

KIA7288P

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

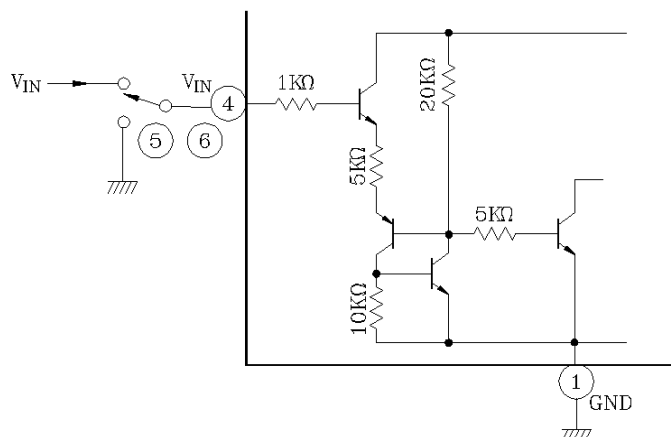
ELECTRICAL CHARACTERISTICS

(Unless otherwise specified, V_{CC}=12V, V_S=18V, T_a=25℃)

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 _{INH}	2	T _j =25℃ pin④, ⑤, ⑥	3.5	-	5.5	V
	2 (Low)	V _{INL}	2	T _j =25℃ pin④, ⑤, ⑥	GND	-	0.8	
Input Current		I _{IN}	2	V _{IN} =3.5V, Sink mode	-	5	20	μA
Input Hysteresis Voltage		ΔV _T	2	-	-	0.7	-	V
Saturation Voltage	Upper	V _{SAT U-1}	3	V _{ref} =V _S , V _S -V _{out} , I _O =0.2A	-	0.9	1.2	V
	Lower	V _{SAT L-1}	3	V _{ref} =V _S , V _{out} -GND, I _O =0.2A	-	1.0	1.3	V
	Upper	V _{SAT U-2}	3	V _{ref} =V _S , V _S -V _{out} , I _O =1.0A	-	1.3	1.6	V
	Lower	V _{SAT L-2}	3	V _{ref} =V _S , V _{out} -GND, I _O =1.0A	-	1.8	2.5	V
Output Voltage		V _{SAT U-1}	3	V _{ref} =10V, V _{out} -GND, I _O =0.5A	10.7	11.0	11.8	V
		V _{SAT U-2}	3	V _{ref} =10V, V _{out} -GND, I _O =1.0A	10.4	10.7	11.5	V
Leakage Current	Upper	I _{LU}	-	V _S =25V	-	-	50	μA
	Lower	I _{LL}	-	V _S =25V	-	-	50	
Diode Forward Voltage	Upper	I _{FU}	4	I _F =1A	-	2.2	-	V
	Lower	I _{FL}	4	I _F =1A	-	1.4	-	
Reference Current		I _{ref}	2	V _{ref} =10V, Source mode	-	5	30	μA

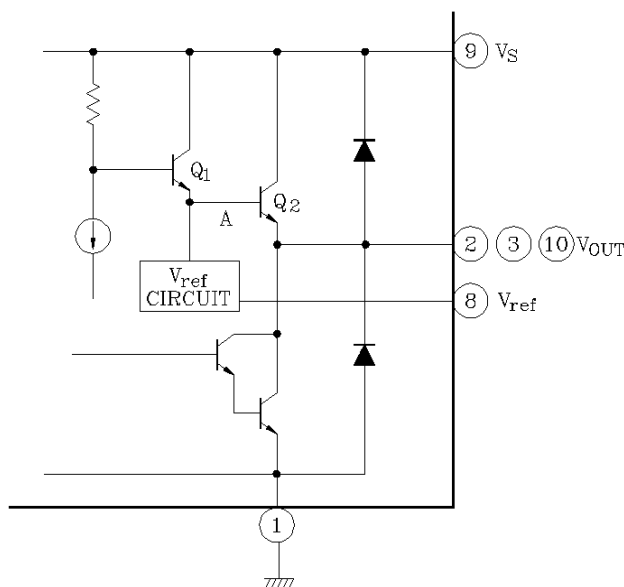
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INPUT CIRCUIT



Input terminals of pin ④, ⑤ and pin ⑥ are all high active type and have a hysteresis of 0.7V (Typ.) 5μA 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

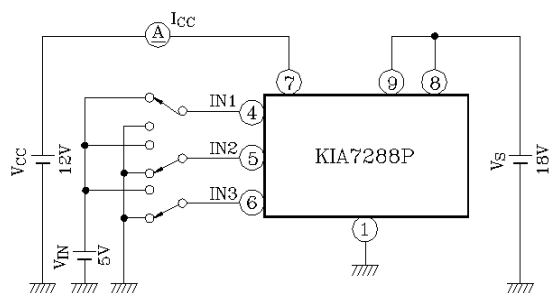
∞ : High Impedance

(Note) Inputs are all high active type.

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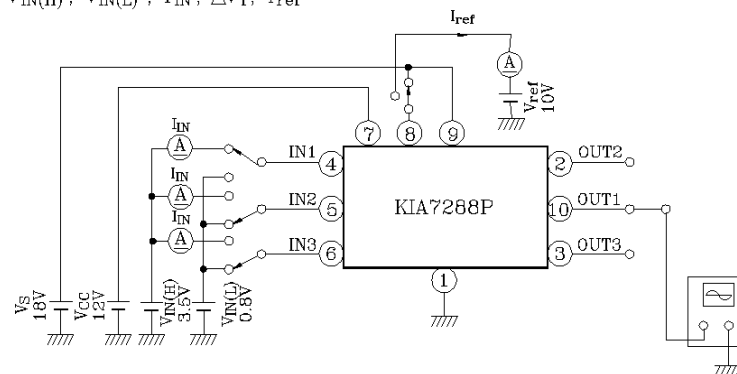
TEST CIRCUIT 1

$I_{CC1, 2}$



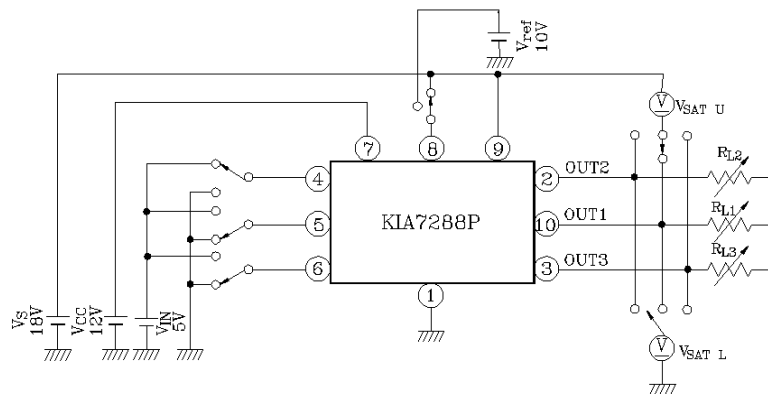
TEST CIRCUIT 2

$V_{IN(H)}, V_{IN(L)}, I_{IN}, \Delta V_T, I_{ref}$



TEST CIRCUIT 3

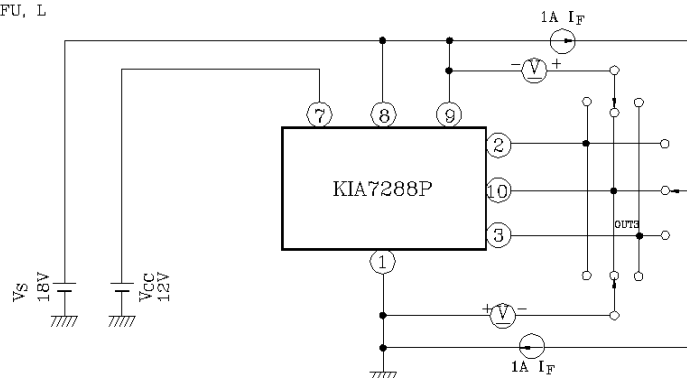
$V_{SAT} U-1, L-1, U-2, L-2, U-1', U-2'$



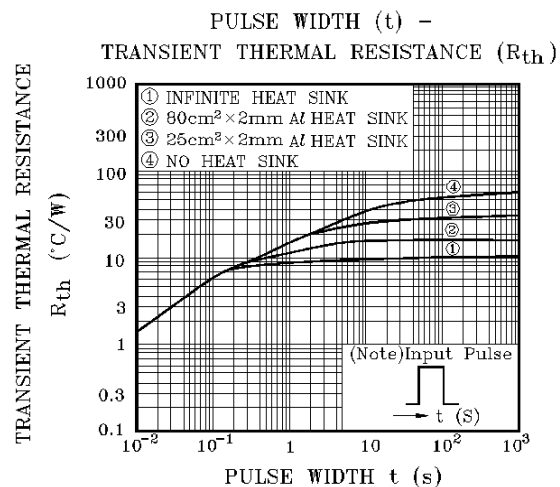
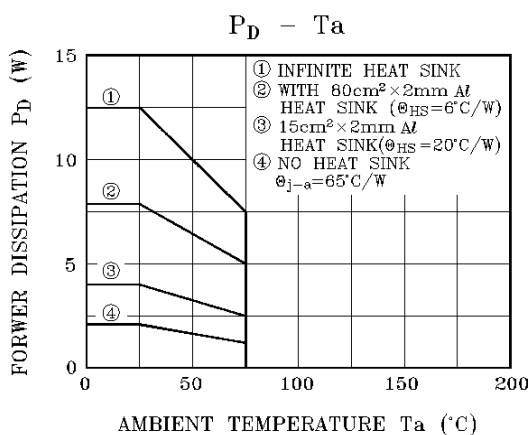
I_O calibration is required to adjust specified values of test conditions by $R_{L1} \sim R_{L3}$.

TEST CIRCUIT 4

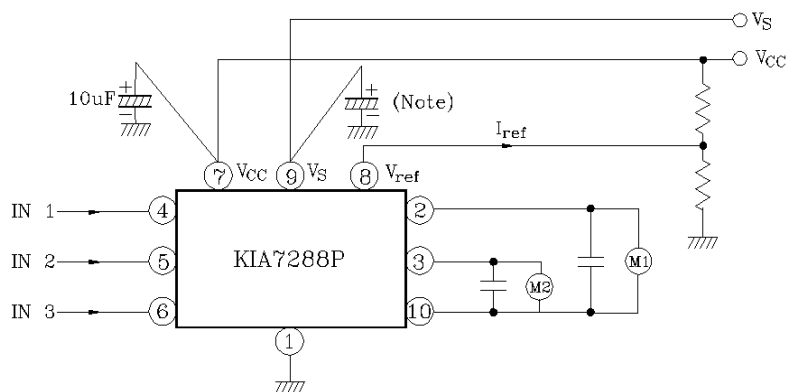
$V_{FU, L}$



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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.