

HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

1 Features of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier



- Input DC voltage: $28V \pm 1V$
- Continuous output voltage 10A
- Peak output current 20A
- TTL Wide square wave signal input
- Direction control input signal $58.9 \times 40.4 \times 6.99 \text{mm}^3$
- Isolated between the input signal and output signal Weight: 55g

2 Scope of application of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

- DC motor drive control
- Drive the reactive load

3 Descriptions of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

HISA01-B isolated pulse width modulation amplifier works in switching mode, it can provide 280W of transmission power for the load; Products need two power supply: +5V for small control circuit power supply; 28V motor power supplies power to the internal H-Bridge. The output signal of the output circuit is two, One is TTL level wide square wave input signal; the other is the DIR direction input signal that controls the direction of rotation of the power. The signal input is isolated from the power output

The series of the products are made of thick film hybrid integrated process, metal sealed shell package. Product design and manufacturing to meet the MIL-STD and detailed specifications of the product requirements, the quality level is H-class.

4 Technical Specifications of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

Form 1: Rated conditions and Recommended operating conditions

Absolute maximum rating	Recommended operating conditions
Supply voltage V_{CC} : 7V Supply voltage V_S : 40V Storage temperature: $-60\sim+150^{\circ}\text{C}$ Lead welding temperature (10S) T_h : 300°C Junction Temperature T_j : 150°C	Supply voltage V_{CC} : $5V\pm 0.25V$ Supply voltage V_S : $28V\pm 1V$ Operating Temperature (Case): $-55\sim+125^{\circ}\text{C}$

Form 2 Electrical characteristics

No	Character	Conditions (Unless other wise) $V_{CC}=5V\pm 0.25V$ $V_S=28V\pm 1V$ $-55^{\circ}\text{C}\leq T_c\leq 125^{\circ}\text{C}$ $R_L=10\Omega\pm 2\Omega$	HISA01-B		Symbol
			Min	Max	
1	Switching frequency	Input square wave signal to PWM terminal, DIR direction signal access "0" or "1"	50	-	Hz
2	Continuous output current	$R_L=2.4\Omega$ input high level to PWM terminal, DIR direction signal connect "0" or "1"	10	-	A
3	Peak Drive current	$R_L=1.15\Omega$ input high level to PWM terminal, DIR direction signal connect "0" or "1"	20	-	A
4	Output square wave voltage amplitude	Input square wave signal to PWM terminal. DIR= "0" or "1"	25	35	V
5	Efficiency	Input high level to PWM terminal, DIR direction signal connect "0" or "1"	95	-	%
6	Static power consumption	$V_{CC}=5V, V_S=28V\pm 1V$, Full load	-	4	W
7	Disable enable high level	Input high level to PWM terminal, DIR direction signal connect	3.6	-	V

		“0”or “1”			
8	Disable enable low level	Input high level to PWM terminal , DIR direction signal connect “0”or “1”	-	0.8	V

5 Lead function descriptions of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

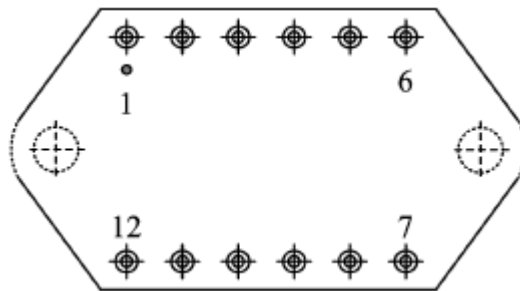


Fig 2 upward view

Form 3 Pin Designation

No	symbol	Designation	No	symbol	Designation
1	GND _I	Input signal Ground	7	SEN _B	Load current sensing terminal B
2	PWM	Input PWM signal	8	OUT _B	Output B
3	V _{CC}	+5V power supply	9	V _S	Power Supply
4	DIR	Input direction control signal	10	NC	NC
5	GND	Output Ground	11	OUT _A	Output A
6	NC	NC	12	SEN _A	Load current sensing terminal A

6 Circuit principle frame diagram of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

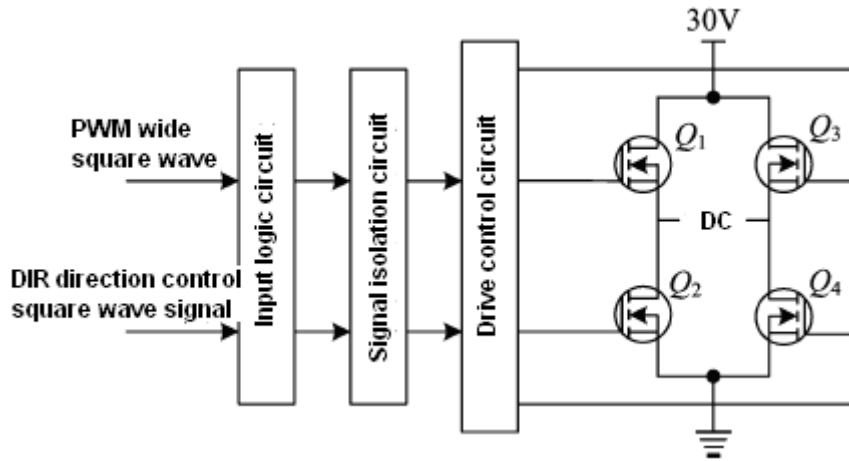


Fig 3 pin function diagram

7. Typical Connection Diagram of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

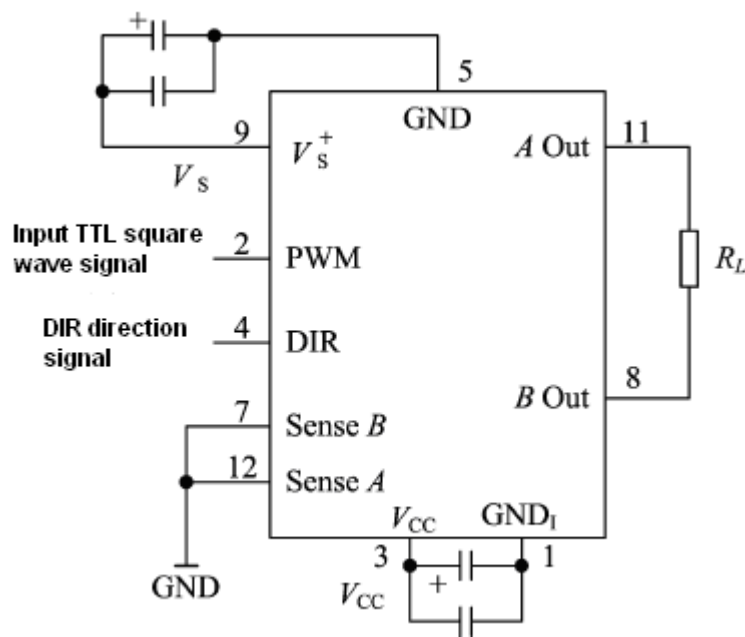


Fig 4 HISA01-B Typical connection Diagram

7.1 Power supply bypass:

Power supply should have sufficient bypass capacitors to ensure proper operation, otherwise it may be unstable and reduce efficiency, and the output may be oscillated. V_s power supply should connect an at least 1uF ceramic capacitor paralleled with a low value ESR capacitor, , the capacitance should be at least 10uF/A ; for V_{cc} also requires a 0.1uF~0.47uF ceramic capacitors paralleled with a low ESR value of 6.8uF~10uF

bypass capacitor, All bypass capacitors should be connected as close as possible to the corresponding power supply root.

7.2 The signal input is isolated from the power output

Input PWM (Pulse Width Modulation) square wave signal ground and DIR direction control signal ground and 5V power supply common ground GNDI connection; Separate from the GND_o of the 28V motor supply to ensure that the signal input is isolated from the power output and that the output is stable and reliable.

7.3 DIR direction control signal input

DIR direction control signal is TTL level signal, Control the direction of the current between the Out_A and Out_B of the output, thereby controlling the direction of rotation of the motor. The working status of the motor is shown in the form below.

Form 4 working value

PWM wide square wave signal (TTL level)	DIR direction control signal (TTL level)	OUTA	OUTB	DC motor working condition
1	0	1	0	Forward
1	1	0	1	Reversal
0	0	0	0	Stop
0	1	0	0	Stop

8. Package Specifications of HISA01-B Isolated Large Current Pulse Width Modulation Amplifier

Circuit package outlines is shown in Fig 5 .

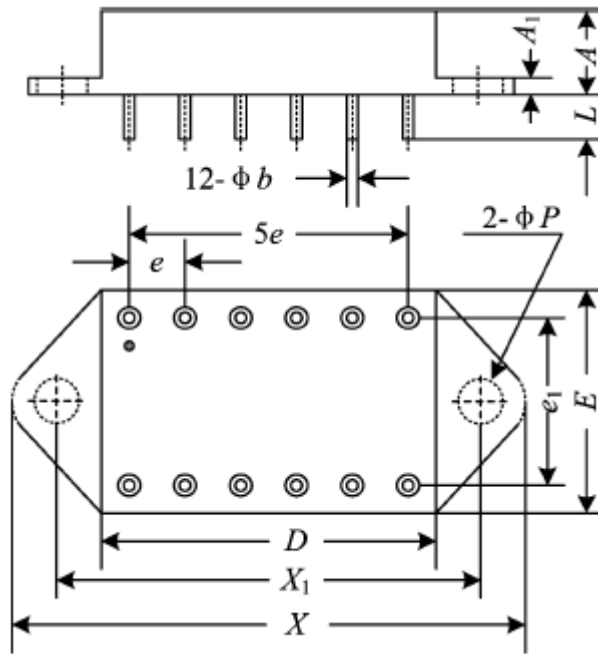


Fig 5 upward view

Form 4 Package Outline

Symbol	Data /mm		
	Min	Typical	Max
A	6.90	-	7.9
A_1	1.9	-	2.7
ϕb	0.87	-	1.13
D	-	-	38.80
E	-	-	41.90
e	-	5.08	-
e_1	-	30.48	-
L	11.0	-	-
X_1	49.26	-	50.26
X	-	-	59.15
ϕP	3.70	-	4.30

Application notes please refer to the appendix, must read it carefully.