

2-Phase DC Brushless Motor Pre-driver IC

■ GENERAL DESCRIPTION

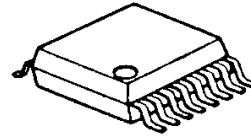
The NJM2642 is a 2-phase DC brushless motor pre-driver IC.

It incorporates Lock Detect / Auto Protection Circuit and totem-pole pre-drivers for external power MOS-FET.

The turn ON/ turn OFF ratio at Auto Protection Release was set in 1:10 easy-to-use.

Two comparators are built into NJM2642 for the temperature adjustable speed control or over current detection.

■ PACKAGE OUTLINE

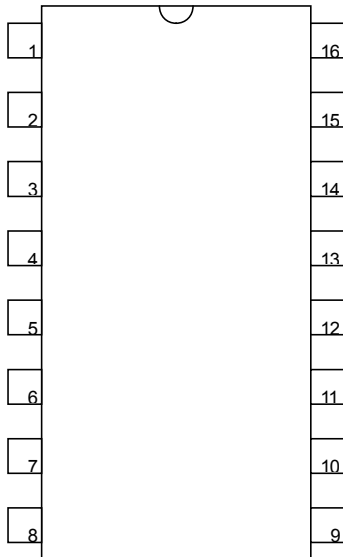


NJM2642V

■ FEATURES

- Operating Voltage 4 to 14V
- Absolute Maximum Voltage 15V
- Totem-pole Output
- Internal Lock Detect /Auto Protection Release Circuit
- Lock Alarm Output Terminal
- Internal comparator 2 circuit
- Package Outline SSOP16

■ PIN CONFIGURATION



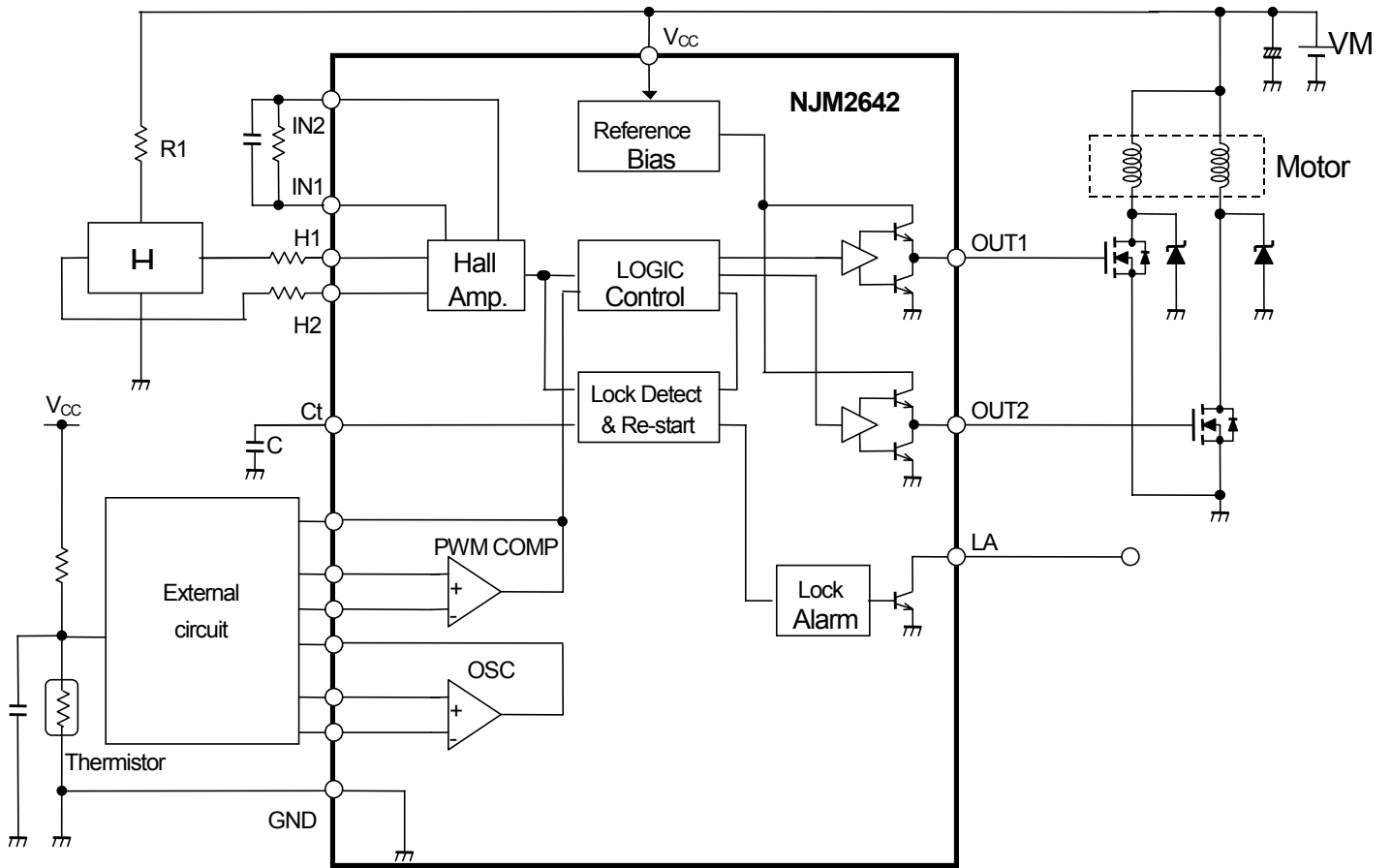
NJM2642V

1.Vcc	9. C1 IN -
2.H1	10.C1 IN+
3.H2	11.C1 OUT
4.H3	12.Ct
5.LA	13.GND
6.C2 OUT	14.OUT1
7.C2 IN+	15.OUT2
8.C2 IN -	16.UH

NJM2642

Preliminary

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT	NOTE
Supply Voltage	V _{CC}	15	V	-
Hall Input Voltage Range	V _{IH}	-0.3 ~ V _{CC}	V	-
Output Current	I _{OUT}	30	mA	-
Lock Alarm Output Voltage	V _{LA}	15	V	-
Hall Input Differential Voltage	V _{IHL}	2	V	-
Lock Alarm Output Current	I _{LA}	20	mA	-
Power Dissipation	P _D	300	mW	Device it self
Operating Temperature Range	T _{opr}	-40 ~ 85	°C	-
Operating Junction Temperature Range	T _j	-40 ~ 150	°C	-
Storage Temperature Range	T _{stg}	-55 ~ 150	°C	-

■ RECOMMENDED OPERATING CONDITIONS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT	NOTE
Supply Voltage	V _{CC}	4 ~ 14	V	-
Hall Input Common Mode Voltage	V _{ICM}	0 ~ V _{CC} -2	V	-
Junction Temperature	T _j	-40 ~ 125	°C	-

NJM2642

Preliminary

■ ELECTRICAL CHARACTERISTICS

(Ta=25°C, V_{CC}=12V)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Current	I _{CC}	V _{CC} =12V	-	8.5	12.0	mA
		V _{CC} =5V	-	7.5	10.5	mA
■ Hall Amplifier						
Input Hysteresis Voltage	V _{HYS}	-	8	20	32	mV
Input Bias Voltage	I _B	-	-	0.5	-	μA
Common Mode Voltage	V _{ICM}	-	0 ~ 10	-	-	V
■ Output						
Upper Output Voltage	V _{OH}	I _{OUT} =-20mA	10.0	10.3	-	V
Under Output Voltage	V _{OL}	I _{OUT} =20mA	-	0.5	0.8	V
■ Alarm						
Output Voltage	V _{LA}	Lock Alarm ON, I _{LA} =5mA	-	-	0.5	V
Leak Current	I _{LA} leak	V _{LA} =15V	-	1	5	μA
■ Ct						
Charge Current	I _C	V _{CT} =1.5V	-	4.0	5.5	μA
Discharge Current	I _{DC}	V _{CT} =1.5V	-	0.4	0.6	μA
Charge / Discharge Current Ratio	I _C /I _{DC}	-	-	10	-	
H Level Cense Voltage	V _{CH}	-	2.30	2.65	3.00	V
Reversal Voltage	V _{CL}	-	0.78	0.92	1.05	V
Auto Protection Release ON Time	T _{ON}	C _T =0.47μF	-	0.25	-	s
Auto Protection Release OFF Time	T _{OFF}	C _T =0.47μF	-	2.5	-	s
■ Comparator						
Input Offset Voltage	V _{IO}	-	-	1	5	mV
Input Bias Current	I _{IB}	-	-	250	500	nA
Input Common Mode Voltage Range	V _{ICM}	-	0 ~ 10	-	-	V
Output Sink Current	I _{SI}	V _O =1.5V	6	10	-	V
Output Saturation Voltage	V _{SAT}	I _{SI} =3mA	-	80	300	mV
Output Leak Current	I _{LEAK}	V _O =12V	-	0.1	1	μA

A charge and discharge current ratio is set in general to a minimum of 7 and a maximum of 14.

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