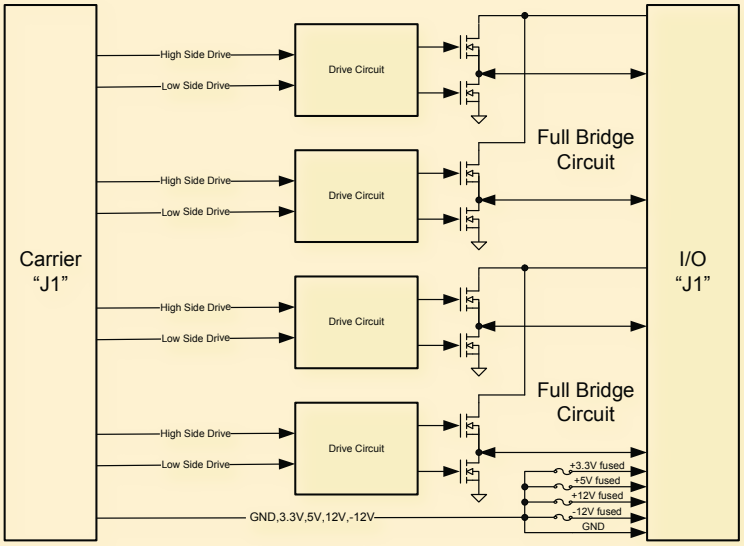
Conversion Module

2-channel Power H Bridge





5093



- **Analog input ECM module**
- **Two independent full bridge drive circuits**
- **Four independent low side switches**
- **Four high side switches, not independent**
- **Full bridge circuit drives stepper motor or small dc motor**
- **Employ transient protection on inductive loads**
- **High side voltages, up to +30V**
- **No negative voltage switching**
- **MOSFET on resistance 0.010 ohms maximum**
- **+3V, +5V, +12V and -12V fused at 0.75 Amps on the I/O pins**
- **On board serial identification circuit**
- **Industrial temperature range**
- **RoHS compliant**
- **Patented**

Specifications

Temperature (Operating): -40 to +85 degrees C

Temperature (Storage): -55 to +100 degrees C

Altitude: Not Specified or Characterized. Typical similar equipment is at 15,000 ft.

Humidity (Operating/Storage): 5% to 90% non-condensing

Vibration: Not specified or Characterized

Shock: Not specified or Characterized

MTBF: Available on request

Weight: 3 grams

Power: TBD

Ordering Information

5093: 2 channel, power H bridge, 1 amp drive

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The Technobox P/N 5093 ECM module provides 2 independent full bridge circuits.

The two full bridge circuits can be use to drive one small stepper motor or two small dc motors. Inductive loads should employ transient protection. Each full bridge can act as two half bridges with a common high side voltage.

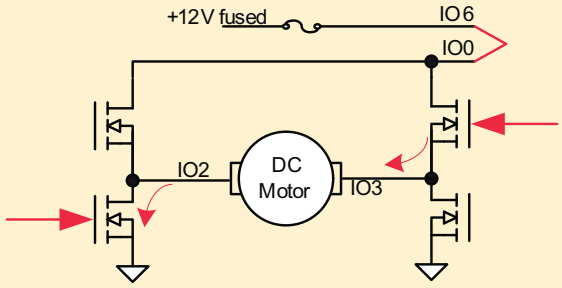
The common high side voltage is supplied by the user on the input pins. The module can be used for 4 independent low side switches to GND or for 4 high side switches.

User supplied high side voltage of up to +30 volts.

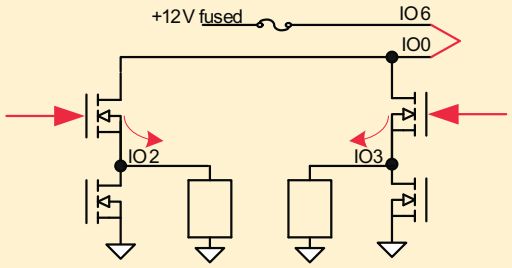
Negative voltages cannot be used as the high side voltage, as they will short out to GND via the body diode of the MOSFET. On resistance of the MOSFET is 0.010 ohms maximum.

Voltages of +3V, +5V, +12V and -12V fused at 0.75 Amps are provided on the I/O pins.

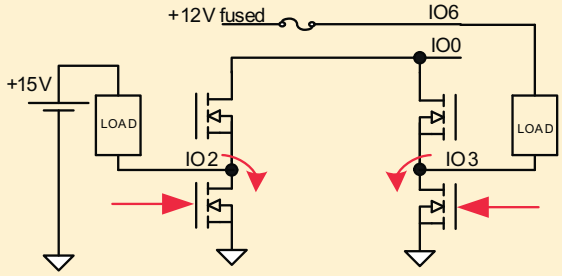
Bi-Polar drive. A bi-polar loads can also be driven by one of the full bridge circuits on the 5093. The red arrow indicate current flow and which FETs are turned on. Limit the current to 0.5 amps and employ transient suppression for inductive loads. In the example fused +12V output on IO6 is routed externally to IO0 for motor power. If external supplies are used they must share a ground which is available on the 5093 at IO1. By using both full bridges a stepper motor can be driven.



High side drivers. Using nearly the same set up as for the bi-polar drive circuit two high side loads can be switched. Unlike the bi-polar circuit a connection to GND is required.



Low side drivers. Similar to the high side driver except that the low side driver can switch independent loads. In the example an external +15V load is also switched.



User IO	J1 Pin number	Direction J1	Description
IO0	16	POWER	Voltage source for high side FETs Q1 and Q3
IO1	18	POWER	GND
IO2	28	BIDIR	Half Bridge source/sink Q1 and Q2
IO3	30	BIDIR	Half Bridge source/sink Q3 and Q4
IO4	52	POWER	+5V source fused 0.75 amps for user circuits
IO5	54	POWER	+3.3V source fused 0.75 amps for user circuits
IO6	64	POWER	+12V source fused 0.75 amps for user circuits
IO7	66	POWER	-12V source fused 0.75 amps for user circuits
IO8	65	POWER	Voltage source for high side FETs Q5 and Q7
IO9	63	POWER	GND
IO10	53	BIDIR	Half Bridge source/sink Q5 and Q6
IO11	51	BIDIR	Half Bridge source/sink Q7 and Q8
IO12	29	POWER	+5V source fused 0.75 amps for user circuits
IO13	27	POWER	+3.3V source fused 0.75 amps for user circuits
IO14	17	POWER	+12V source fused 0.75 amps for user circuits
IO15	15	POWER	-12V source fused 0.75 amps for user circuits

Table 1 User IO signal connections

Carrier Data	J1 Pin number	J1 Direction	Description
DA0	10	INPUT	Turn on high side FET Q1
DA1	12	INPUT	Turn on low side FET Q2
DA2	22	INPUT	Turn on high side FET Q3
DA3	24	INPUT	Turn on low side FET Q4
DA4	34	N/C	No connection
DA5	36	N/C	No connection
DA6	46	N/C	No connection
DA7	48	N/C	No connection
DA8	58	N/C	No connection
DA9	60	N/C	No connection
DA10	70	N/C	No connection
DA11	72	N/C	No connection
DA12	71	INPUT	Turn on high side FET Q5
DA13	69	INPUT	Turn on low side FET Q6
DA14	59	INPUT	Turn on high side FET Q7
DA15	57	INPUT	Turn on low side FET Q8
DA16	47	N/C	No connection
DA17	45	N/C	No connection
DA18	35	N/C	No connection
DA19	33	N/C	No connection
DA20	23	N/C	No connection
DA21	21	N/C	No connection
DA22	11	N/C	No connection
DA23	9	N/C	No connection
DA24	40	N/C	No connection
DA25	41	N/C	No connection
DA26	42	N/C	No connection
DA27	39	N/C	No connection

Table 2 Carrier DA signal connections