

MTD2007F SPECIFICATION

Absolute maximum rating(Ta=25deg)

Parameter	Symbol	Ratings	Unit
Logic supply	VCC	0 ~ 6	V
Logic input	V _{pha,I0,I1}	0 ~ VCC	V
Reference Input	V _{ref}	0 ~ VCC	V
Voltage	V _{CEO(SUS)}	50	V
Diode voltage	V _R	50	V
Output current	I _C	1	A
Diode current	I _F	1	A
Storage temperature	T _{stg}	(-40~150)	deg
Junction temperature	T _j	150	deg

Recommended operating condition

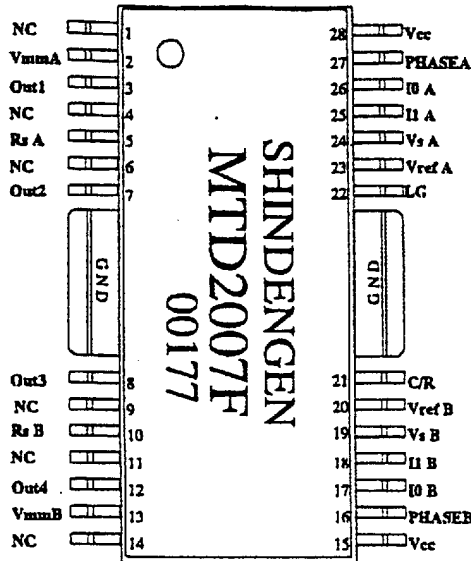
Parameter	Symbol	MIN	TYP	MAX	Unit
Logic Vcc	Vcc	4.5	5	5.5	V
Motor voltage V _{mm}	V _{mm}	10	-	45	V
Operating temperature	T _{j,op}	-25	-	120	DEG

Electric Characteristics(Ta=25deg)

Parameter	Symbol	Conditions	MIN	TYP	MAX	Unit
Logic supply current	I _{cc(ON)}	V _{cc} =5V	-	35	47	mA
	I _{cc(OFF)}	V _{cc} =5V, V(I0,I1)=5V	-	30	42	mA
Output stage supply current I _{mm} A+B	I _{mm(OFF)}	V _{cc} =5V, V(I0,I1)=5V, V _{mm} =45V	-	-	10	mA
Phase input voltage	V _{INH}	V _{cc} =5V	2.70	-	V _{cc}	V
	V _{INL}	V _{cc} =5V	GND	-	0.80	V
Phase input current	I _{INH}	V _{cc} =5V, V _{IN} =5V	-	-	10	uA
	I _{INL}	V _{cc} =5V, V _{IN} =0V	-	-1	-10	uA
I0,I1 input voltage	V(I0,I1)H	V _{cc} =5V	2.70	-	V _{cc}	V
	V(I0,I1)L	V _{cc} =5V	GND	-	0.80	V
I0,I1 input current	I(I0,I1)H	V _{cc} =5V, V(I0,I1)=5V	-	-	10	uA
	I(I0,I1)L	V _{cc} =5V, V(I0,I1)=0V	-	-2	-10	uA
Reference(V _{ref}) input current	I _{ref}	V _{cc} =5V, V _{ref} =0V	-	-1	-10	uA
Sence input current	I _{sense}	V _{cc} =5V, V _s =0V	-	-1	-10	uA
Comparator threshold(100%)	V _{s1}	V _{cc} =V _r =5V, V(I0)=0V, V(I1)=0V	0.475	0.5	0.525	V
Comparator threshold(70%)	V _{s2}	V _{cc} =V _r =5V, V(I0)=5V, V(I1)=0V	0.322	0.35	0.378	V
Comparator threshold(40%)	V _{s3}	V _{cc} =V _r =5V, V(I0)=0V, V(I1)=5V	0.18	0.2	0.22	V
Upper transistor saturation voltage	V _{ce(sat)H}	I _c =0.8A	-	1.30	1.50	V
Lower transistor saturation voltage	V _{ce(sat)L}	I _c =0.8A	-	1.20	1.40	V
Output leakage current	I _{reak}	V _{mm} =V _{ceo(sus)} V	-	-	10	uA
Upper diode forward drop	V _{F H}	I _f =0.8A	-	1.40	1.60	V
Lower diode forward drop	V _{F L}	I _f =0.8A	-	1.30	1.50	V
Chopping frequency	f _{chop}	V _{cc} =5V, C _t =4700pF, R _t =16kohm	-	20	-	kHz
Blanking time	t _b	V _{cc} =5V, C _t =4700pF, R _t =16kohm	-	2.5	-	uS
Maximam sensing voltage	V _{s(max)}	V _{cc} =5V	-	-	1.00	V
Thermal shutdown temperature		V _{cc} =5V	-	150	-	deg

				MANAGER <i>T. Wakabayashi</i>	Type Name: MTD2007F
1	Oct.12.1998	Y.I	Newly	CHKD <i>T. Ogino</i>	Code No: 4002
	DATE	DEGD	DESCRIPTION	DEGD <i>Y. Ishida</i>	DWG.No: 1SK-97242
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Pin assignment



Truth table

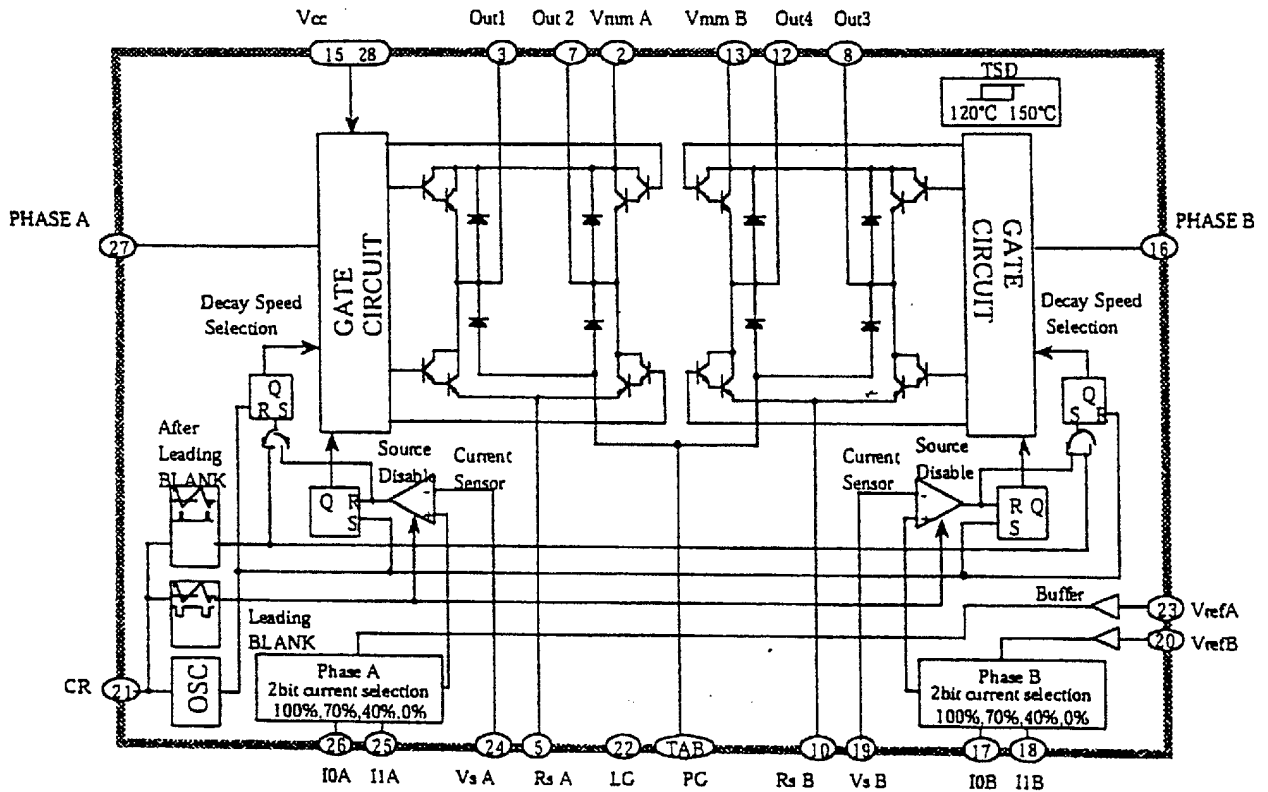
IO A and I1 A or IO B and IO B	PHA A or B	OUT 1 or 4	OUT 2 or 3
L	L	L	H
L	H	H	L
H	*	OFF	OFF

* : don't care

Current selection Truth table

IO A or B	I1 A or B	Output current ratio(%)	Vref (V) (Vr=5V)
L	L	100	0.50
H	L	70	0.35
L	H	40	0.20
H	H	0	

Block Diagram



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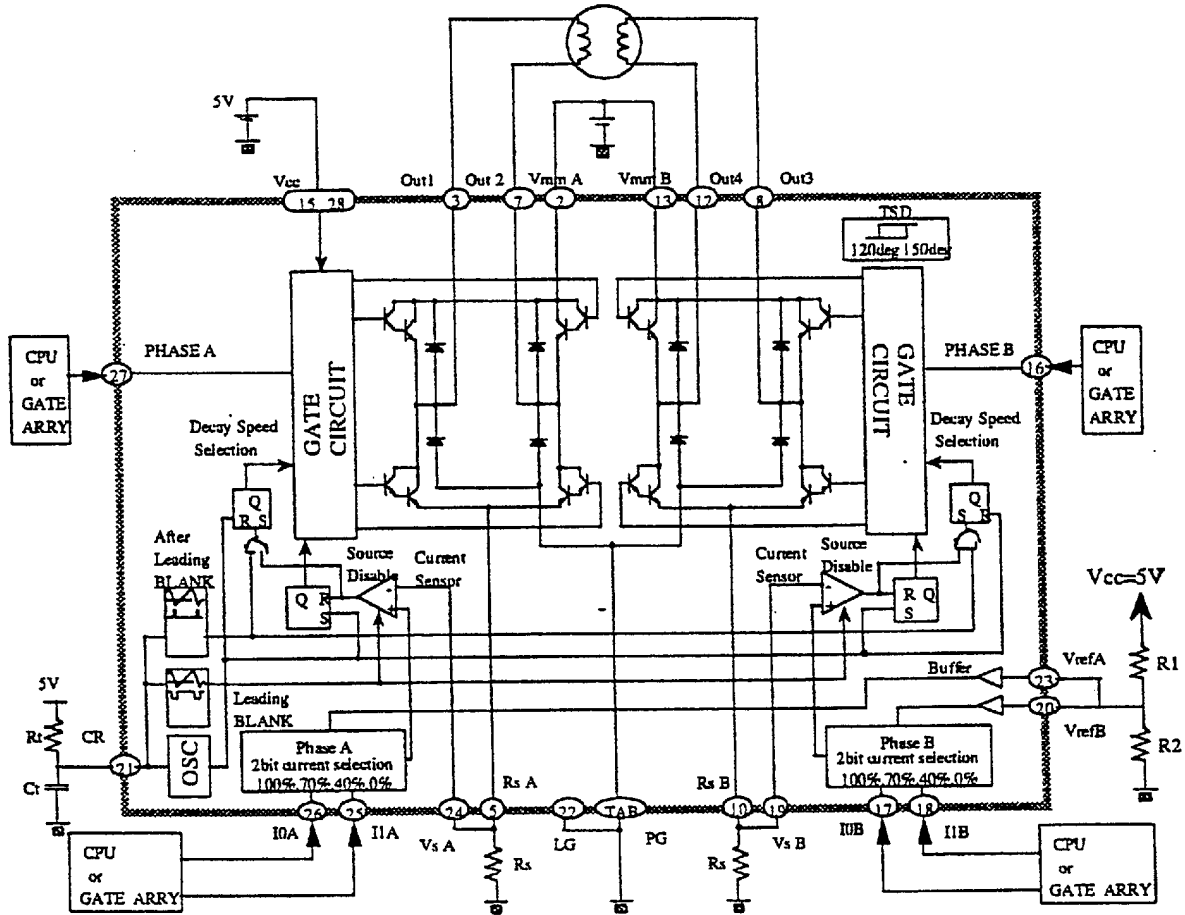
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- 1 EDIT

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2/4 SHEET

*Inside equivalent circuit / application circuitry example



$$C_t = 3300\text{pF to } 5800\text{pF}$$

$$R_t = 10\text{kohm to } 40\text{kohm}$$

$$R_s = (V_{ref}/10)/I_{out}$$

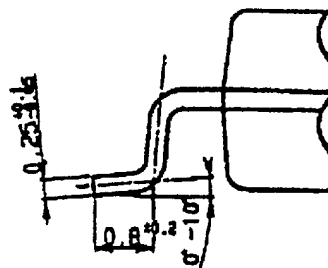
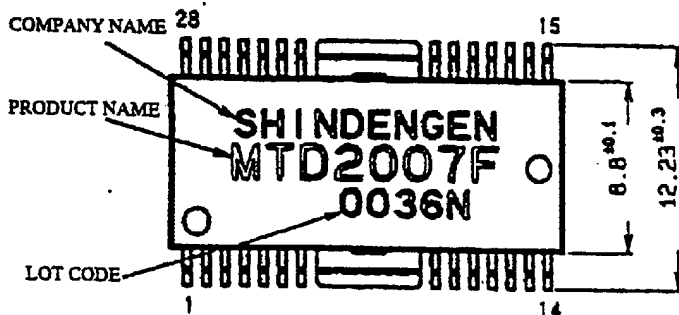
$$V_{ref} = 1\text{V to } 5\text{V}$$

You can construct fixed current control micro step circuit only by two CR for frequency setting and two resistor for current detection, amounted to 4.

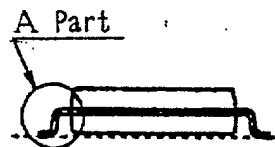
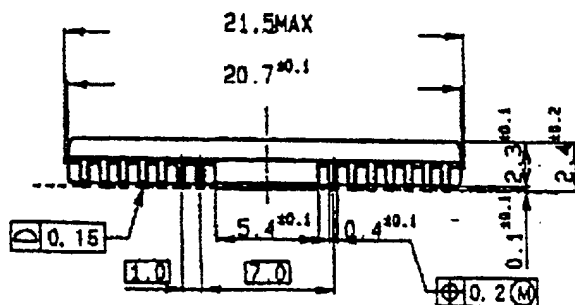
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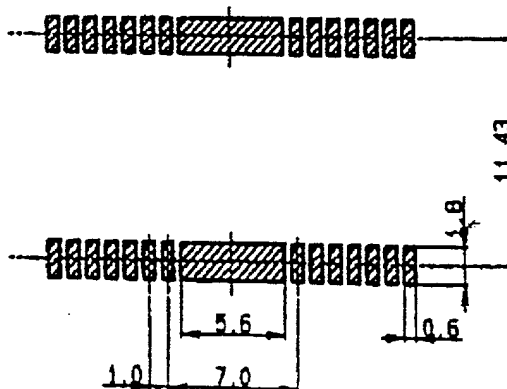
Mechanical Data of HSOP28 Package (Unit mm)



A Part S=12/1



RECOMMENDED SOLDERING PAD PATTERN



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