

Stepping Motor Drive IC AN44060A

Overview

AN44060A is a stepping motor-driving IC, created by using a D-MOS process, and provides a maximum output of 30V at 1.8A. With the PWM drive and 2-bit constant-current-chopping-drive method, the winding 1-2 phase drive is possible.

Features

- 4-phase input (W1-2 phase excitation)
- 2-bit current level switching
- Built-in noise canceller
- Built-in phase-change thru-current protection function
- Built-in flywheel diode
- 24V Single Power Supply (Built-in 5V-REG)
- Large Output Current (max 1.8A), Low On Resistance (0.5Ω)

Applications

Printers / FAX / PPC (MFC)

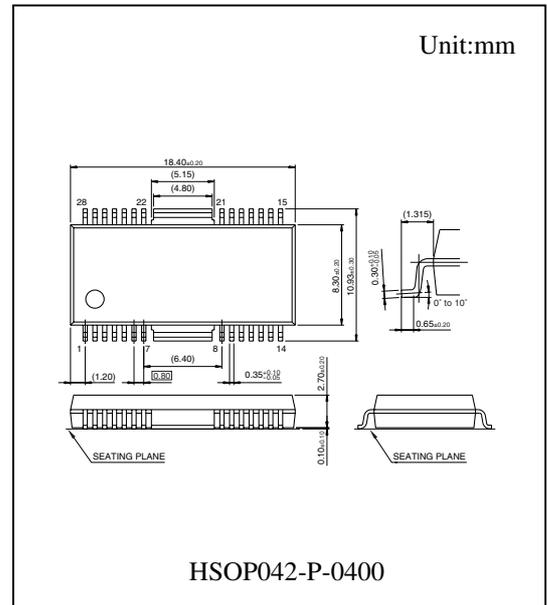
Recommended Operating Range

Operating supply voltage range	V_M	18.0 V to 28.0 V
--------------------------------	-------	------------------

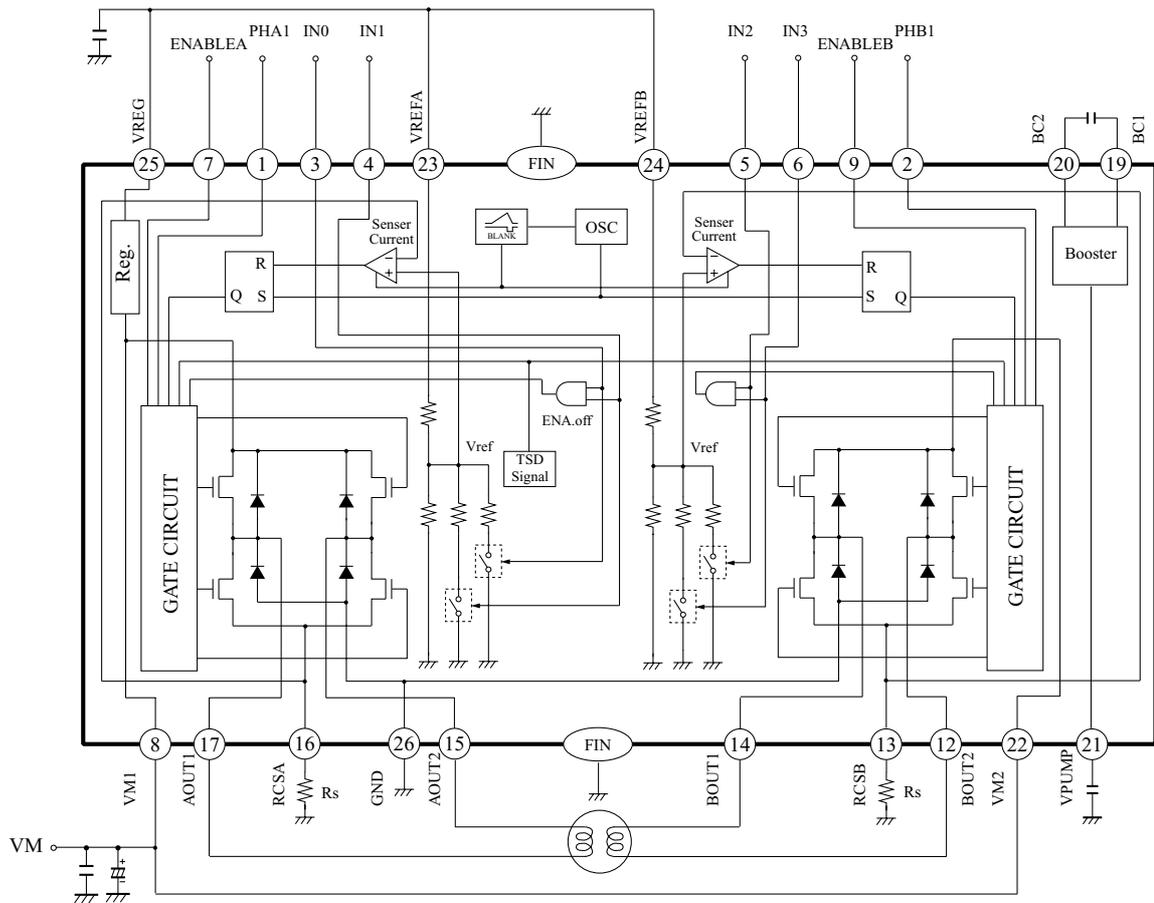
Electrical Characteristics (Ta = 25°C ± 2°C, V_M = 24V)

Parameter	Symbol	Condition	min	typ	max	unit
Power block						
Output saturation voltage H	V_{OH}	I = -1.0A	$V_M - 0.3$	$V_M - 0.2$	–	V
Output saturation voltage L	V_{OL}	I = 1.0A	–	0.3	0.56	V
Supply Current (Two circuits)	I_{REG}	ENABLEA = ENABLEB = 0V	–	5	9.5	mA
Control block						
Comparator threshold H (100%)	V_{TH}	IN0 = IN1 = 0V IN2 = IN3 = 0V	0.497	0.503	0.528	V
Comparator threshold C (67%)	V_{Tc}	IN0 = 5V, IN1 = 0V IN2 = 5V, IN3 = 0V	0.305	0.330	0.356	V
Comparator threshold L (33%)	V_{TL}	IN0 = 0V, IN1 = 5V IN2 = 0V, IN3 = 5V	0.151	0.167	0.185	V

Products and specifications are subject to change without notice. Please ask for the latest Product Standards to guarantee the satisfaction of your product requirements.



■ Block Diagram



■ Pin Descriptions

Pin No.	Symbol	Function	Pin No.	Symbol	Function
1	PHA1	A phase changeover terminal	16	RCSA	A phase current detector
2	PHB1	B phase changeover terminal	17	AOUT1	Motor drive A phase output 1
3	IN0	A phase output torque control 1	18	N.C	-
4	IN1	A phase output torque control 2	19	BC1	Capacitor for charge pump circuit 1
5	IN2	B phase output torque control 1	20	BC2	Capacitor for charge pump circuit 2
6	IN3	B phase output torque control 2	21	VPUMP	Charge pump circuit output
7	ENABLEA	A phase start/stop signal input	22	VM2	Supply terminal for Motor 2
8	VM1	Supply terminal for Motor 1	23	VREFA	A phase torque ref. voltage input
9	ENABLEB	B phase start/stop signal input	24	VREFB	B phase torque ref. voltage input
10	N.C	-	25	VREG	5V Output
11	N.C	-	26	GND	Signal GND
12	BOUT2	Motor drive B phase output 2	27	N.C	-
13	RCSB	B phase current detector	28	N.C	-
14	BOUT1	Motor drive B phase output 1	FIN	GND	Signal GND
15	AOUT2	Motor drive A phase output 2			