

*ASSP*

# BIDIRECTIONAL MOTOR DRIVER

## MB3763H

### ■ DESCRIPTION

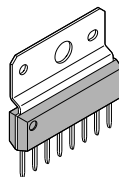
Fujitsu's MB3763H Motor Driver with forward/reverse control capability, is used in applications such as the front-loading mechanism in video cassette recorder or the auto-reverse tape deck, driven by a TTL signal. The MB3763H has 300 mA drive units and braking capability with TTL control. The MB3736H has wider power supply voltage range comparison with MB3763H. Suitable for 24V monitors for office automation equipments.

### ■ FEATURES

- Motor Drive current: 300 mA maximum
- Wide Power Supply Voltage Range: 4V to 28V
- TTL-control capability
- Standby capability when input is off.
- Brake capability at motor stop mode.
- Built-in diode for surge absorption.
- Package: 8-pin plastic SIP package (Suffix: -PS)

### ■ PACKAGE

Plastic SIP, 8 pin

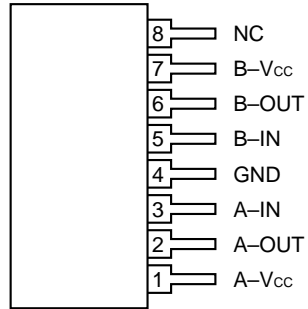


(SIP-08P-M01)

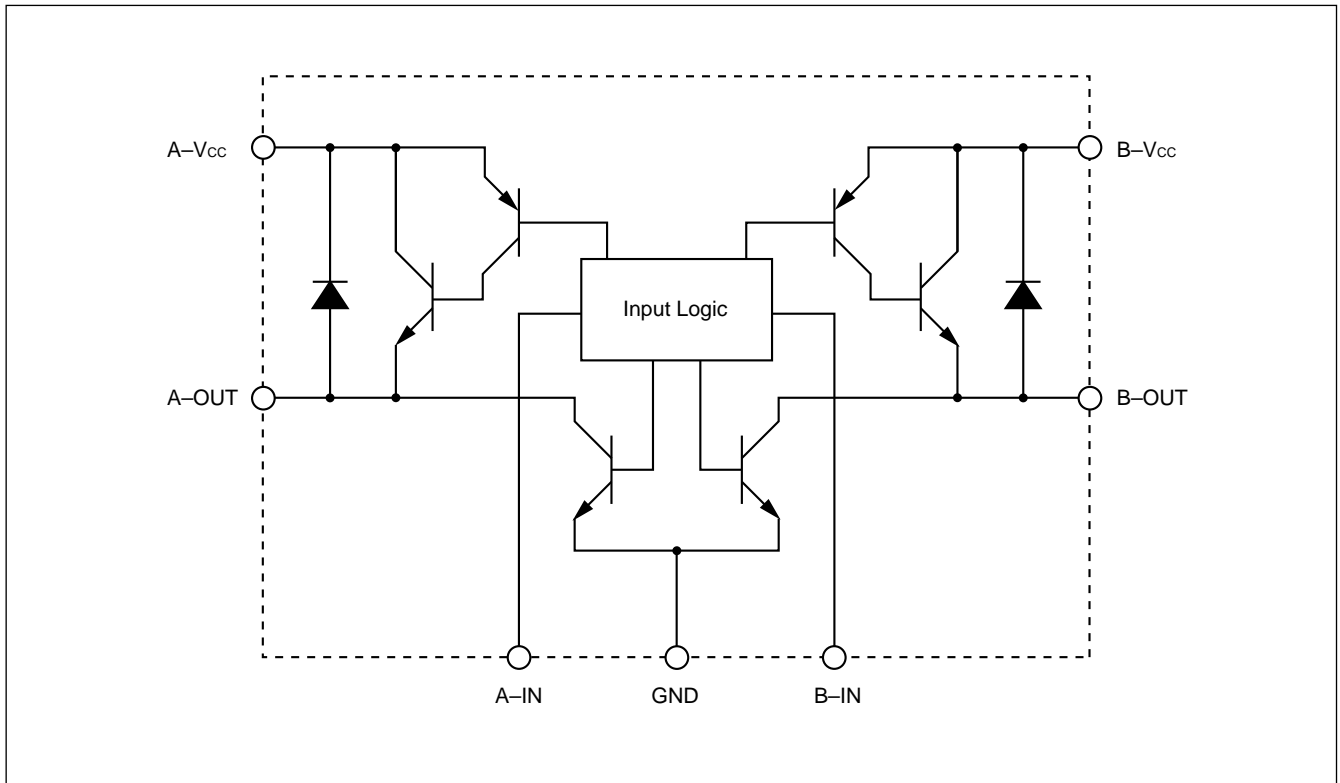
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## ■ PIN ASSIGNMENT

(FRONT VIEW)



## ■ BLOCK DIAGRAM



# MB3763H

## ■ ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Power Supply Voltage	V <sub>CC</sub>	28	V
Output Current	I <sub>O</sub>	550* <sup>1</sup>	mA
Maximum Output Current	I <sub>O</sub> MAX* <sup>3</sup>	1.2	A
Power Dissipation	P <sub>D</sub>	2* <sup>2</sup>	W
Operating Temperature	T <sub>C</sub>	-20 to +75	°C
Storage Temperature	T <sub>STG</sub>	-55 to +125	°C

Notes: \*1  $t_{on} \leq 1$  sec, Duty = 50%

\*2  $T_a \leq 30^\circ\text{C}$

\*3  $t \leq 5$  ms

Permanent device damage may occur if the above Absolute Maximum Ratings are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

## ■ RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Value	Unit
Power Supply Voltage	V <sub>CC</sub>	4 to 28	V
Output Current	I <sub>O</sub>	0 to 300 (500* <sup>1</sup> )	mA
Input High Voltage	V <sub>IH</sub> * <sup>2</sup>	2.4 to V <sub>CC</sub> + 0.3	V
Input Low Voltage	V <sub>IL</sub>	0 to 0.4	V

Notes: \*1  $t_{on} \leq 1$  sec, Duty = 50%

\*2 When  $V_{IH} \geq V_{CC}$ ,  $I_{IH} \leq V_{CC} \times 0.2$  mA

## ■ ELECTRICAL CHARACTERISTICS

(V<sub>CC</sub> = 24V, I<sub>o</sub> = 300 mA, T<sub>a</sub> = 25°C)

Parameter	Symbol	Condition	Value			Unit
			Min	Typ	Max	
Standby Supply Current	I <sub>CC0</sub>	V <sub>CC</sub> = 24V, V <sub>IA</sub> = V <sub>IB</sub> = 0V	—	—	0.1	mA
Power Supply Current	I <sub>CC1</sub>	I <sub>o</sub> = 0mA	—	12	27	mA
	I <sub>CC2</sub>	I <sub>o</sub> = 300mA	—	15	—	mA
	I <sub>CC3</sub>	I <sub>o</sub> = 0mA, V <sub>IA</sub> = V <sub>IB</sub> = 2.4V	—	18	—	mA
Output High Voltage	V <sub>OH</sub>	—	22.8	23.1	—	V
Output Low Voltage	V <sub>OL</sub>	—	—	0.2	0.5	V
Output Saturation Voltage	V <sub>SAT</sub>	—	—	1.1	1.7	V
Input Current	I <sub>IH</sub>	V <sub>IN</sub> = 2.4V	—	250	400	μA
Input Switching Prohibition Time	T <sub>OFF</sub>	—	10	—	—	μs

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## FUNCTIONAL DESCRIPTIONS

### FORWARD/REVERSE MODE (MODE B & C)

In this mode, the transistor pairs Q2-Q3 and Q1-Q4 work alternatively, changing the output current direction.

When the mode B is selected, Q2 and Q3 are active and Q1 and Q4 are inactive. Therefore A-OUT is at low level and B-OUT is at high level, with the current flowing from B-OUT to A-OUT through the motor. On the other hand, when the mode C is selected, the current flows in the reverse direction.

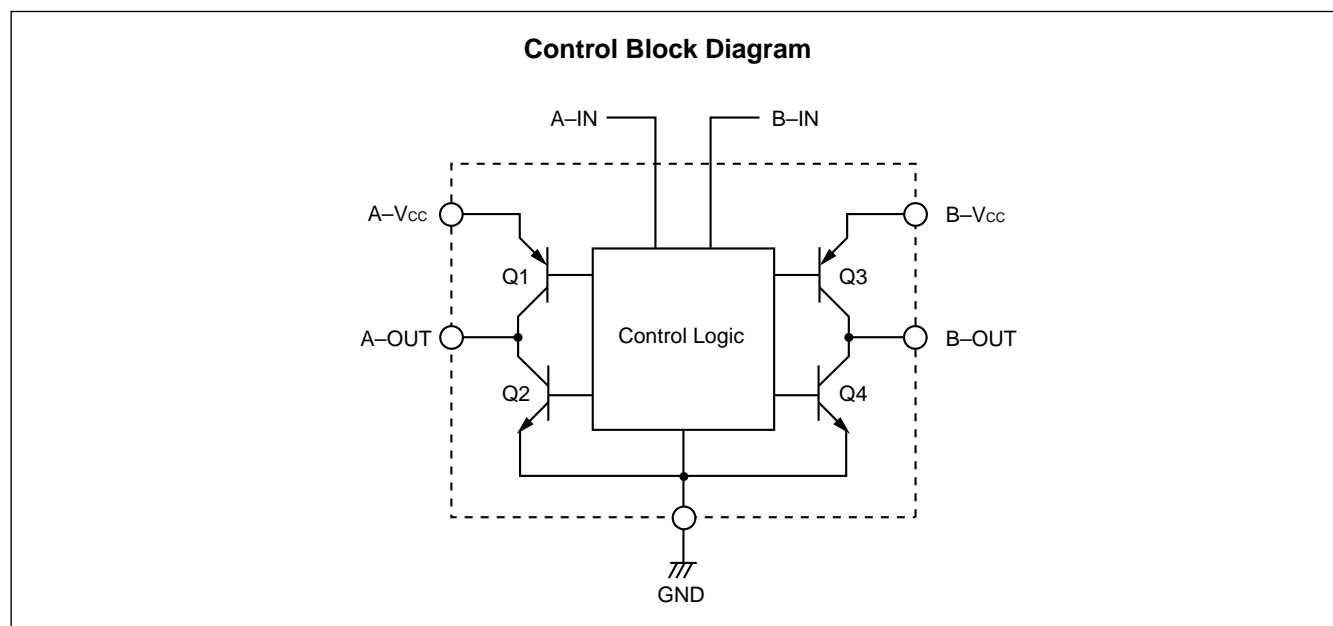
### BRAKE/STOP MODE (MODE A)

When the mode A is selected, Q1 and Q3 are inactive and Q2 and Q4 are active. A-OUT and B-OUT are stuck at low-level; terminal of motor are shorted and the motor is forced to stop.

### STANDBY MODE (MODE D)

In this mode, all transistors are inactive and the current through the motor does not flow. When the power supply voltage is applied to A-Vcc and B-Vcc, the supply current is still less than or equal to 0.1 mA.

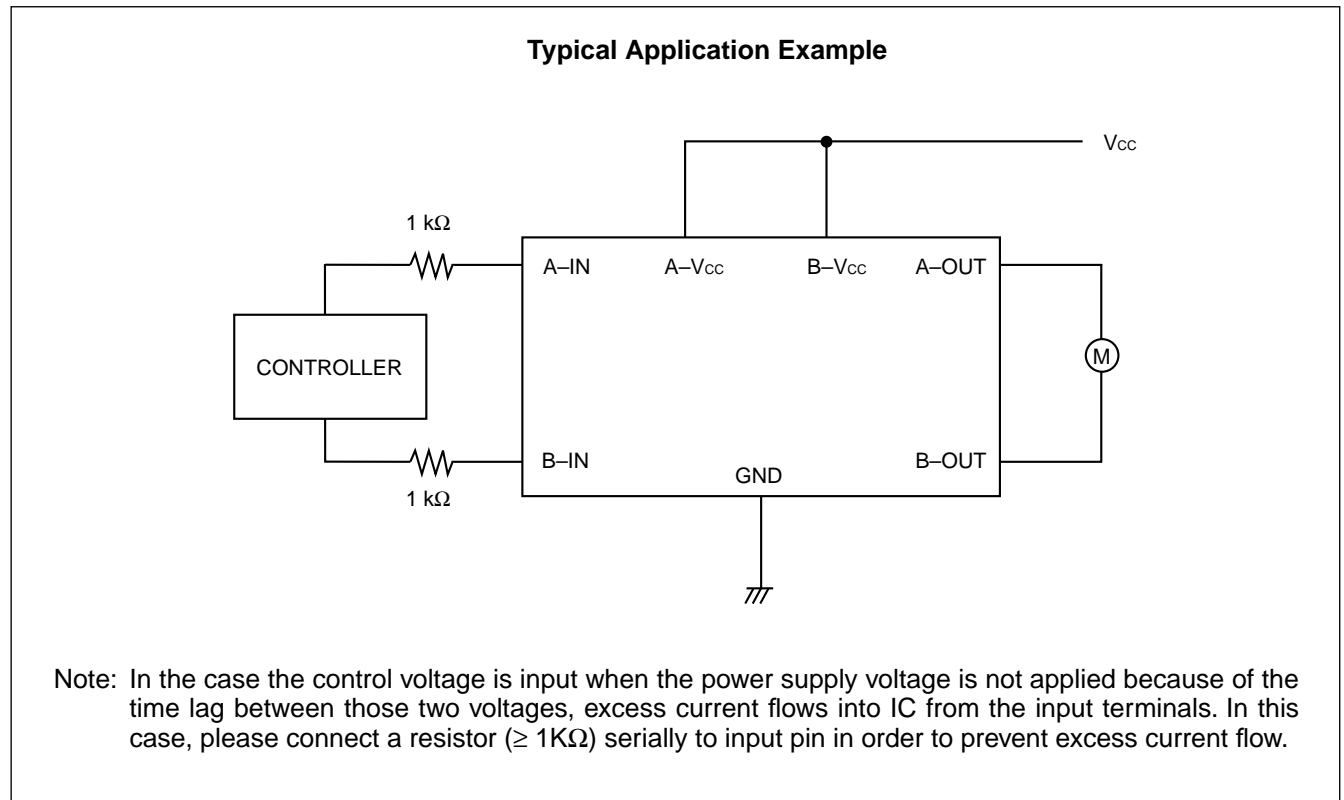
## CONTROL MODE



Mode	Input mode		Output mode		Operation
	A-IN	B-IN	A-OUT	B-OUT	
A	1	1	L	L	Short (Brake)
B	1	0	L	H	Forward
C	0	1	H	L	Reverse
D	0	0	—	—	Open (Standby)

Notes: 1:  $\geq 2.4V$   
0:  $\leq 0.4V$

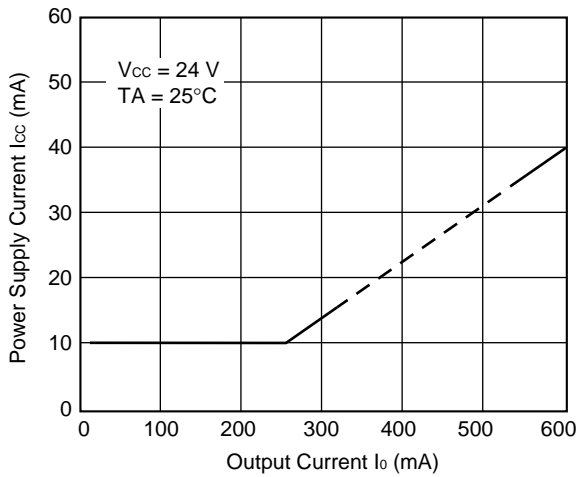
## ■ TYPICAL APPLICATION



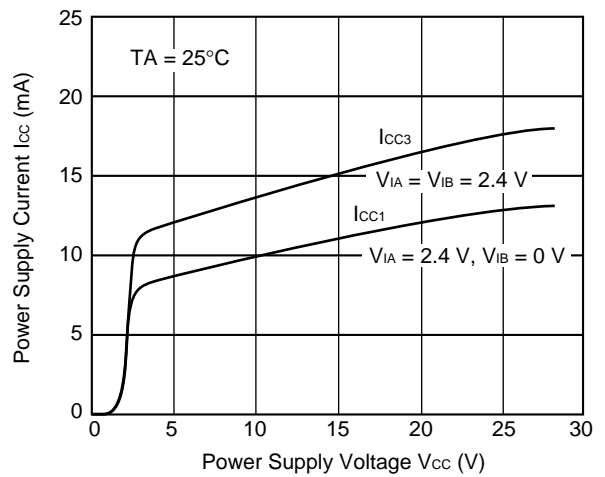
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## ■ TYPICAL PERFORMANCE CHARACTERISTICS

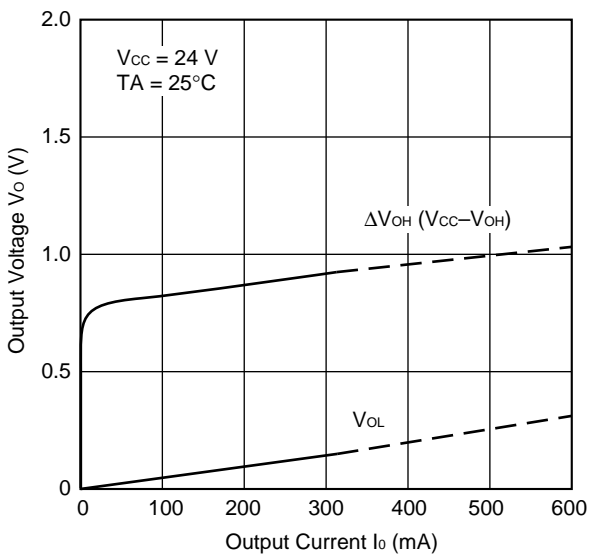
Output Current vs. Power Supply Current



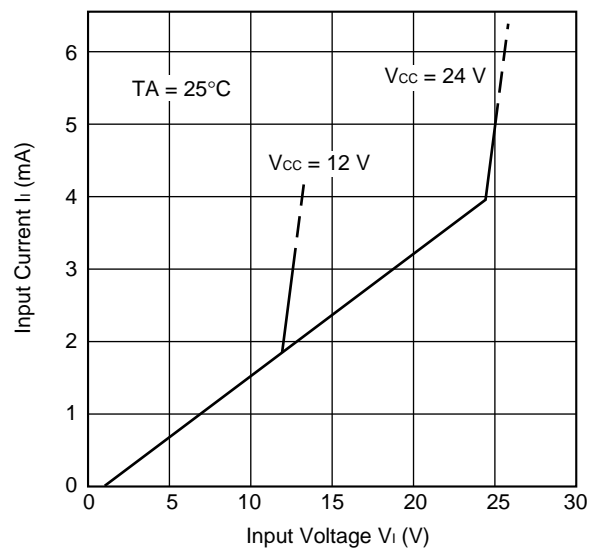
Power Supply Voltage vs. Power Supply Current



Output Current vs. Output Voltage



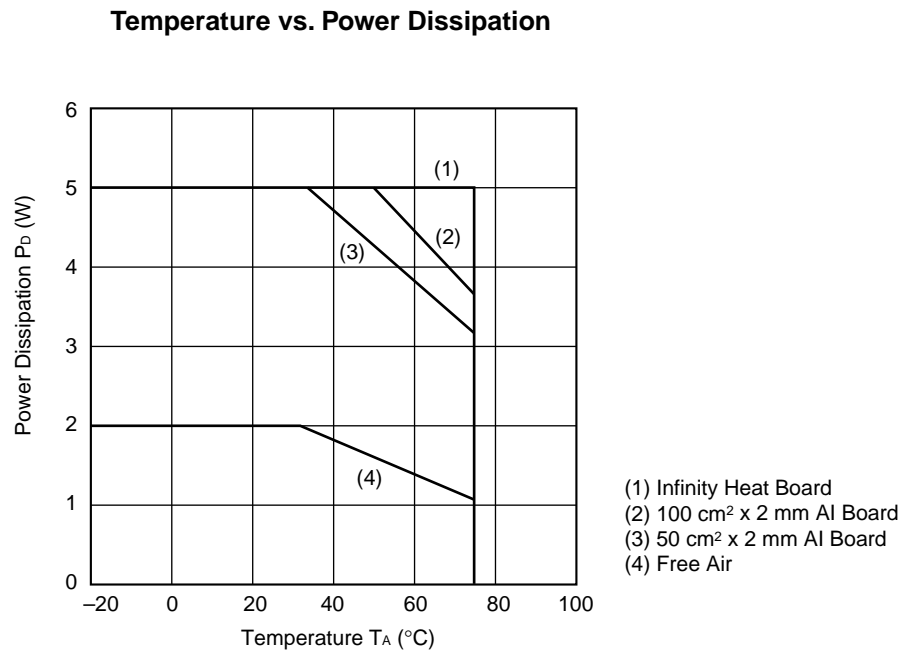
Input voltage vs. Input Current



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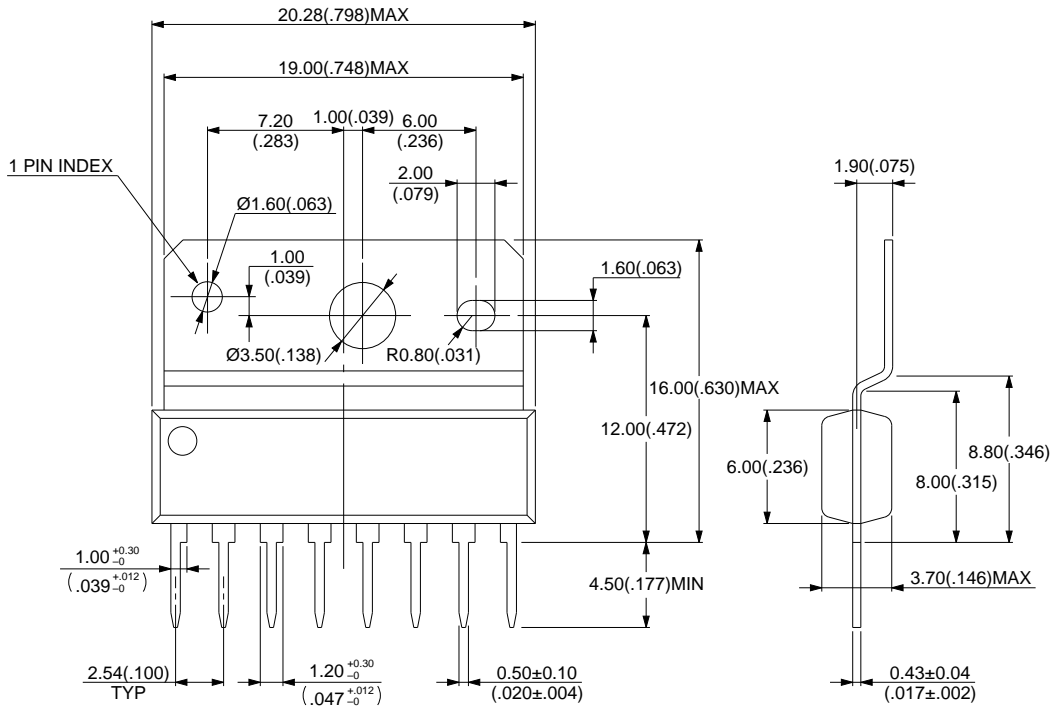
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## ■ PACKAGE DIMENSIONS

Plastic SIP, 8 pin  
(SIP-08P-M01)



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