H-Bridge Module

PN: 99-0790

Description

The 25A H-Bridge, hereby referred to as 'the device', is a solid-state H-Bridge with adaptive slew-rate control. The device has a fixed, 100Hz PWM output that can be set to 0,1,3 and 5 seconds slew rates for both the forward and reverse motor operations. The device incorporates built-in safety features to prevent device damage under abnormal operation.

Features

- 20A continuous output current with 25A inrush current capability
- 100Hz PWM output with adjustable slew rate control
- Operation mode and fault indicators
- H-bridge output modes: Forward, Reverse
- Ruggedized for Industrial Automotive environment
- Wide operational voltage range works on both 12VDC and 24VDC systems.
- Reverse battery protection
- Over current & under voltage shutdown
- Overheating shutdown
- ESD protection up to 15kV on all pins
- Ingress Protection to IP67 Rating

Specifications

Electrical Parameters

Parameter	Min	Typ.	Max	Unit	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
Continuous Current	0	-	<25	ADC	Max continuous current is capped below 25A to protect device from overheating
Inrush Current	25	-	86	ADC	Inrush current before a fault. Current draw above 86A is considered a short and output will shut off immediately
Over current Shutdown Time	-	10	-	S	Shutdown time starts after device is at full duty cycle
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 Min
Over voltage Shutdown	35	36	37	VDC	Causes a fault; outputs immediately shut down
Under voltage Shutdown	6	7	8	VDC	Causes a fault - outputs immediately shut down
Short Circuit I/O to Power/Ground	0	-	32	VDC	ISO16750-2, Section 4.10

Connectors / J1 DT04-4P equivalent

Pin	Function	Description
1	Ground	Module Ground
2	VOUT1	Output of Module Side 1
3	VIN	Module Power
4	VOUT2	Output of Motor side 2

Pin	Function	Description
1	Speed MSB	Slew rate control most significant bit (Active Low)
2	Speed LSB	Slew rate control least significant bit (Active Low)
3	N/A	N/A
4	N/A	N/A
5	DIR IN 2	Direction Input 2 (Active Low)
6	DIR IN 1	Direction Input 1 (Active Low)

**Note: Available in J1939 version*

Environmental Parameters

Parameter	Test
Preconditioning Temp Cycle	SAE J1466 Sec 4.1.3 8 Hr Cycle
Compliance	RoHS /REACH/Conflict Free
Thermal Cyclic Aging & Humidity	SAE J1455 Sec 4.2.3. 4a
Thermal Shock	ISO16750-4 Sec 5.3.2
Ingress Protection	IEC 60519, IP67
Random Vibration	5-2000Hz, 8.17 Grms
Drop Test	IEC 60068 2-31 Sec 5.1, 5.2

Parameter	Min	Max	Units	Notes
Preconditioning Temperature Cycle	-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
Mechanical Shock-Operational	-	50	g	Half-Sine
Mounting Torque	-	20	In-lbs	Damaged will occur to the unit if this value is exceeded. #8-32 screws recommended

811 N. 87th St, Milwaukee, WI 53224
P: 414-410-0300 F: 414-355-3882
e-mail: sales@trombetta.com

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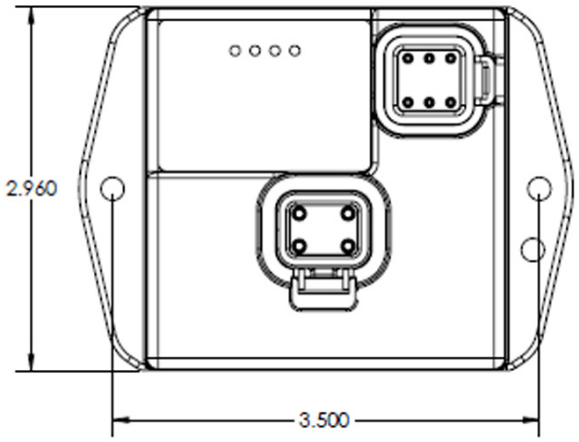
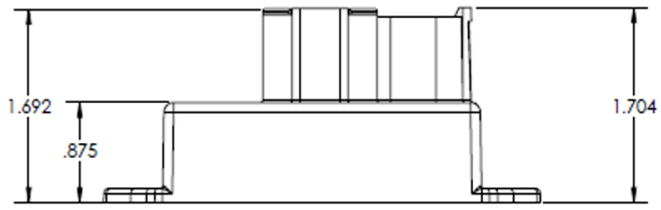
H-Bridge Module

Product Dimensions





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