

TA7288P

DUAL BRIDGE DRIVER

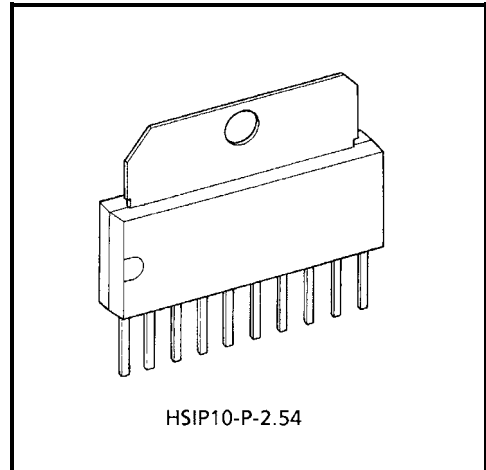
The TA7288P is a bridge driver that is ideal for normal / reverse switching.

This circuit offers four modes: normal rotation, reverse rotation, stop, and brake.

The output current is 1.0 A (AVE.) and 2.0 A (PEAK). TA7288P has an ideal circuit configuration for VCR front tape loading and offers two types of power supply pins. One is for output, the other for control. The V_{ref} pin on the output side used to control the motor voltage facilitates motor voltage adjustment. The IC requires little input current, enabling direct connection with CMOS.

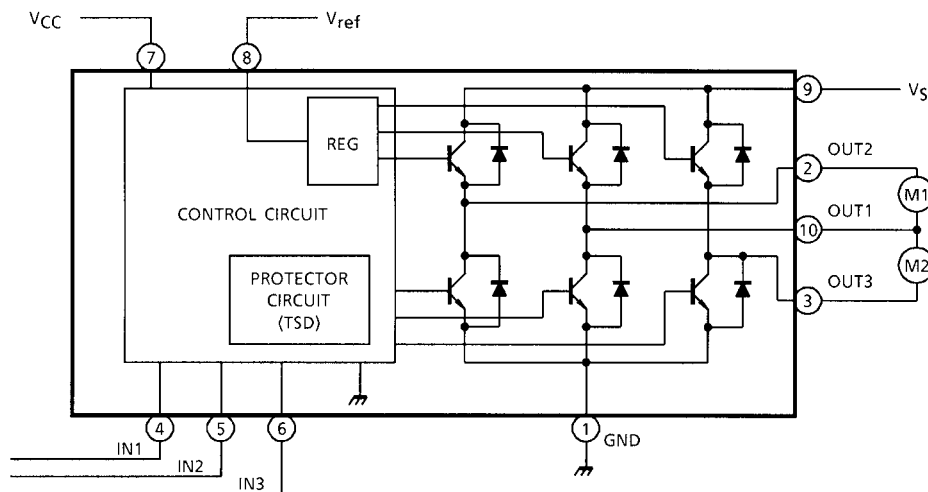
FEATURES

- 4 Modes Available (CW / CCW / STOP / BRAKE)
- Output Current Up to 1.0 A (AVE.) and 2.0 A (PEAK)
- Wide Range of Operating Voltage: V_{CC} (opr.) = 4.5~18 V
 V_S (opr.) = 0~18 V
 V_{ref} (opr.) = 0~18 V
- Build in Thermal Shutdown, Over Current Protector and Punch-Through Current Restriction Circuit.
- Hysteresis for All Inputs.



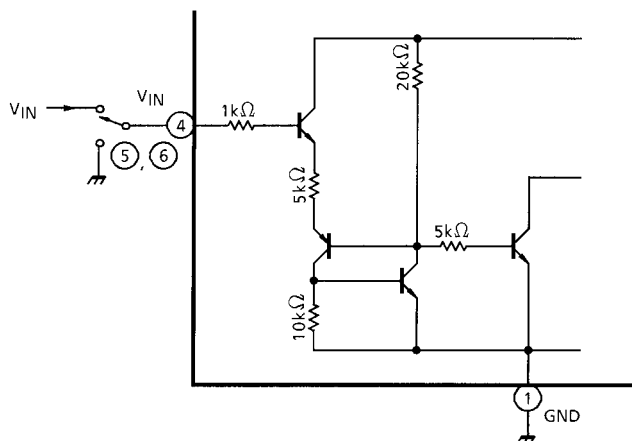
Weight: 2.47 g (Typ.)

BLOCK DIAGRAM



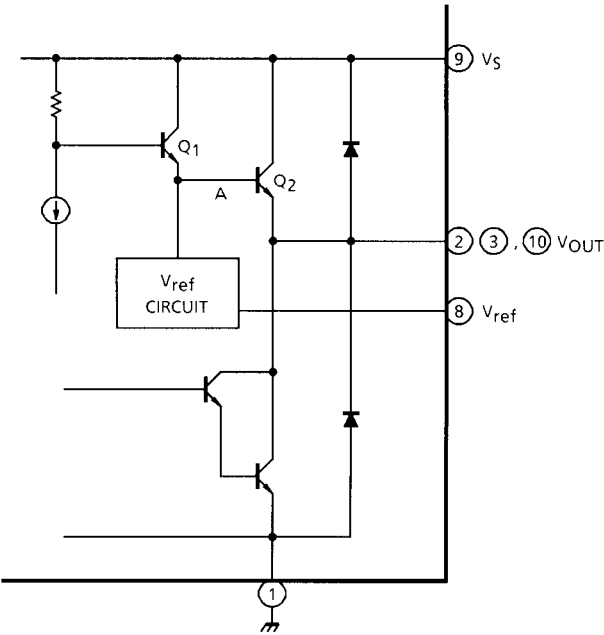
PIN FUNCTION

PIN No.	SYMBOL	FUNCTIONAL DESCRIPTION
1	GND	GND terminal
2	OUT2	Output terminal
3	OUT3	Output terminal
4	IN1	Input terminal
5	IN2	Input terminal
6	IN3	Input terminal
7	V _{CC}	Supply voltage terminal for Logic
8	V _{ref}	Supply voltage terminal for control
9	V _S	Supply voltage terminal for Motor drive
10	OUT1	Output terminal

INPUT CIRCUIT


Input terminals of pin (4), (5) and pin (6) are all high active type and have a hysteresis of 0.7 V (Typ.) 5 μ A type of source mode input current is required.

OUTPUT CIRCUIT



Output voltage is controlled by V_{ref} voltage. Relationship between V_{OUT} and V_{ref} is
 $V_{OUT} = V_{BE} (\approx 0.7) + V_{ref}$
 V_{ref} terminal required to connect to V_S terminal for stable operation in case of no requirement of V_{OUT} control.

FUNCTION

INPUT			OUTPUT			MODE	
IN1	IN2	IN3	OUT1	OUT2	OUT3	M1	M2
0	0	1 / 0	L	L	L	BRAKE	BRAKE
1	0	0	H	L	∞	CW / CCW	STOP
1	0	1	L	H	∞	CCW / CW	STOP
0	1	0	H	∞	L	STOP	CW / CCW
0	1	1	L	∞	H	STOP	CCW / CW
1	1	1 / 0	L	L	L	BRAKE	BRAKE

∞ : High impedance
Note: Inputs are all high active type.

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC		SYMBOL	RATING	UNIT
Supply Voltage		V _{CC}	25	V
Motor Drive Voltage		V _S	25	V
Reference Voltage		V _{ref}	25	V
Output Current	PEAK	I _O (PEAK)	2.0 (Note 1)	A
	AVE.	I _O (AVE.)	1.0	A
Power Dissipation		P _D	12.5 (Note 2)	W
Operating Temperature		T _{opr}	-30~75	°C
Storage Temperature		T _{stg}	-5~150	°C

Note 1: Duty 1 / 10, 100 ms

Note 2: T_c = 25°C

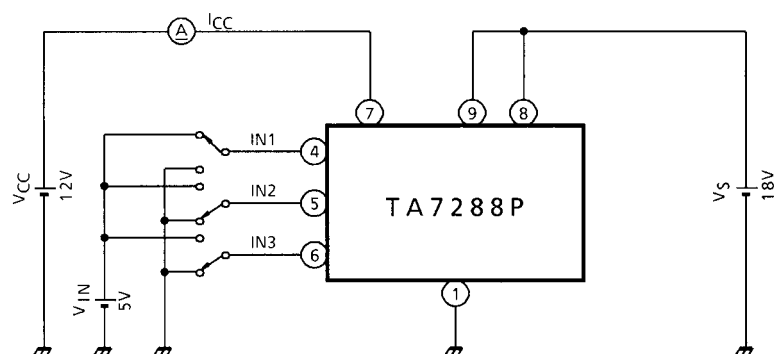
ELECTRICAL CHARACTERISTICS

(Unless otherwise noted, Ta = 25°C, V_{CC} = 12 V, V_S = 18 V)

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN	TYP.	MAX	UNIT
Supply Current		I _{CC1}	1	Output OFF CW / CCW mode	—	17	30	mA
		I _{CC2}	1	Output OFF Brake mode	—	13	25	
Input Voltage	1 (High)	V _{IN} (H)	2	T _j = 25°C pin (4), (5), (6)	3.5	—	5.5	V
	2 (Low)	V _{IN} (L)	2	T _j = 25°C pin (4), (5), (6)	GND	—	0.8	
Input Current		I _{IN}	2	V _{IN} = 3.5 V, Sink mode	—	5	20	μA
Input Hysteresis Voltage		ΔV _T	2	—	—	0.7	—	V
Saturation Voltage	Upper	V _{SATU-1}	3	V _{ref} = V _S , V _S - V _{out} , I _O = 0.2 A	—	0.9	1.2	V
	Lower	V _{SATL-1}	3	V _{ref} = V _S , V _{out} - GND, I _O = 0.2 A	—	1.0	1.3	V
	Upper	V _{SATU-2}	3	V _{ref} = V _S , V _S - V _{out} , I _O = 1.0 A	—	1.3	1.6	V
	Lower	V _{SATL-2}	3	V _{ref} = V _S , V _{out} - GND, I _O = 1.0 A	—	1.8	2.5	V
Output Voltage		V _{SATU-1'}	3	V _{ref} = 10 V, V _{out} - GND, I _O = 0.5 A	10.7	11.0	11.8	V
		V _{SATU-2'}	3	V _{ref} = 10 V, V _{out} - GND, I _O = 1.0 A	10.4	10.7	11.5	V
Leakage Current	Upper	I _L U	—	V _S = 25 V	—	—	50	μA
	Lower	I _L L	—	V _S = 25 V	—	—	50	
Diode Forward Voltage	Upper	V _F U	4	I _F = 1 A	—	2.2	—	V
	Lower	V _F L	4	I _F = 1 A	—	1.4	—	
Reference Current		I _{ref}	2	V _{ref} = 10 V, Source mode	—	5	30	μA

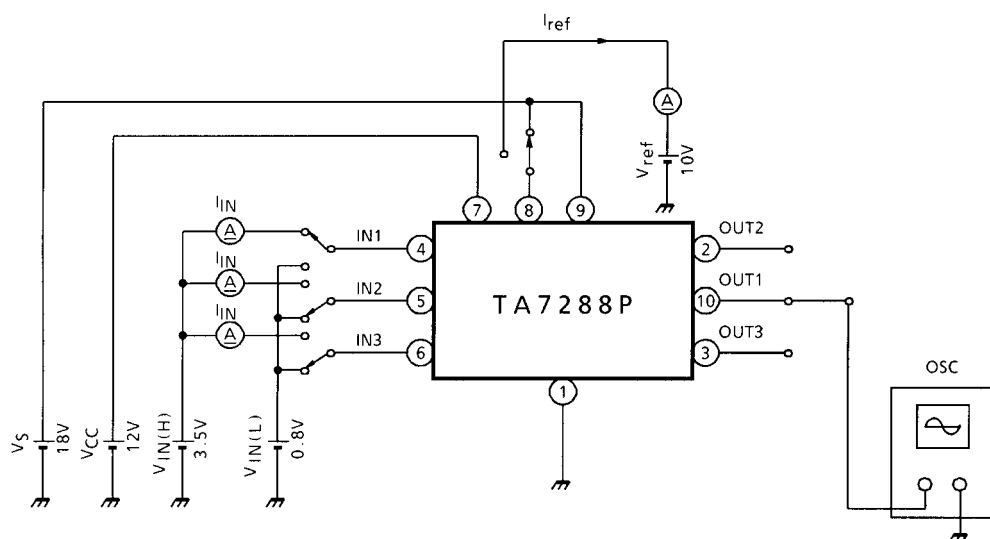
TEST CIRCUIT 1.

$I_{CC1, 2}$



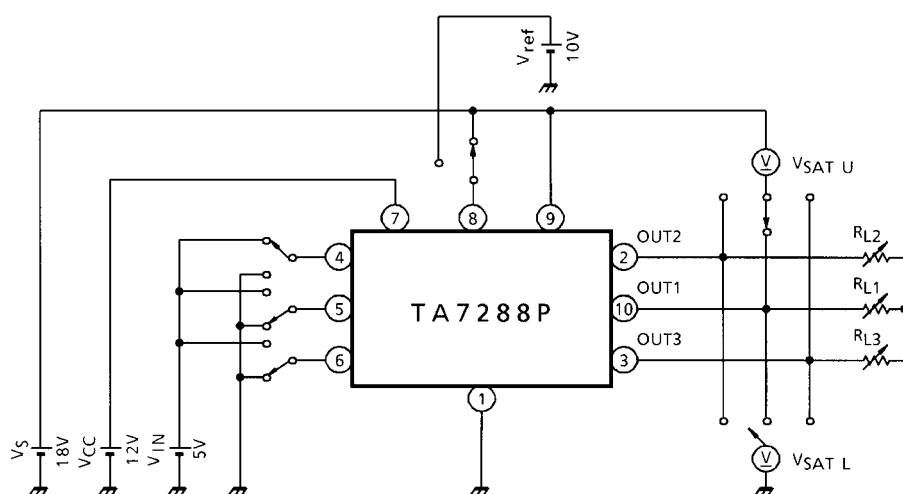
TEST CIRCUIT 2.

$V_{IN(H)}$, $V_{IN(L)}$, I_{IN} , ΔV_T , I_{ref}



TEST CIRCUIT 3.

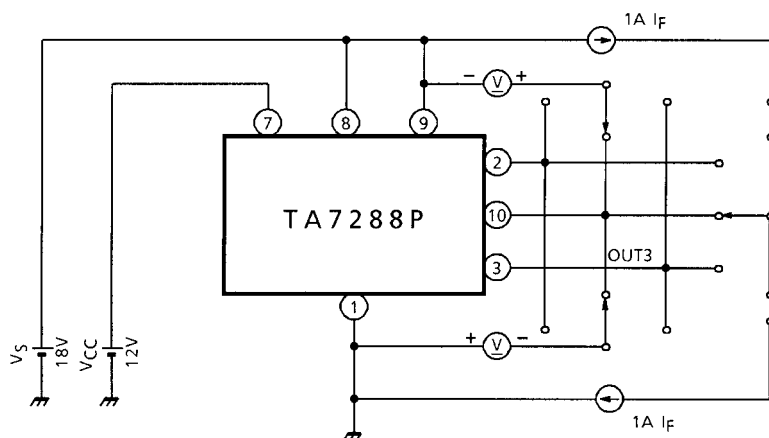
$V_{SAT\ U-1, L-1, U-2, L-2, U-1', U-2'}$

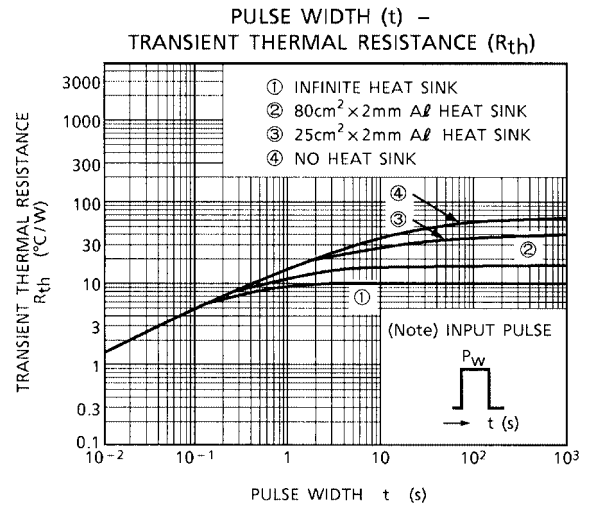
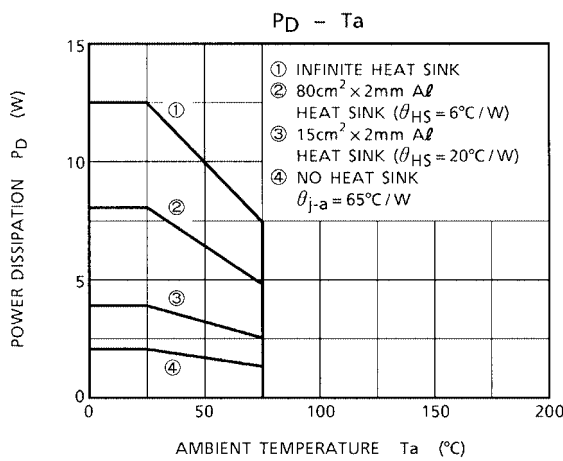


I_O calibration is required to adjust specified values of test conditions by $R_{L1} \sim R_{L3}$.

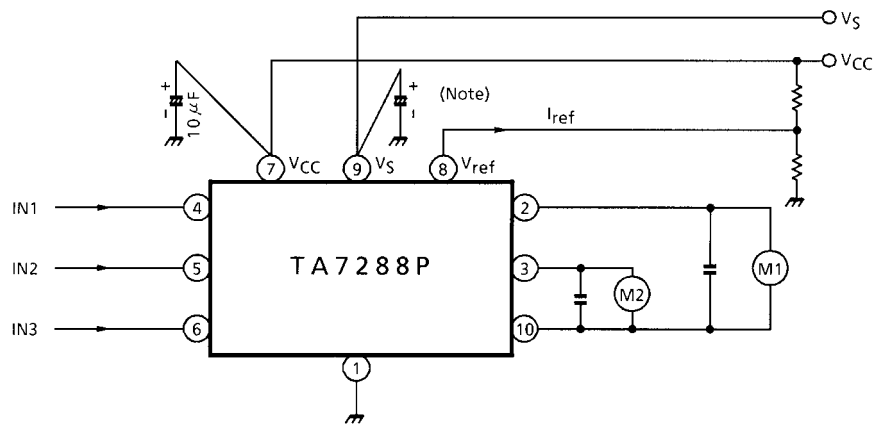
TEST CIRCUIT 4.

$V_{F\ U, L}$





APPLICATION CIRCUIT



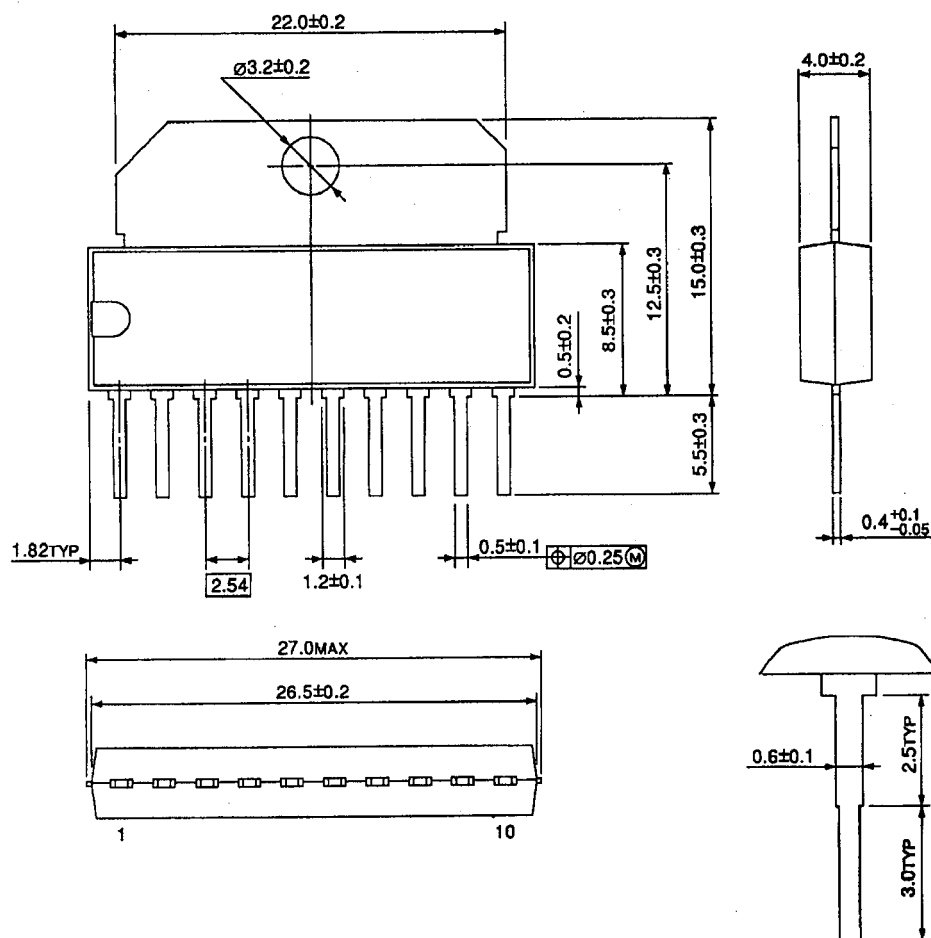
Note 1: Connect if required

Note 2: Utmost care is necessary in the design of the output line, V_S and GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

PACKAGE DIMENSIONS

HSIP10-P-2.54

Unit: mm



Weight: 2.47 g (Typ.)

RESTRICTIONS ON PRODUCT USE

000707EBA

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