

Two-phase Unipolar DC Brushless Motor Pre-Driver IC

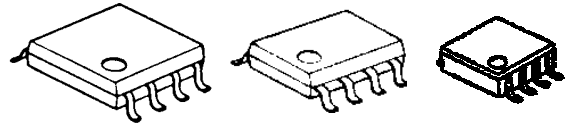
■ GENERAL DESCRIPTION

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

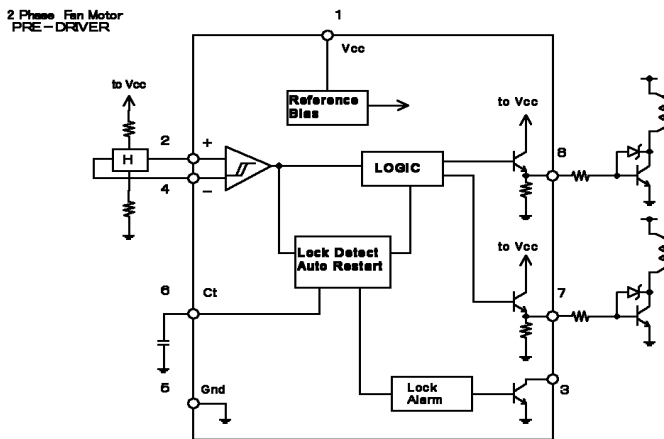
NJM2641E

NJM2641RB1

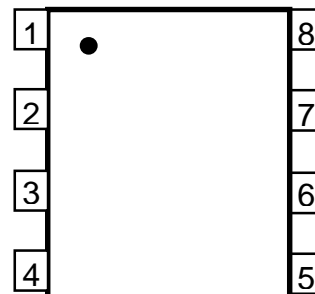
■ FEATURES

- 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

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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	-	μA
Output Voltage	V_{OUT}	$I_{OUT} = 20mA$	-	$V_{CC} - 1.5$	-	V
Output Leak Current	I_{LEAK}	$V_{CC} = 14V$	-	1	10	μA
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	μA
Ct Charge Current	I_{CHG}	$V_{CT} = 1.5V$	-	4.0	-	μA
Ct Discharge Current	I_{DCHG}	$V_{CT} = 1.5V$	-	0.4	-	μA
Charge / Discharge Current Ratio	I_{CHG} / I_{DCHG}	-	-	10	-	
Ct H-level Cense Voltage	V_{CH}	-	2.5	2.8	3.1	V
Ct L-level Cense Voltage	V_{CL}	-	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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