

HSA50 Pulse Width Modulation Amplifiers

1 Features

- Compatible with APEX SA50、MSK MSK4200
- Continuous output current 5A
- Peak current 7A
- Analog DC signal input 4V~8V
- High efficiency : 97%
- T0-3 Package



$R_1 2.7 \times 4 \times 6.99 \text{mm}^3$

Weight: 17g

Fig 1 HSA50 External view

2 Scope of application

Drive reactive load

Drive low frequency sonar

3 Descriptions

HSA50 is a type of width modulation amplifiers. It can provide 5A continuous output current to the load. The whole bridge structure can work in a wide voltage range, all the high-end and low-end switching drive control circuit, PWM pulse width modulation circuit are integrated with the product, the user only needs to provide the feedback control system analog voltage signal to complete the speed and position system.

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 highest quality level of H-class.

4 Technical Specifications

Table 1: Rated conditions and Recommended operating conditions

Absolute maximum rating	Recommended operating conditions
Supply voltage +V _S : 80V	Supply voltage +V _S : 28V
Supply voltage +V _{CC} : 16V	Supply voltage +V _{CC} : 12V
Internal power loss : 60W	Input voltage , +V _I : 4V~8V
Storage temperature : -65~+150°C	operating temperature: -55°C~+125°C
Input voltage , V _{IN} : +V _{CC}	

Table 2 electrical characteristics

No	Character	conditions	HSA50		Symbol
			min	max	
		VS=28V±1.4V VCC=12V±1V RL=1KΩ RSENSE A、RSENSE B\GND -55°C≤Tc≤125°C	Typical value		
1	Static current	V1=6V (DC)	-	20	mA
2	Turn-on voltage	I _o =5A	-	2.4	V
3	shut-off leakage current	Output shutoff, Vs=70V no load	-	250	μ A
4	Switching frequency	VI=6V (DC) TC=25°C	40	50	KHZ
5	Duty factor A	VI=3V (DC) , duty factor0%	B ON /A OFF		
		TC=25°C,VI=6V (DC)	40	60	%
		TC=25°C, VI=9V (DC) duty factor 100%	A ON/B OFF		
		TC=25°C, VI=3V (DC) duty factor 100%	B ON /A OFF		
6	Duty factor B	TC=25°C,VI=6V (DC)	40	60	%
		TC=25°C, VI=9V (DC) duty factor 0%	A ON/B OFF		

5 Lead function descriptions

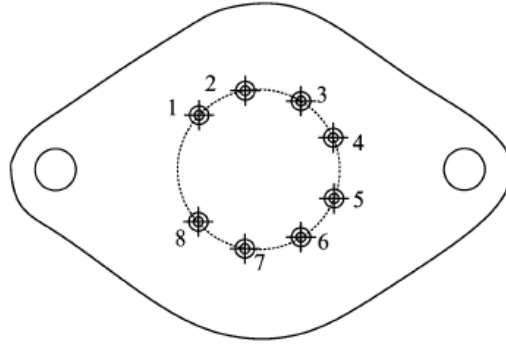


Fig 2 upward view

Table 3 Pin Designations

No	symbol	Designation	No	symbol	Designation
1	$R_{SENSE\ B}$	Inductor B	5	$R_{SENSE\ A}$	Inductor A
2	B_{OUT}	Output B	6	$+V_{CC}$	power
3	$+V_S$	Power	7	GND	Ground
4	A_{OUT}	Output A	8	Input	Analog input signal

6 Circuit block diagram

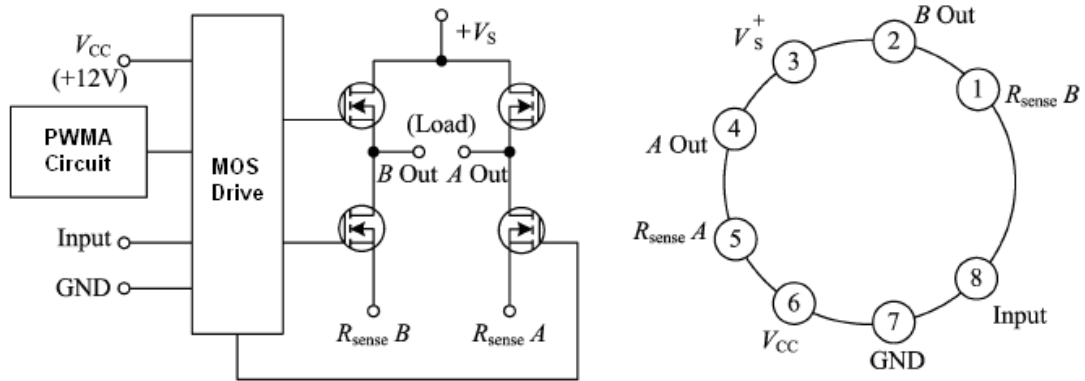


Fig 3 Circuit block diagram

7. Typical Connection Diagram

R1, R2 are sampling resistors, According to the current requirements can be determined by the system.

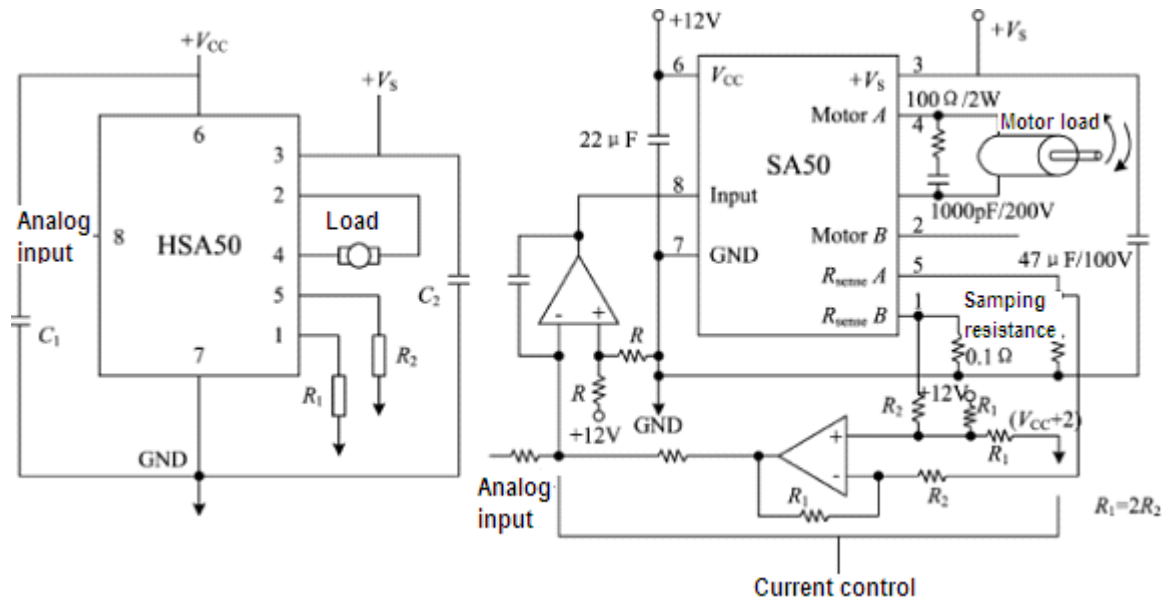


Fig 4 Typical connection diagram

7.1 Power supply bypass

HSA50 power supply should have plenty of bypass to ensure its correct operation, the +Vs power supply should add a 1μ F ceramic capacitor and parallel a low ESR value of bypass capacitor , the size of at least selected 10μ f/ A .The VCC is the same need to parallel a 0.1 μ F ceramic capacitor and a low ESR value of 6.8μ F-10μ F bypass capacitor . All bypass capacitors should be connected as close as possible to the corresponding power source.

8. Package Specifications

Package outline is shown as in fig 5

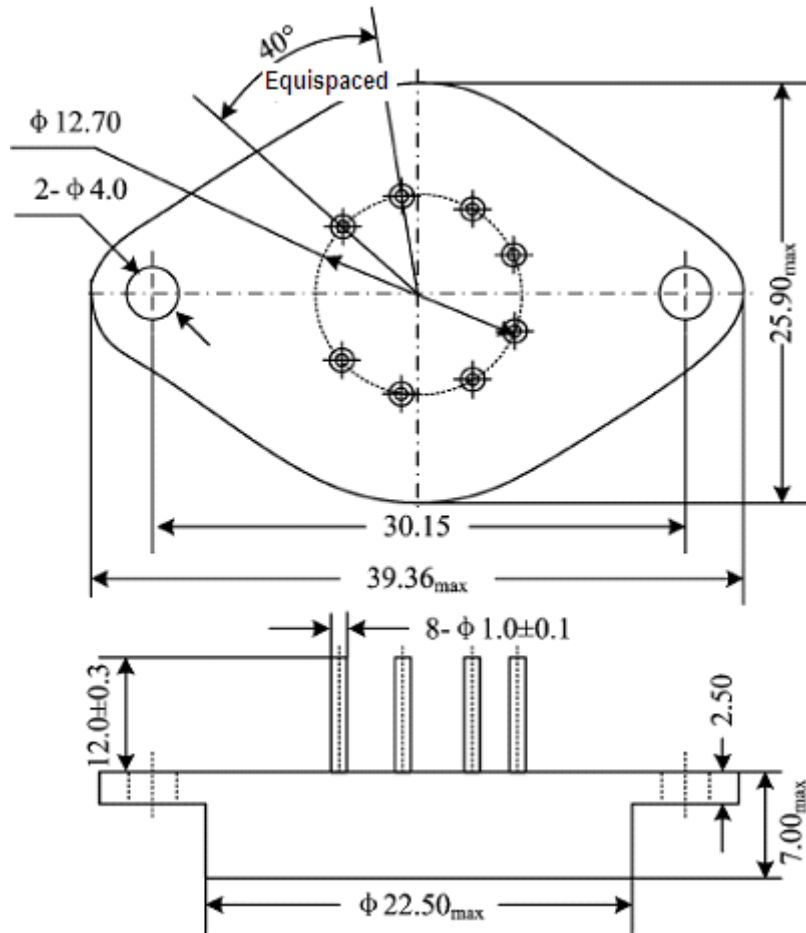


Fig5 package outline drawing

Form 4 Package Outline

Symbol	Data/mm		
	Min	Typical	Min
A	-	-	6.35
A_1	-	-	2.70
ϕb	0.90	-	1.10
ϕD	-	-	25.65
ϕD_1	-	-	22.20
α	-	40	-
X_1	29.95	-	30.35
X	-	-	39.22
L	11.70	-	-
ϕP	3.80	-	4.20

Note: Consistency in identification and quality Detection, should detect all sizes .

In the group A lot-by-lot testing, only test ϕD 、 ϕD_1 、 X 、 X_1 、 A 、 L .

Application Notes please refer to the appendix, must read it carefully

