

# Two-phase Unipolar DC Brushless Motor Pre-Driver IC

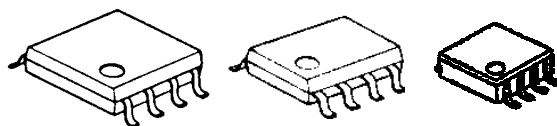
## ■ GENERAL DESCRIPTION

The NJM2641 is a 2-phase DC brushless motor pre-driver IC.

It incorporates Lock Detect and Auto Protection Circuit. The turn ON / turn OFF ratio at Auto Protection Release was set in 1:10 easy-to-use.

Moreover, the pin is compatible with 48V pre-driver NJM2640.

## ■ PACKAGE OUTLINE



NJM2641M

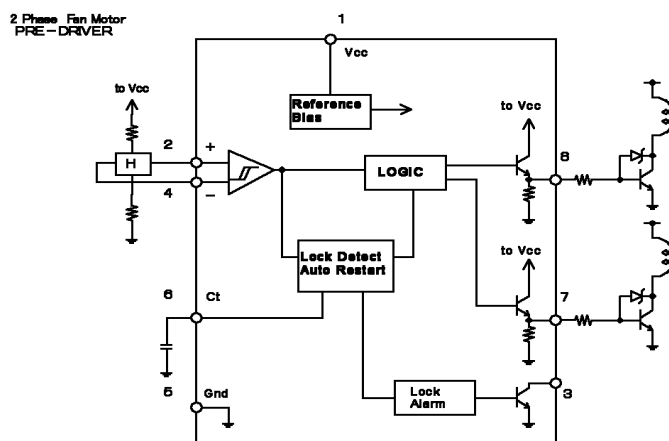
NJM2641E

NJM2641RB1

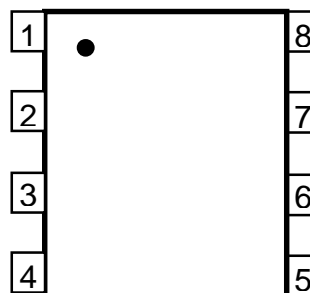
## ■ FEATURES

- Operating Voltage  $V_{DD}=4$  to 14V
- Absolute Maximum Voltage 15V
- Internal Lock Detect / Auto Protection Release Circuit
- Lock Alarm Output Terminal
- Package Outline DMP8 / EMP8 / TVSP8

## ■ BLOCK DIAGRAM



## ■ PIN FUNCTION



- 1: Vcc
- 2: H1
- 3: LA
- 4: H2
- 5: GND
- 6: Ct
- 7: OUT1
- 8: OUT2

# NJM2641

## Preliminary

### ■ 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 (Peak)	$I_{OUT}$	70	mA	-
Lock Alarm Output Voltage	$V_{OLA}$	15	V	-
Hall Input Differential Voltage	$V_{IHD}$	2	V	-
Lock Alarm Output Current	$I_{OLA}$	20	mA	-
Operating Temperature Range	$T_{opr}$	-40 ~ 85	°C	-
Operating Junction Temperature Range	$T_{oj}$	-40 ~ 150	°C	-
Storage Temperature Range	$T_{stg}$	-55 ~ 150	°C	-
Power Dissipation	$P_D$	300(DMP8) / 375(EMP8) / 400(TVSP8)	mW	Device itself

### ■ RECOMMENDED OPERATING CONDITIONS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS	UNIT (unit)	NOTE
Supply Voltage	$V_{CC}$	4 ~ 14	V	-
Hall Input Voltage Common Mode Voltage	$V_{ICM}$	1.5 ~ $V_{CC}-2$	V	-
Junction Temperature	$T_j$	-40 ~ 125	°C	-

### ■ ELECTRICAL CHARACTERISTICS

( $V_{DD}=12V$ ,  $T_a=25^{\circ}C$ )

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Operating Current	$I_{CC}$	$V_{CC}=12V$	-	3.0	4.0	mA
		$V_{CC}=5V$	-	2.8	3.75	
Hall Input Hysteresis Range	$V_{HYS}$	-	8	20	32	mV
Hall Amplifier Input Bias Current	$I_B$	-	-	1.0	-	$\mu A$
Output Voltage	$V_{OUT}$	$I_{OUT}=20mA$	-	$V_{CC}-1.5$	-	V
Output Leak Current	$I_{LEAK}$	$V_{CC}=14V$	-	1	10	$\mu A$
Lock Alarm Output Voltage	$V_{LA}$	Lock Alarm ON, $I_{LA}=5mA$	-	-	0.5	V
Lock Alarm Leak Current	$I_{LA-LEAK}$	$V_{LA}=14V$	-	1	5	$\mu A$
Ct Charge Current	$I_{CHG}$	$V_{CT}=1.5V$	-	4.0	-	$\mu A$
Ct Discharge Current	$I_{DCHG}$	$V_{CT}=1.5V$	-	0.4	-	$\mu A$
Charge / Discharge Current Ratio	$I_{CHG} / I_{DCHG}$	-	-	10	-	
Ct H-level Cense Voltage	$V_{CTH}$	-	2.5	2.8	3.1	V
Ct L-level Cense Voltage	$V_{CTL}$	-	0.6	0.7	0.8	V
Auto Protection Release ON Time	$T_{ON}$	$C_t=0.47\mu F$	-	0.25	-	s
Auto Protection Release OFF Time	$T_{OFF}$	$C_t=0.47\mu F$	-	2.5	-	s

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