

Single-phase DC Brushless Motor Driver IC

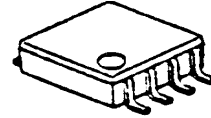
■ GENERAL DESCRIPTION

The NJU7366 is a single-phase motor driver IC. It features thermal shutdown circuit and start up assist functions.

The motor rotational speed is controlled by DC input voltage.

The NJU7366 is available in a small and thin 8-lead MSOP(TVSP) package.

■ PACKAGE OUTLINE



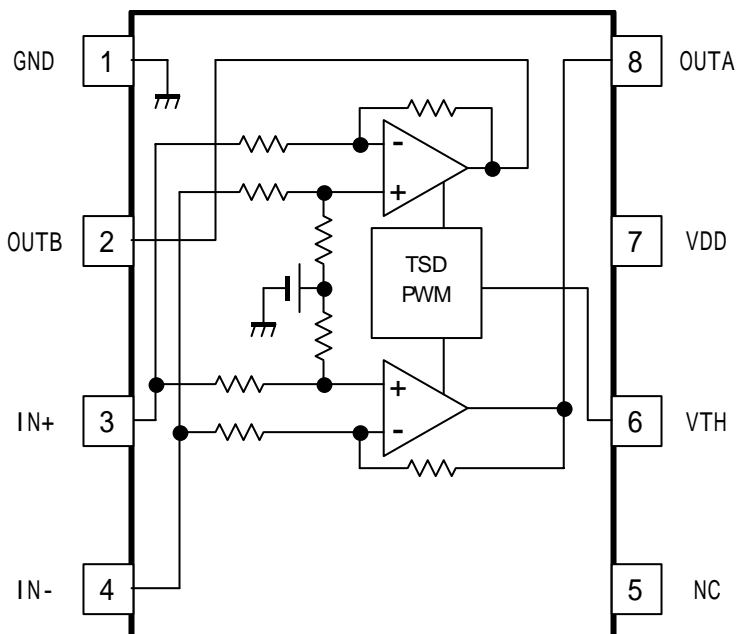
NJU7366RB1
(MSOP8 (TVSP8))

■ FEATURES

- Supply Voltage $V_{DD}=2.0$ to $5.5V$
- Low Quiescent Current $I_{DD}=1.1mA$ typ.
- Maximum Output Voltage $V_{OH}=4.6V$ typ. @ $I_o=+250mA$, $V_{OL}=0.35V$ typ. @ $I_o=-250mA$
- Input Offset Voltage $V_{IO}=\pm 10mV$
- DC Voltage Input PWM
- Start up Assist Function
- Thermal Shutdown Circuit
- CMOS Technology
- Package Outline MSOP8 (TVSP8)*

*MEET JEDEC MO-187-DA/THIN TYPE

■ BLOCK DIAGRAM



■ PIN FUNCTION

PIN No.	PIN NAME
1	GND
2	OUTB
3	IN+
4	IN-
5	NC
6	VTH
7	VDD
8	OUTA

NJU7366

■ ABSOLUTE MAXIMUM RATINGS

(Ta=25°C)

PARAMETER	SYMBOL	RATINGS		UNIT
Supply Voltage	V _{DD}	+7.0		V
Input Voltage	V _{ID}	-0.3 to V _{DD}		V
PWM Input Voltage	V _{PWM}	-0.3 to V _{DD}		V
Output Current (Peak)	I _{OPEAK}	600		mA
Power Dissipation	P _D	Device itself	400	mW
		Mounted on 2Layer Board (*1)	510	
Operating Temperature	Topr	-40 to +85		°C
Junction Temperature	Tjmax	150		°C
Storage Temperature	Tstg	-50 to +150		°C

(*1): Mounted on glass epoxy board based on EIA/JEDEC. (76.2 × 114.3 × 1.6mm: 2-Layers FR-4)

■ RECOMMENDED OPERATING CONDITIONS

(Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Voltage	V _{DD}	-	2.0	5.0	5.5	V

■ ELECTRICAL CHARACTERISTICS

(V_{DD}=5V, Ta=25°C)

PARAMETER	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
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■ GENERAL

Quiescent Current	I _{DD}	IN+=3.9V, IN-=0.4V	-	1.1	1.8	mA
Thermal Shutdown Operating Temperature	T _{TSD}	-	-	170	-	°C
Thermal Shutdown Hysteresis	T _{HYS}	-	-	20	-	°C

■ HALL AMP BLOCK

Input Offset Voltage	V _{IO}	-	-10	-	10	mV
Common Mode Input Voltage Range	V _{ICM}	-	0.4	-	3.9	V
Close-loop Gain	A _V	-	-	40.4	-	dB

■ OUTPUT BLOCK

Output Voltage	V _{OH}	I _O = +250mA	4.5	4.6	-	V
	V _{OL}	I _O = -250mA	-	0.35	0.45	V

■ PWM INPUT BLOCK

VTH – H Level Voltage	V _{VTHH}	-	1.4	1.5	1.6	V
VTH – L Level Voltage	V _{VTHL}	-	0.4	0.5	0.6	V
PWM Frequency	f _{PWM}	-	-	27	-	kHz
Duty 80% Input Voltage	V _{80%}	-	-	0.64	-	V

■ Calculating formula of DC Input Voltage (VTH terminal Voltage) and Output PWM Duty

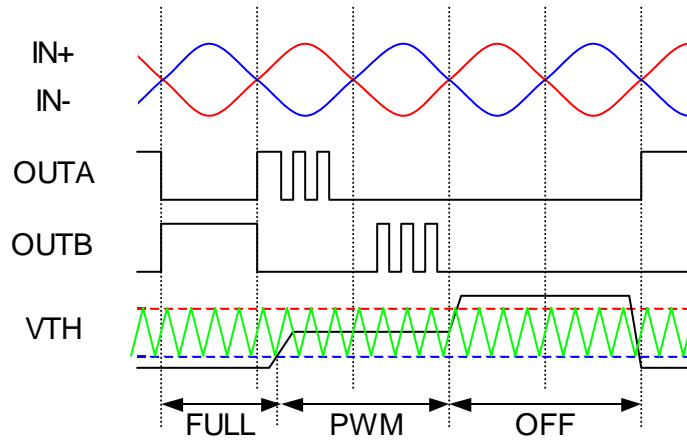
$$\text{Duty} = -96.657 \times \text{VTH} + 141.7$$

TRUTH TABLE

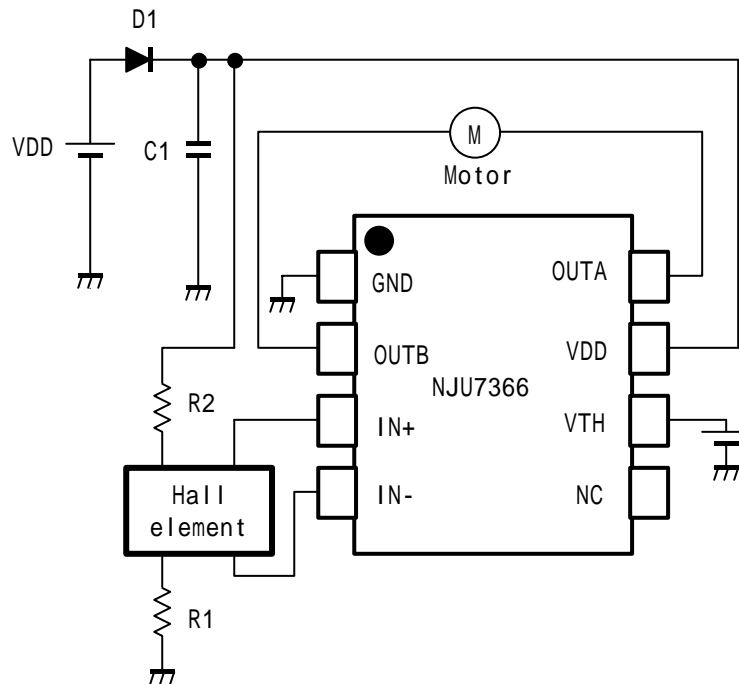
IN+	IN-	VTH (*2)	OUTA	OUTB
H	L	L	H	L
L	H	L	L	H
H	L	H	L	L
L	H	H	L	L

(*2): In the case of start-up, it keeps VTH=L condition until OUTA and OUTB are switched several times.

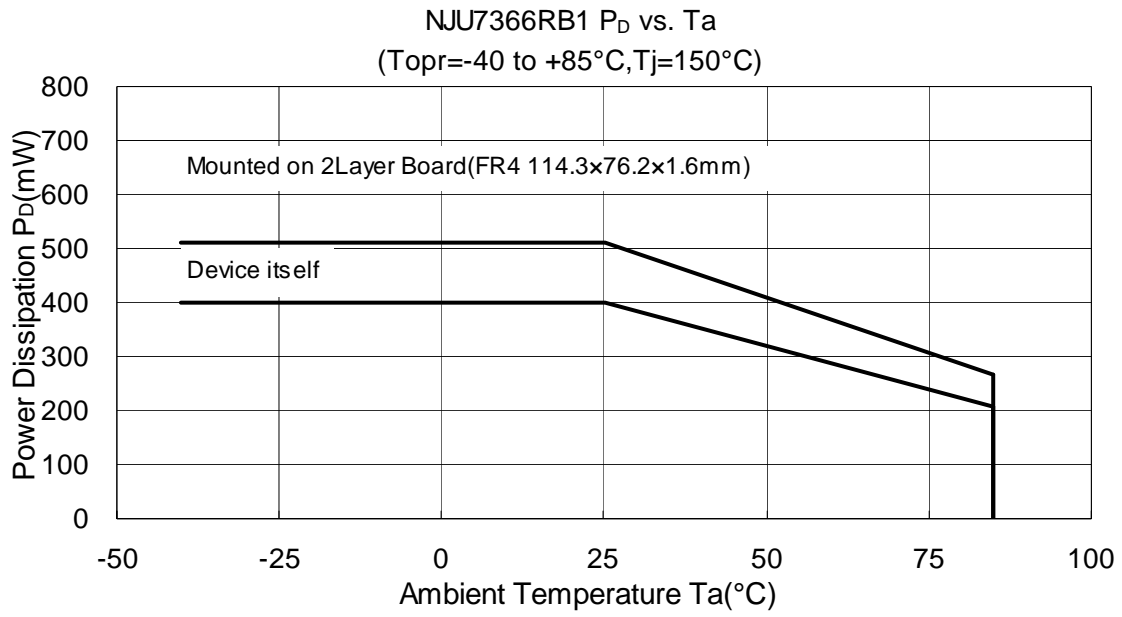
TIMING CHART at PWM



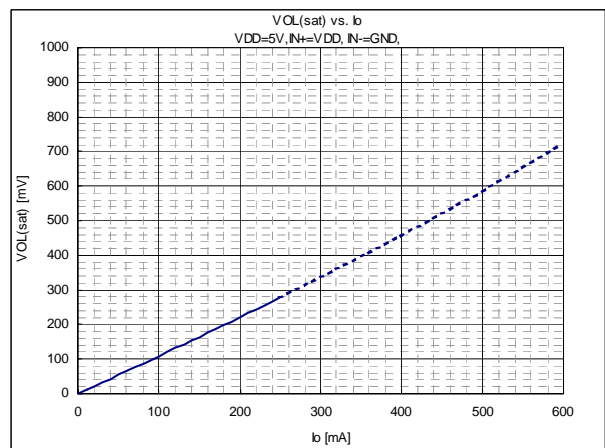
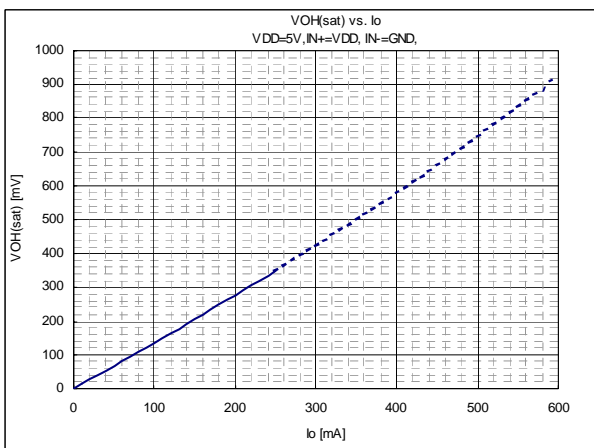
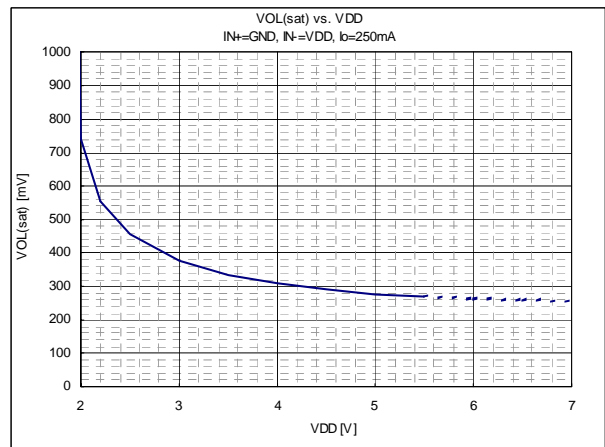
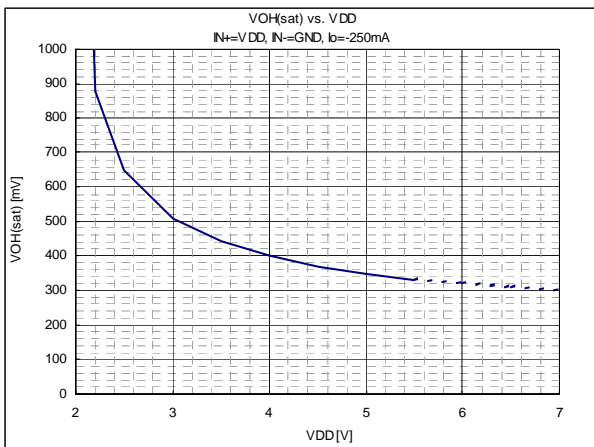
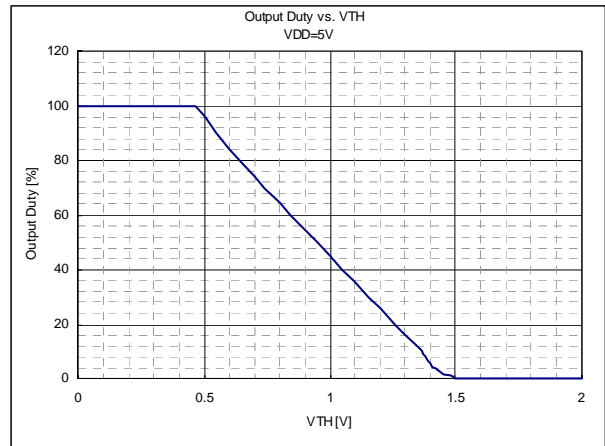
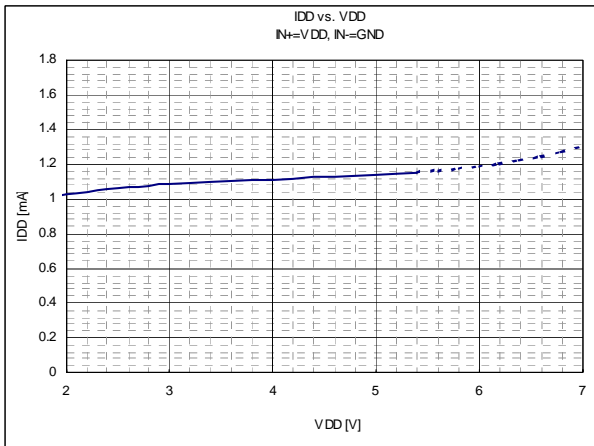
TYPICAL APPLICATION CIRCUIT



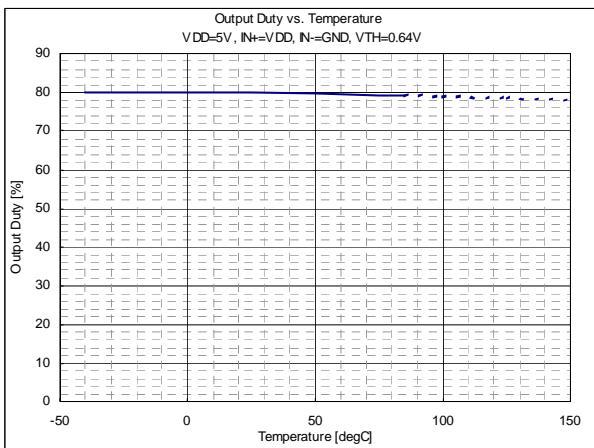
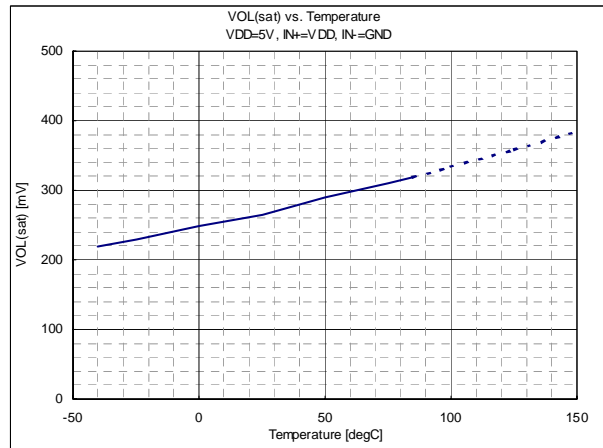
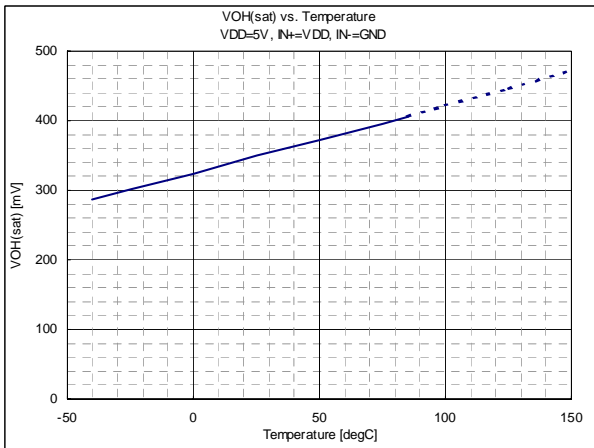
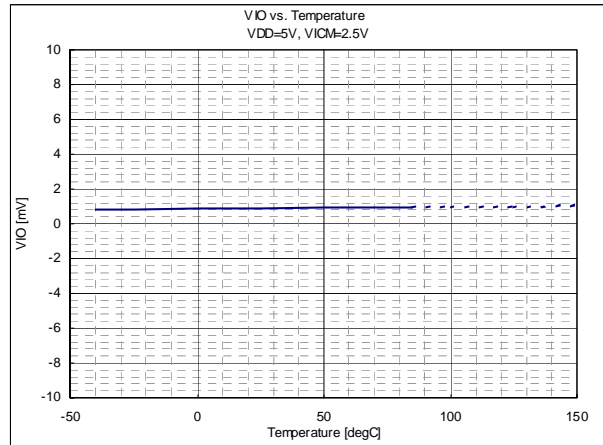
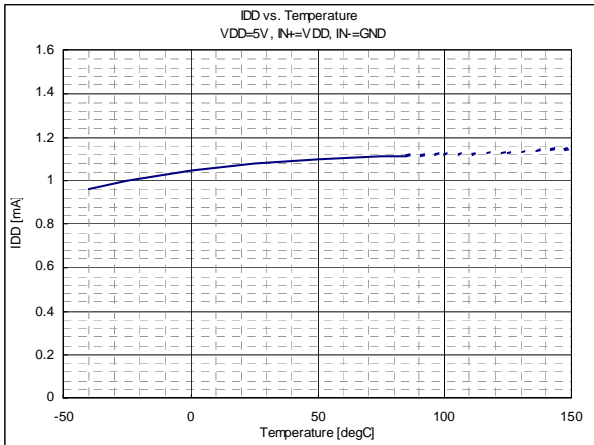
POWER DISSIPATION vs. AMBIENT TEMPERATURE



TYPICAL CHARACTERISTICS



TYPICAL CHARACTERISTICS



[CAUTION]
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