

HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

1 Features of HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

- 75V volt motor power supply
- 29A output current converter capability, All N channel
MOS-FET Output bridge type
- Suitable for DC to 100KHZ AC PWM
- Short down/cross conduct protection
- Protection for under voltage lockout
- Control for programmable dead-time
- Control for active shutoff by low level
- Isolated package design provides high voltage insulation and excellent heat transfer performance
- Working for optional three-foot bending



Fig 1 HMSK4301 External view

2 Applications of HMSK4301 Military Pulse Width Modulation on Amplifier of Brushless Motor Driver

Three-phase brushless DC; Servo controller; Three-phase brushless AC; Cooling fan actuator control; Induction motor control; Air conditioning fan speed control.

3 Description of HMSK4301 Military Pulse Width Modulation on Amplifier of Brushless Motor Driver

HMSK4301 is a three-phase bridge with a gate, used by the insulating seal package, can output for 29A, the maximum voltage supply can reach to DC 75V. The signal voltage has under-voltage lockout protection, cross-conduction control, user-program

programmable dead time control and short-circuit limiting. In addition, the bridge output can be controlled by using low level shutoff. Due to isolation technology of HMSK4301's package, it can make the internal MOSFET has better heat transfer performance and allows directly contact with the device and the cooling fin actuator without an insulating material.

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

4 Technical Specifications of HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

Table 2 Electrical Characteristics

No.	Characteristic	(Unless otherwise specified, V _{CC} =15V±5% V _S =28V±5% -55°C≤T _c ≤125°C)	HMSK4301			Unit
			A group	min	max	
1	+15V static current /I _{CC}	Open V _{CC} , INH GND	1	-	8	mA
2	+15V Working current /I _{EE}	Open V _{CC}	1		25	mA
3	Positive under-voltage threshold /V	Open V _{CC} , INH GND	1、2、3	5.75	7.5	V
4	Negative under-voltage threshold /V	Open V _{CC} , INH GND	1、2、3	6.2	8.0	V
5	Dead time/SWR	SWR=∞	4	3.0	7.0	us
6	Dead time /SWR	SWR=12K	4	0.3	1.2	us

5 Pin Designations of HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

Table 3 Pin Designations

Pin	Symbol	Designation	Pin	Symbol	Designation
1	BH'	B channel high-level logical signal input	11	RSENSE	Power GND (Current reaction terminal)

2	BL	B channel low-level logical signal input	12	RSENSE	Power GND (Current reaction terminal)
3	AL	A channel low-level logical signal input	13	CΦ	Three-phase bridge C channel output
4	AH	A channel high-level logical signal input	14	CΦ	Three-phase bridge C channel output
5	SWR	Dead regulation	15	BΦ	Three-phase bridge B channel output
6	VBIAS	Control supply and voltage	16	BΦ	Three-phase bridge B channel output
7	EN	Enable	17	V+	Motor supply (Connect +28V)
8	CL	C channel low-level logical signal input	18	V+	Motor supply (Connect +28V)
9	C	C channel high-level logical signal input	19	AΦ	Three-phase bridge A channel output
10	GND	ground	20	AΦ	Three-phase bridge A channel output

6 Circuit block diagram of HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

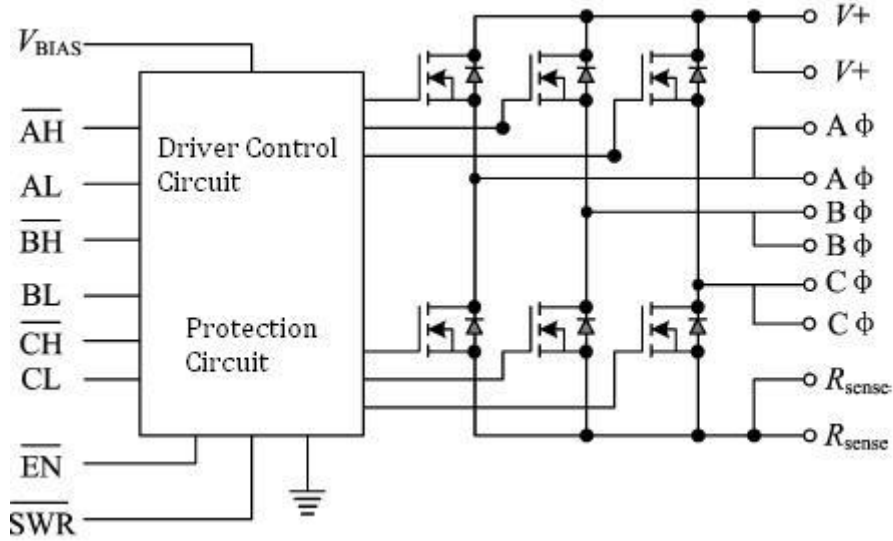


Figure 2 Circuit block diagram

7. Typical Connection Diagram of HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

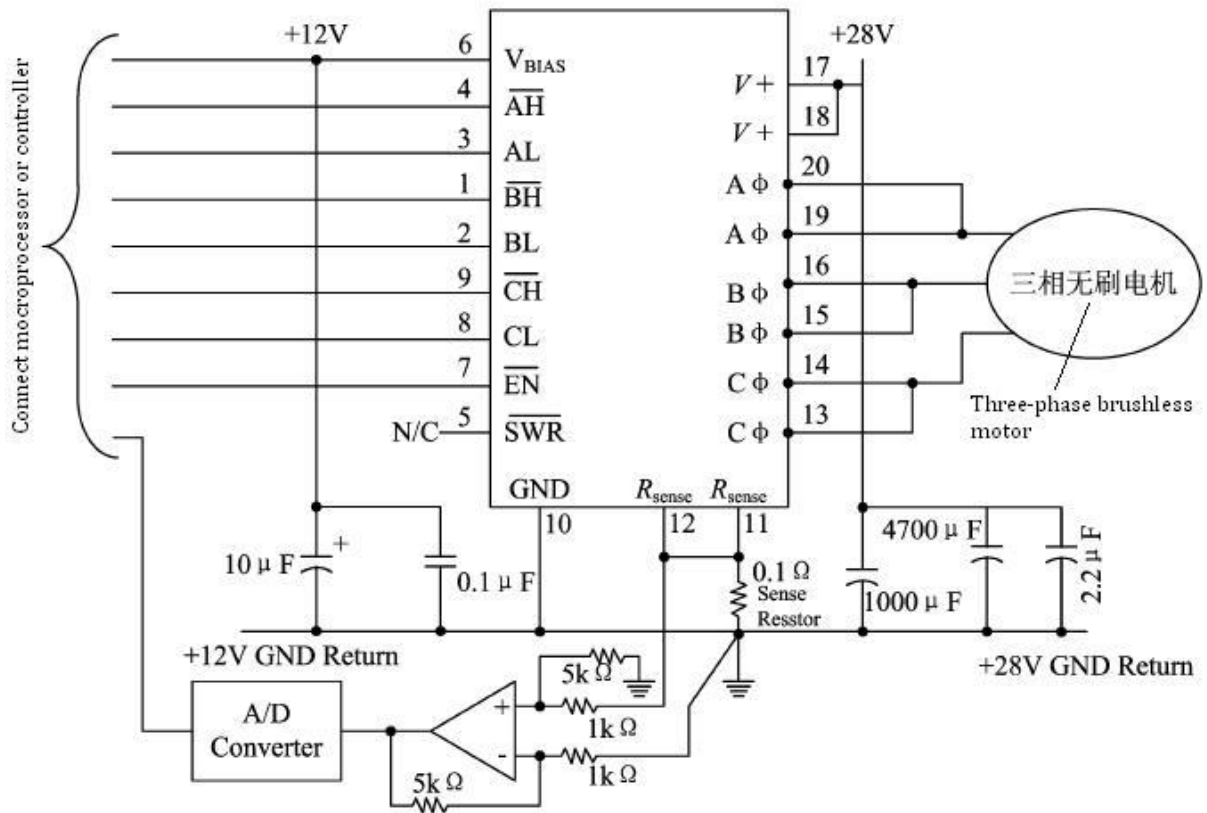


Figure 3 HMSK4301 connection diagram

8. Package Specifications of HMSK4301 Military Pulse Width Modulation Amplifier of Brushless Motor Driver

Outline of package is shown in Figure 4:

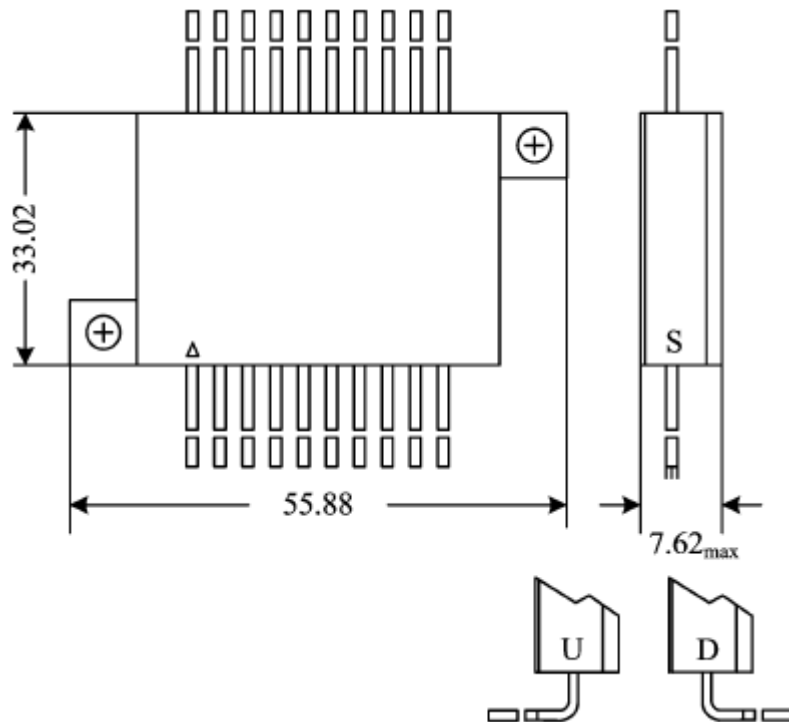


Figure 4 Package outline drawing

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