Trombetta
H-Bridge Module

Trombetta offers a family of solid state H-Bridge modules designed for harsh duty with an integrated automotive connector interface that delivers superior ingress protection while meeting the functional demands of the mobile equipment market.

Product Features (1939 version)*

- 12V or 24V nominal voltage range
- 20A (sourcing) continuous output current
- PWM range of 5Hz to 5000Hz
- 0.1% duty cycle increments
- IP67 rated
- -40°C to 105°C operating temp range
- Reverse battery protection
- Short circuit / overload protection
- Voltage transient protection
- Auto baud rate detection 125Kbps – 1Mkbps
- LED output polarity status
- Poka Yoke mounting

*Also available in a non-CAN version – some features listed are limited

Operation

This device is used to reverse the direction of a load like an actuator, valve, or motor.

In stopped mode, both outputs are disconnected from battery and ground.

In 'forward' mode, output 1 is connected to battery and output 2 is connected to ground.

In 'reverse' mode, output 1 is connected to ground and output 2 is connected to battery.

In 'dynamic high braking' mode, both outputs are connected to battery.

In 'dynamic low braking' mode, both outputs are connected to ground.

TROMBETTA
DC Power Solutions for a Harsh World

414-410-0300   •   trombetta.com

Electrical Parameters

Parameter	Min	Typ.	Max	Units	Notes
Functional Battery Voltage	8	12/24	32	VDC	
Reverse Battery Voltage	-	-	-32	VDC	No Time Limit, ISO16750-2, Section 4.7.2.3
Current Consumption	8.5	-	16.5	mA	14VDC, 250K Baud
Continuous Current	0	-	25	ADC	Max continuous steady state current before fault.
Inrush Current	20	35	100	ADC	Max inrush current before a fault. Set in 9.4.1
Input Low	-0.7	-	1.2	VDC	
Input High	3.5	-	+Battery	VDC	
Input Low Current	-	6.5	-	mA	Pulled high internal (5VDC) through 470ohm resistor.
Input High Current	-	0	-	mA	Pulled high internal (5VDC) through 470ohm resistor.
Electrostatic Discharge (ESD)	-15	-	+15	KV	All pins, SAE J1113-13, Section 5, test sequence 1-5
Jump Start	-	-	48	VDC	ISO16750-2 Section 4.3.1.2, 60 Minutes
Overvoltage Shutdown	33	35	37	VDC	Causes a fault – see 9.3.4
Undervoltage Shutdown	6	7	8	VDC	Causes a fault – see 9.3.4
Short Circuit I/O to Power/Ground	0	-	32	VDC	ISO16750-2, Section 4.10

Parameter	Min	Typ.	Max	Units	Notes
Operating Temperature	-40°	-	105°	C	ISO16750-4,Section 5.1.1.2, Section 5.1.2.2
Storage Temperature	-40°	-	125°	C	ISO16750-4,Section 5.1.1.1, Section 5.1.2.1
Humidity & Temperature Cycling	-40°	-	105°	C	SAE J1355 Section 4.2.3, Figure 4A, 8 Hour
Mechnical Shock - Operational	-	-	50	g	Half-sine
Mounting Torque	-	-	20	In Lbs	Damage will occur to the unit if this value is exceeded. #8-32 screw recommended.

Parameter	Test
Preconditioning Temperature Cycle	SAE J1466 Section 4.1.3 8 hour cycle
Compliance	RoHS/REACH/Conflict Free
Thermal Cyclic Aging & Humidity	SAE J1455 Section 4.2.3.4a
Thermal Shock	ISO16750-4 Section 5.3.2
Ingress Protection	IEC 60519, IP67
Random Vibration	5-2000Hz, 8.17 Grms
Drop Test	IEC 60068-2-31 Section 5.1, 5.2
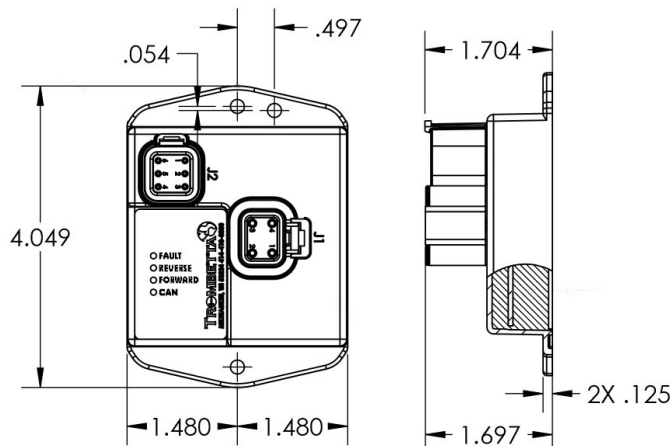
Connectors

J1 DT04-4P equivalent

Pin	Function	Description
1	Ground	Module Ground
2	VOUT2	Output 2 (-)
3	VIN	Module Power
4	VOUT1	Output 1 (+)

J1 DT04-6P equivalent

Pin	Function	Description
1	N/A	N/A
2	N/A	N/A
3	CAN H	CAN High
4	CAN L	CAN Low
5	CAN ID 2	CAN Node Address Input 2 (Active Low)
6	CAN ID 1	CAN Node Address Input 1 (Active Low)

This product is RoHS 3, REACH and Conflict Free Compliant.

Revised 3/21