

## HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

### 1 Features of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

- Replacement with MSK4357 of MSK Company
- Continuous output current: 28A
- Motor power voltage: 500V
- Internal setting 2us dead-time
  
- CMOS or TTL input connector
- Multiple contour structure for system installation



Fig 1 HMSK4357 External view

### 2 Applications of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

- Three-phase brushless motor driver control
- Driven reaction load

### 3 Description of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

HMSK4357 is a three-phase power motor driver module, the maximum power supply voltage is 500V, it can provide <28A continuous output current for load. Input for this module is 5V CMOS or TTL logic level. To prevent directly connection of up and down bridge, internal setting 2uS dead time, and it has under-voltage protection.

This series of products are made of thick film hybrid integrated process, metal sealed package. Product design and manufacturing satisfy the requirements of GJB2438A and detailed specifications, the quality level is H-class.

## 4 Technical Specifications of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Drive

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Table 2 Electrical Characteristic (Complete according to the standard)

No.	Characteristic	( Unless other condition, V <sub>CC</sub> =15V±5% V <sub>S</sub> =110V±5% -55°C≤T <sub>c</sub> ≤125°C )	HMSK4357			Unit
			A group	min	max	
1	+15V statics current /I <sub>CC</sub>	Open V <sub>CC</sub>	1	-	180	mA
2	Drain source voltage /V <sub>DS</sub>		1		2.8	V
3	Leakage current /I		1		1.8	mA
4	Input threshold level (High) /V		1	2.2	-	V
5	Input threshold level (Low) /V		1	-	0.8	Us

## 5 Pin Designations of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

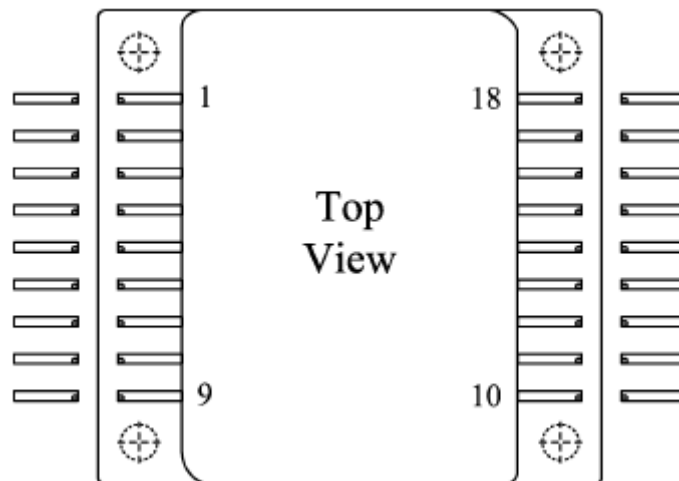


Figure 2 Platform

Table 3 Pin Designations

Pin	Symbol	Designation	Pin	Symbol	Designation
1	+V <sub>CC</sub>	V supply positive	10	CV-/ISENSE	C phase low level
2	AH <sub>IN</sub>	A phase high level input	11	C	C phase output
3	AL <sub>IN</sub> AL	A phase low level input	12	C <sub>V+</sub>	C phase power driver supply
4	BH <sub>IN</sub>	B phase high level input	13	B <sub>V-</sub>	B phase low level
5	BL <sub>IN</sub>	B phase low level input	14	B	B phase output
6	CH <sub>IN</sub>	C phase high level input	15	B <sub>V+</sub>	B phase power driver supply
7	CL <sub>IN</sub>	C phase low level i nput	16	A <sub>V-</sub>	A phase low level
8	I <sub>TRIP</sub>	Analog current reac tion terminal	17	A	A phase output
9	+V <sub>SS</sub>	Supply low level	18	A <sub>V+</sub>	A phase power driver supply

## 6 Circuit block diagram of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

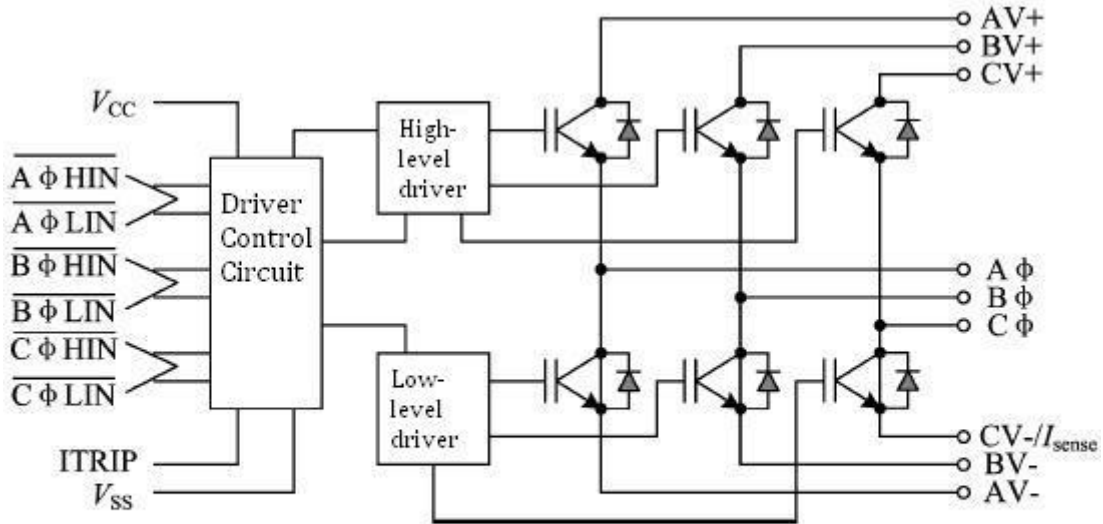


Figure 3 Single-circuit block diagram

## 7. Typical Connection Diagram of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

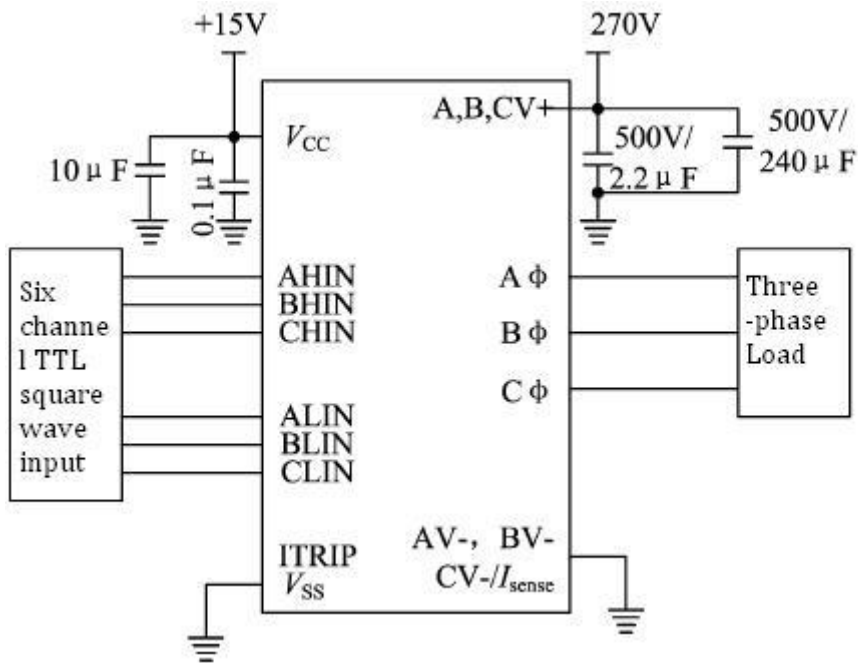


Fig 4 HMSK4357 connection diagram

Note:

Supply bypass:

Power supply should have sufficient bypass capacitors to ensure proper operation. Vs power supply should be add a 0.1uF at least ceramic capacitor in parallel with low ESR value and high voltage of the bypass capacitor . It is recommended that a capacitor should be connected between every power supply terminal and ground .

For V<sub>CC</sub> should also add a ceramic capacitor with 0.1μF and a low ESR value with 6.8μF-10μF of the bypass capacitor in parallel. All bypass capacitors should be as close as possible to the corresponding power supply root.

### 8. Package Specifications of HMSK4357 High Reliability Pulse Width Modulation Amplifier of Brushless Motor Driver

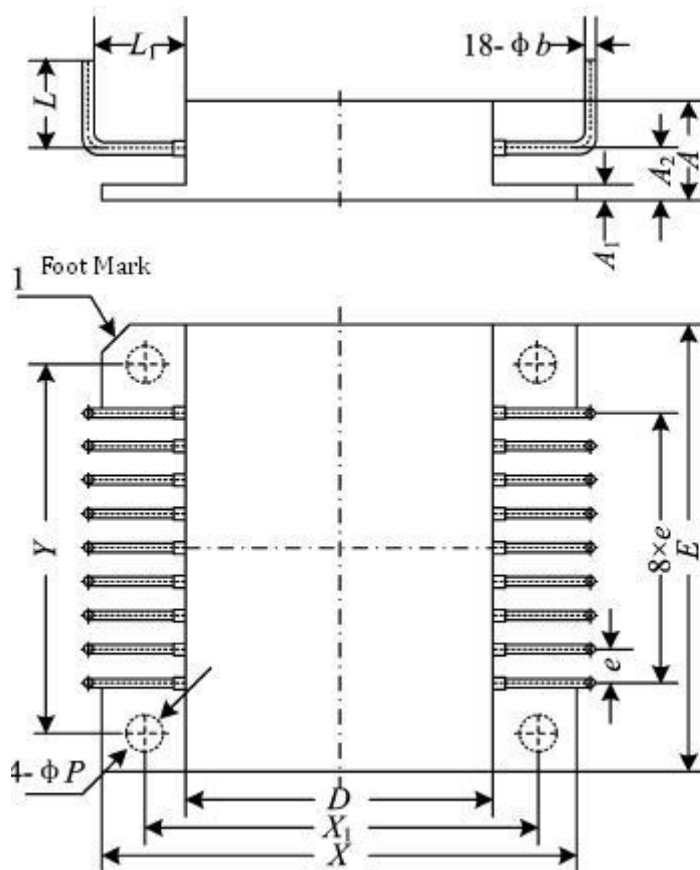


Table 4 Package outline

Symbols	Data /mm		
	Minimum	Typical	Minimum
A	-	-	9.70

$A_1$	1.20	-	1.80
$A_2$	4.65	-	5.25
$\Phi b$	0.87	-	1.13
$D$	-	-	41.14
$E$	-	-	57.65
$e$	-	5.08	-
$Y$	50.30	-	51.30
$L$	8.50	-	-
$L1$	8.40	-	9.40
$X1$	46.74	-	47.74
$X$			
$\Phi p$	2.90	53.84	3.50

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