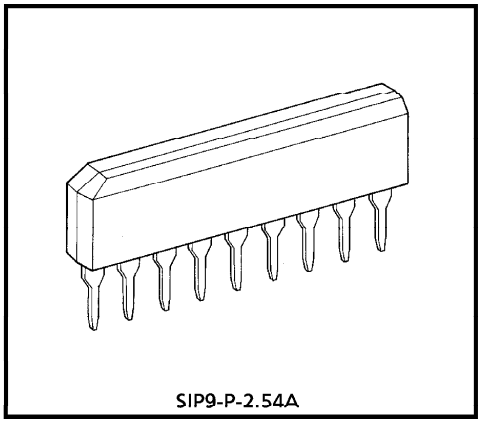
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

TA7354P

BRIDGE DRIVER

The TA7354P is a Bridge Driver for blashed DC Motor Rotation control.
Forward Rotation, Reverse Rotation, Stop and Braking operations are available.
It's designed for Loading and Reel Motor driver for VTR and Tape Deck, and any other consumer and industrial applications.
TA7354P have Operation Supply Voltage terminal and Motor Driving Supply Voltage terminal independently, therefore Servo control operation is applicable.



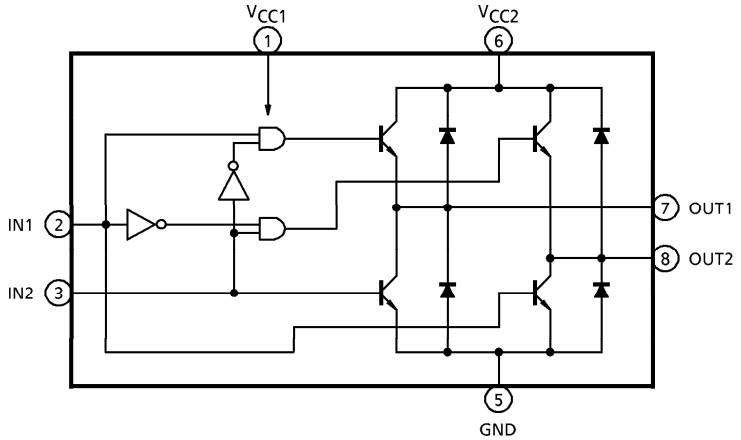
SIP9-P-2.54A

Weight : 0.92g (Typ.)

FEATURES

- Output Current Up to 0.2A (AVE.), and 0.6A (PEAK).
- 4 Function Modes (CW, CCW, STOP and Brake) are Controlled by 2 Logic Signals Fed Into 2 Input Terminals.
- Operating Voltage Range : V_{CC} = 6~15V

BLOCK DIAGRAM



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PIN FUNCTION

PIN No.	SYMBOL	FUNCTIONAL DESCRIPTION
1	V_{CC1}	Supply voltage terminal for control part
2	IN1	input terminal-1
3	IN2	input terminal-2
4	—	No. connection
5	GND	GND terminal
6	V_{CC2}	Supply voltage terminal for output part
7	OUT1	Output terminal-1
8	OUT2	Output terminal-2
9	—	No. connection

FUNCTION

IN1	IN2	OUT1	OUT2	MODE
1	1	L	L	Brake
0	1	L	H	CW / CCW
1	0	H	L	CCW / CW
0	0	High Impedance		Stop

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage	PEAK	$V_{CC\ (MAX.)}$	18	V
	OPERATE	$V_{CC\ (ope.)}$	15	
Output Current	PEAK	$I_{O\ (PEAK)}$	0.6	A
	AVE.	$I_{O\ (AVE.)}$	0.2	
Power Dissipation		P_D (*)	0.75	W
Operating Temperature		T_{opr}	−30~75	°C
Storage Temperature		T_{stg}	−55~150	°C

(*) No Heat Sink

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current		I_{CC1}	—	$V_{CC1} = V_{CC2} = 15V$, $I_O = 0.2A$ Drive mode	—	22	33	mA
		I_{CC2}		$V_{CC1} = V_{CC2} = 15V$, Brake mode	—	30	38	
		I_{CC3}		$V_{CC1} = V_{CC2} = 15V$, Stop mode	—	0.2	1	
Saturation Voltage	Upper	$V_{S1\ U}$	—	$V_{CC1} = V_{CC2} = 15V$, $I_O = 0.1A$	—	0.8	1.05	V
	Lower	$V_{S1\ L}$			—	0.15	0.25	
	Upper	$V_{S2\ U}$		$V_{CC} = V_{CC2} = 15V$, $I_O = 0.2A$	—	0.9	1.2	
	Lower	$V_{S2\ L}$			—	0.3	0.5	
Leakage Current	Upper	$I_{L\ U}$	—	V = 15V	—	—	20	μA
	Lower	$I_{L\ L}$			—	—	20	
Input Voltage 1, 2		$V_{IN\ (H)}$	—	T_j = 25°C, Pin① and pin②	2.0	—	—	V
		$V_{IN\ (L)}$			—	—	0.8	
Input Current 1, 2		$I_{IN1,\ 2}$	—	V_{IN} = 4.5V	—	—	350	μA
Diode Forward Voltage		$V_{F\ U}$	—	I_F = 0.2A	—	1.2	1.6	V
		$V_{F\ L}$			—	1.0	1.3	

APPLICATION CIRCUIT

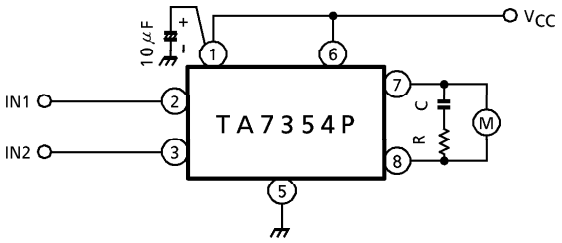


Fig.1

(Note) Fig.1 shows the basic application circuit.
Optimum values of the C, R depend on the inherent constant of a motor and parasitic C, R values around the circuit.

APPLICATION NOTE

(1) Input circuit

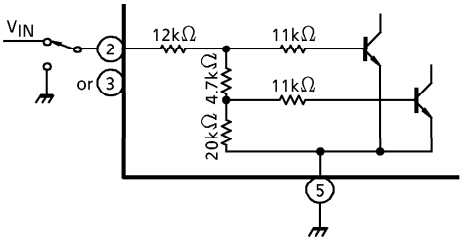


Fig.2

Input circuit is shown in Fig.2. It's a "High Active" type.
If a voltage above specified $V_{IN\,(H)}$ value fed into input terminal that means "Logic 1", and the voltage less than $V_{IN\,(L)}$ or connect to GND means "Logic 0".
And the circuit have a hysteresis for stable operation. (See Fig.1)

(2) If the braking operation is so loose, connect a additional diode between each output to GND. (See Fig.3)

(3) If the back electromotive pulse generated in output coil is so strong.
Internally connected back electromotive suppression diode may be damaged by this pulse.
In such a case connect a additional diode between each output to V_{CC}. (See Fig.4)

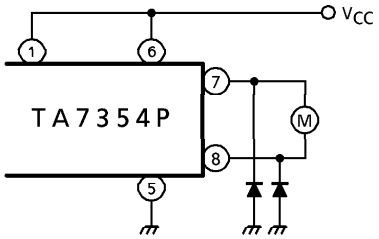


Fig.3

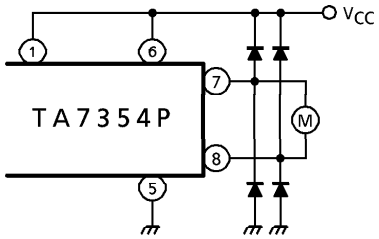


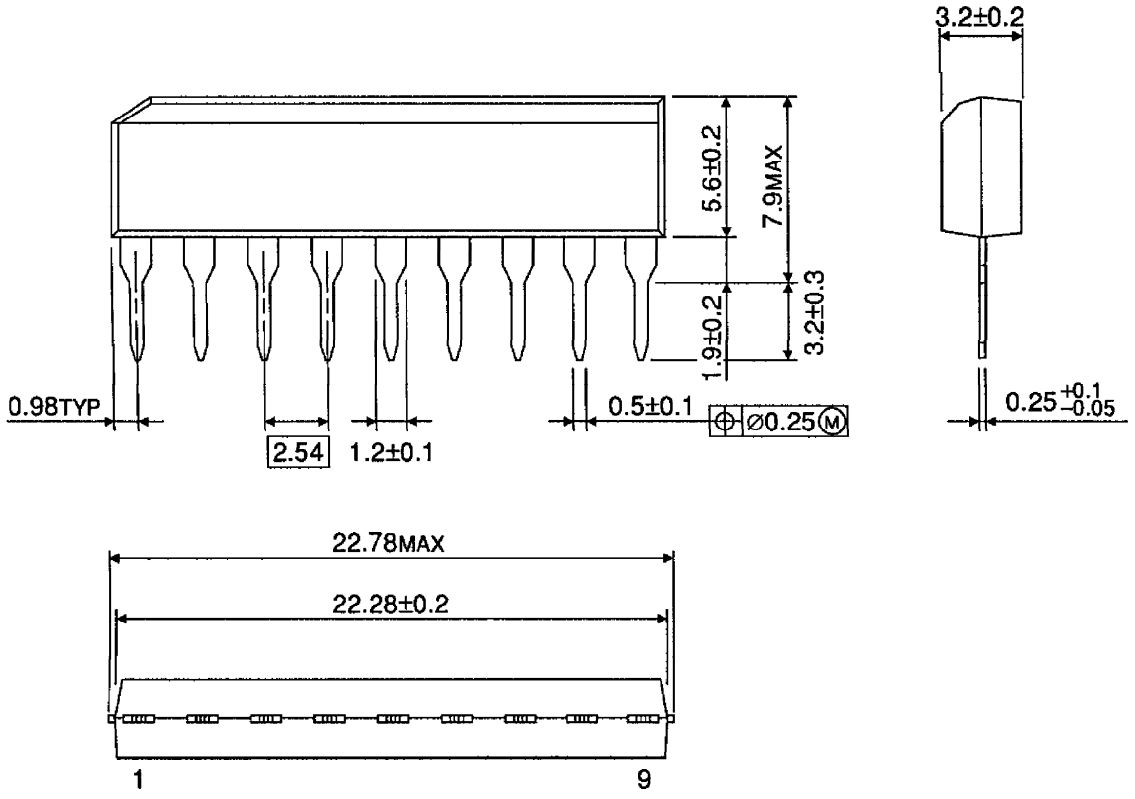
Fig.4

(4) Utmost care is necessary in the design of the output line, V_{CC} and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

OUTLINE DRAWING

SIP9-P-2.54A

Unit : mm



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