

# MTD2007F SPECIFICATION

## Absolute maximum rating(Ta=25deg)

Parameter	Symbol	Ratings	Unit
Logic supply	VCC	0 ~ 6	V
Logic input	Vpha,I0,I1	0 ~ VCC	V
Reference Input	Vref	0 ~ VCC	V
Voltage	VCEO(SUS)	50	V
Diode voltage	VR	50	V
Output current	IC	1	A
Diode current	IF	1	A
Storage temperature	Tstg	(-40~150)	deg
Junction temperature	Tj	150	deg

## Recommended operating condition

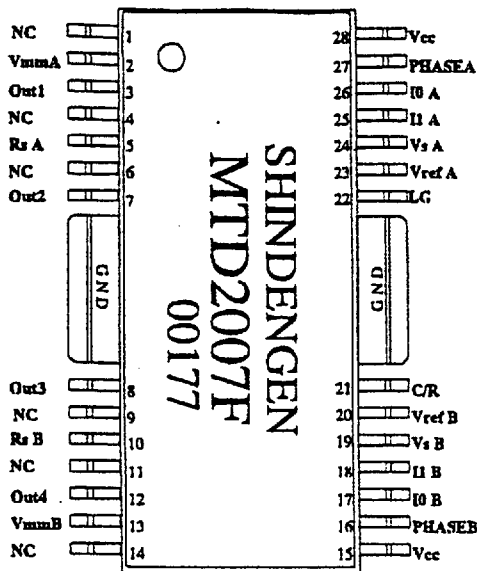
Parameter	Symbol	MIN	TYP	MAX	Unit
Logic Vcc	Vcc	4.5	5	5.5	V
Motor voltage Vmm	Vmm	10	-	45	V
Operating temperature	Tj,op	-25	-	120	DEG

## Electric Characteristics(Ta=25deg)

Parameter	Symbol	Conditions	MIN	TYP	MAX	Unit
Logic supply currnt	Icc(ON)	Vcc=5V	-	35	47	mA
	Icc(OFF)	Vcc=5V,V(I0,I1)=5V	-	30	42	mA
Output stage supply current ImmA+B	Imm(OFF)	Vcc=5V,V(I0,I1)=5V,Vmm=45V	-	-	10	mA
Phase input voltage	V INH	Vcc=5V	2.70	-	Vcc	V
	V INL	Vcc=5V	GND	-	0.80	V
Phase input current	I INH	Vcc=5V,VIN=5V	-	-	10	uA
	I INL	Vcc=5V,VIN=0V	-	-1	-10	uA
I0,I1 input voltage	V(I0,I1)H	Vcc=5V	2.70	-	Vcc	V
	V(I0,I1)L	Vcc=5V	GND	-	0.80	V
I0,I1 input current	I(I0,I1)H	Vcc=5V,V(I0,I1)=5V	-	-	10	uA
	I(I0,I1)L	Vcc=5V,V(I0,I1)=0V	-	-2	-10	uA
Reference(Vref) input current	Iref	Vcc=5V,Vref=0V	-	-1	-10	uA
Sence input current	Isense	Vcc=5V,Vs=0V	-	-1	-10	uA
Comparator threshold(100%)	Vs1	Vcc=Vr=5V,V(I0)=0V,V(I1)=0V	0.475	0.5	0.525	V
Comparator threshold(70%)	Vs2	Vcc=Vr=5V,V(I0)=5V,V(I1)=0V	0.322	0.35	0.378	V
Comparator threshold(40%)	Vs3	Vcc=Vr=5V,V(I0)=0V,V(I1)=5V	0.18	0.2	0.22	V
Upper transistor saturation voltage	Vce(sat)H	Ic=0.8A	-	1.30	1.50	V
Lower transistor saturation voltage	Vce(sat)L	Ic=0.8A	-	1.20	1.40	V
Output leakage current	Ireak	Vmm=Vceo(sus)V	-	-	10	uA
Upper diode forward drop	VF H	If=0.8A	-	1.40	1.60	V
Lower diode forward drop	VF L	If=0.8A	-	1.30	1.50	V
Chopping frequency	fchop	Vcc=5V,Ct=4700pF,Rt=16kohm	-	20	-	kHz
Blanking time	tb	Vcc=5V,Ct=4700pF,Rt=16kohm	-	2.5	-	uS
Maximam sensing voltage	Vs(max)	Vcc=5V	-	-	1.00	V
Thermal shutdown temperature		Vcc=5V	-	150	-	deg

			MANAGER <i>T. Wakabayashi</i>	Type Name: MTD2007F
1	Oct.12.1998	Y.I	Newly	Code No: 4002
	DATE	DEGD	DESCRIPTION	DWG.No: 1SK-97242
SHINDENGEN ELECTRIC MFG.CO.,LTD JAPAN			DEGD <i>Y. Ishida</i>	EDIT -1

## Pin assignment



## Truth table

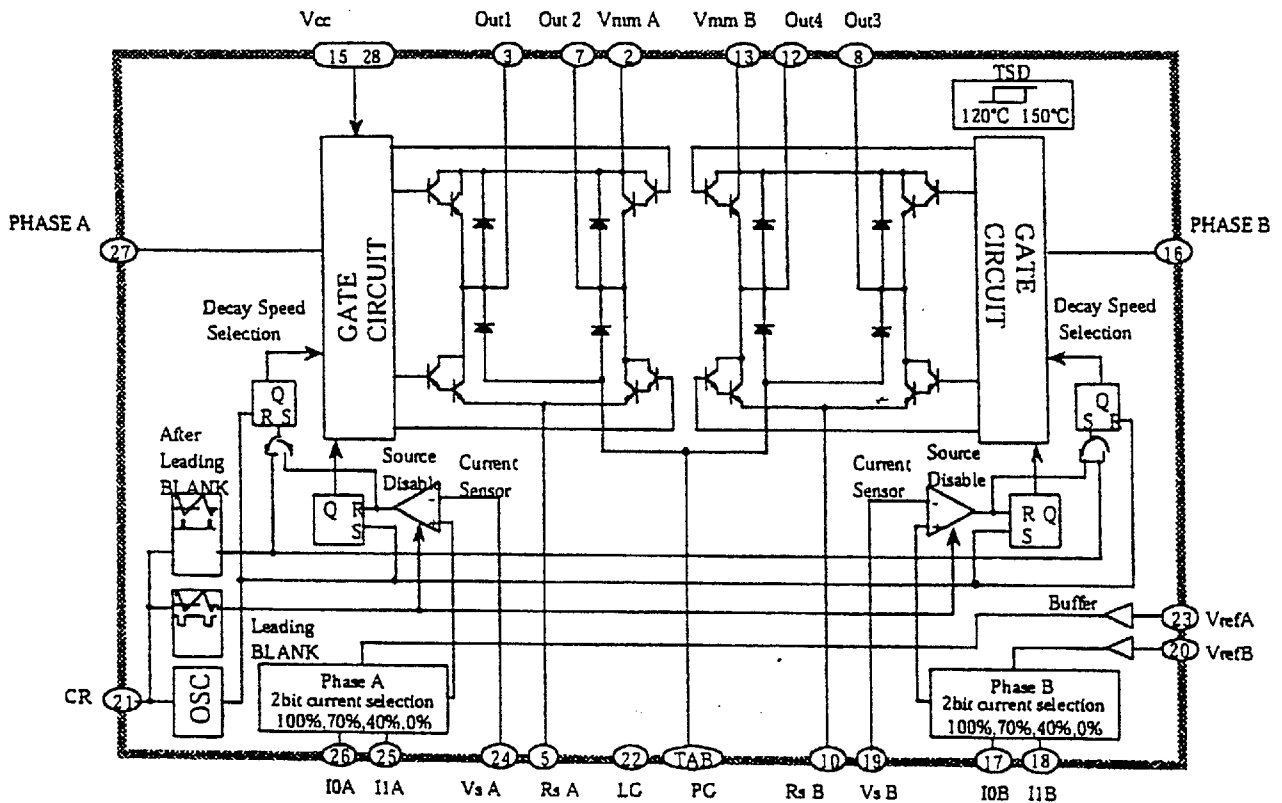
IO A and II A or IO B and IO B	PHA A or B	OUT 1 or 4	OUT 2 or 3
L	L	L	H
L	H	H	L
H	*	OFF	OFF

\* : don't care

## Current selection Truth table

IO A or B	II 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



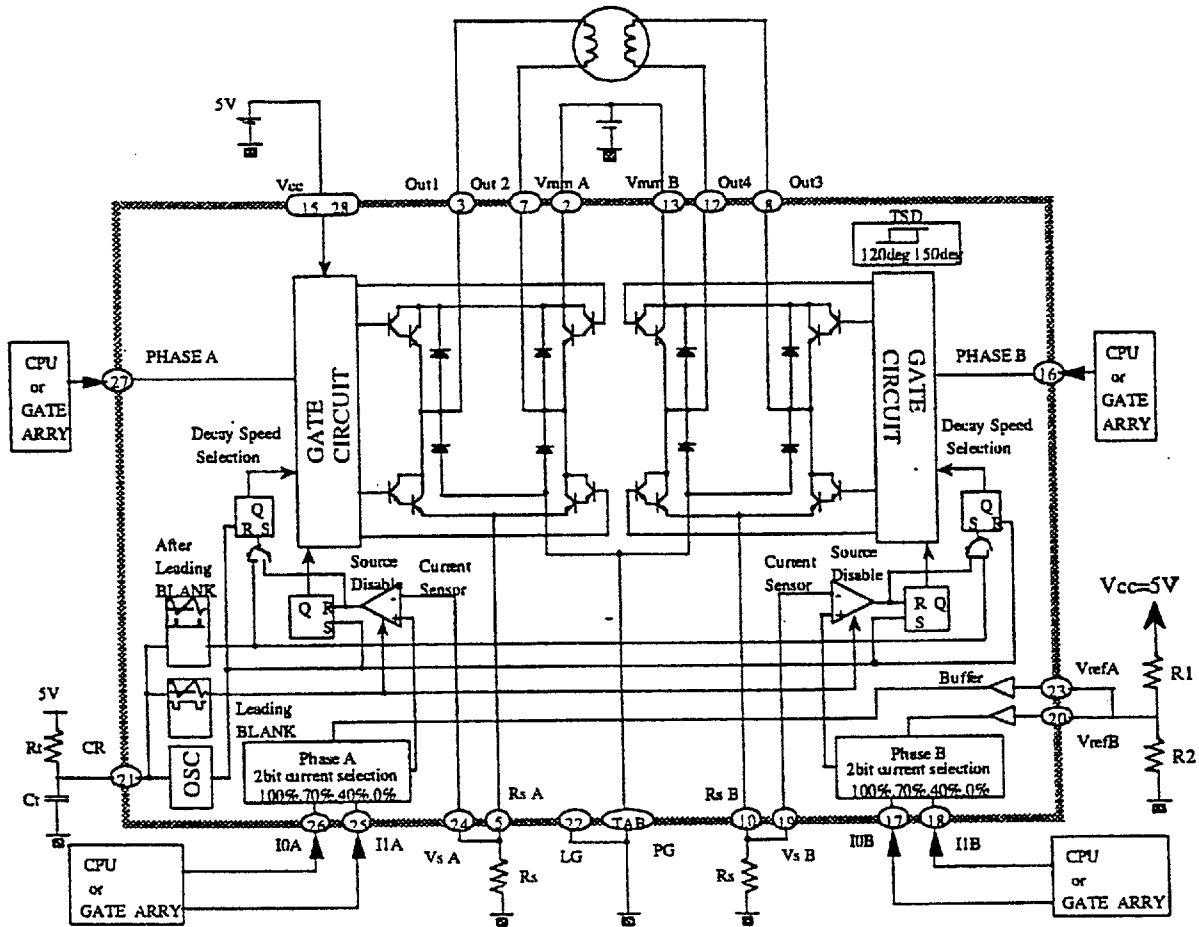
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\*Inside equivalent circuit / application circuitry example

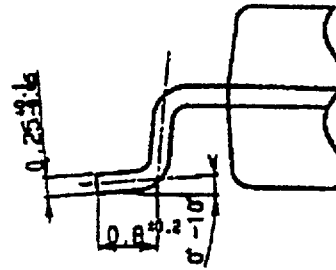
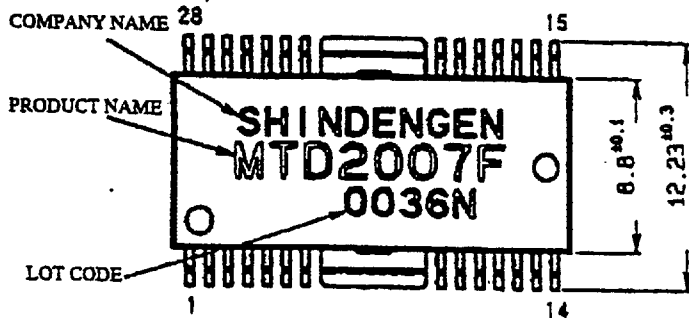


$C_t = 3300\text{pF to } 5800\text{pF}$   
 $R_t = 10\text{kohm to } 40\text{kohm}$   
 $R_s = (V_{ref}/10)/I_{out}$   
 $V_{ref} = 1\text{V to } 5\text{V}$

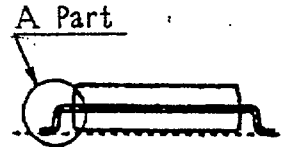
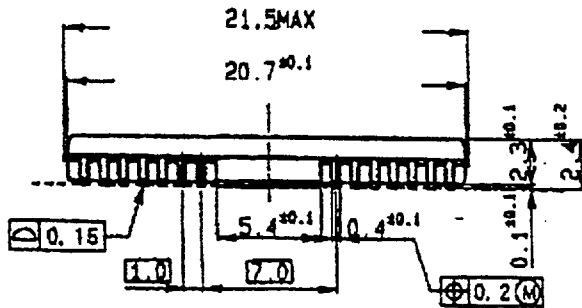
You can construct fixed current control micro step circuit only by two CR for frequency setting and two resistor for current detection, amounted to 4.

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3/4 SHEET		

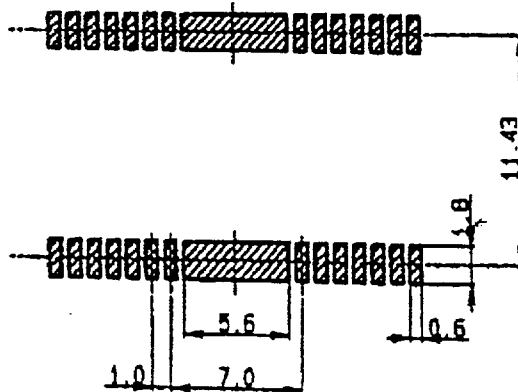
Mechanical Data of HSOP28 Package ( Unit mm )



A Part S=12/1



RECOMMENDED SOLDERING PAD PATTERN



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