DESCRIPTION

The PT2474 is a stepping motor driver IC of low saturation voltage. It is optimal for motor drive in 12V system product a 2-phase bipolar stepping motor.

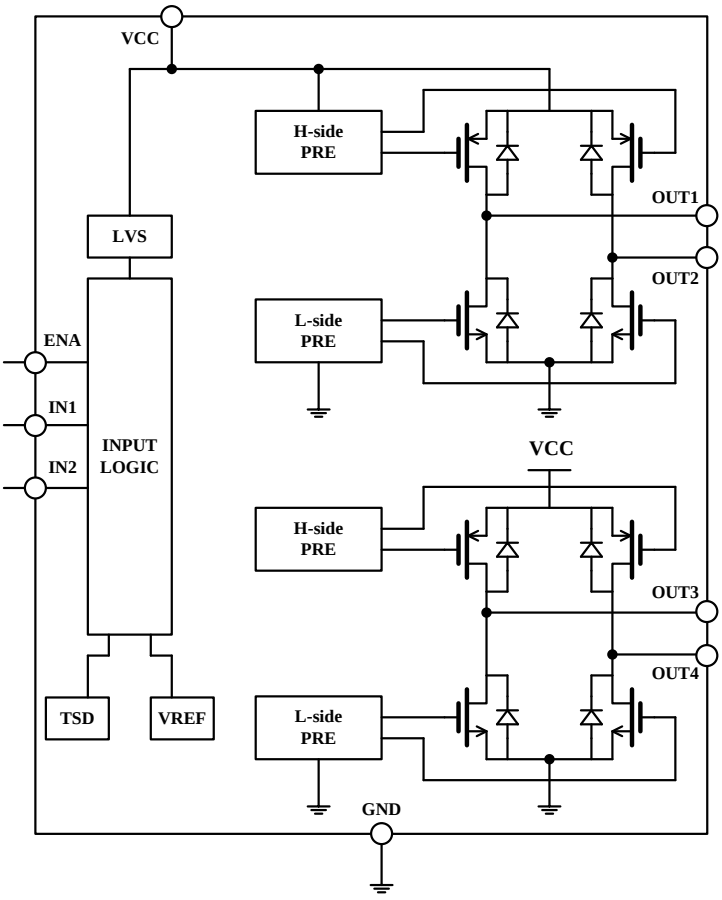
FEATURES

- DMOS output transistor adoption (Upper and lower total RON=1Ω typ)
- The compact package (SOP10) is adopted.
- VCC max=20v, IO max=1A
- For one power supply (The control system power supply is unnecessary.)
- Current consumption 0 when standing by

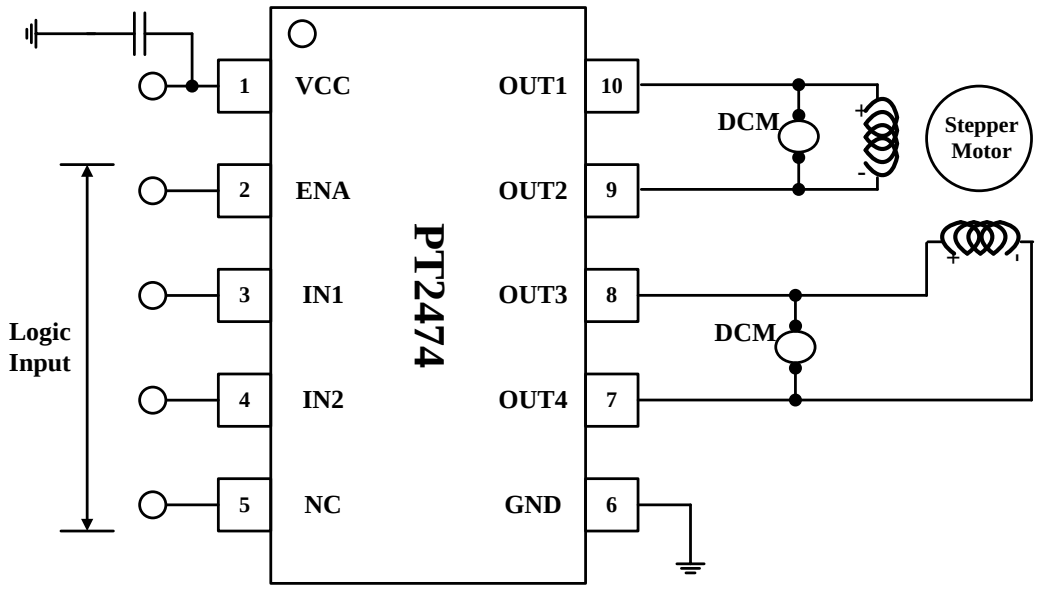
APPLICATIONS

- Office Automation Machines
- Refrigerator Machines

BLOCK DIAGRAM



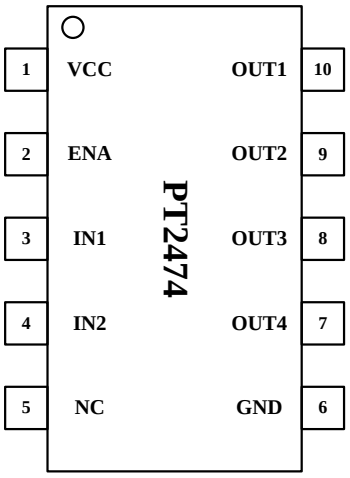
APPLICATION CIRCUIT



ORDER INFORMATION

Valid Part Number	Package Type	Top Code
PT2474-S	10Pins, SOP	PT2474-S

PIN CONFIGURATION



PIN DESCRIPTION

Pin Name	I/O	Description	Pin No.
VCC	Power	Power supply voltage pin VCC voltage is impressed. The permissible operation voltage is from 4.0 to 16.0(V). The capacitor is connected for stabilization for GND pin (6pin).	1
ENA	I	Motor driver control input pin It shifts from the stand-by state to a prescribed output operation corresponding to the state of the input when the ENA pin becomes a standby mode by L, the circuit current can be adjusted to 0, and it makes it to H. It is a digital input, and the range of L level input is 0 to 0.7(V) and the range of H level input are 1.8 to 5.5(V). PWM can be input. Pull-down resistance 100(kΩ) is built into in the terminal.	2
IN1	I	Motor driver control input pin Driving control input pin of OUT1 (10pin) and OUT2 (9pin). PWM can be input. With built-in pull-down resistance.	3
IN2	I	Motor driver control input pin Driving control input pin of OUT3 (8pin) and OUT4 (7pin). PWM can be input. With built-in pull-down resistance.	4
NC	--		5
GND	Power	Ground pin	6
OUT4	O	Driving output pin	7
OUT3	O	Driving output pin	8
OUT2	O	Driving output pin	9
OUT1	O	Driving output pin	10

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Max.	Unit
Supply voltage	V_{CC}	0	20	V
Digital pin voltage	V_{IN}	0	6	V
Output current	Iout	0	1	A
Operating temperature	Topr	-40	85	°C
Storage temperature	Tstg	-65	150	°C
ESD, Human body model	HBM	-2000	+2000	V
ESD, Machine model	MM	-200	+200	V

PACKAGE THERMAL CHARACTERISTIC

Parameter	Symbol	Condition	SOP (10 PINS)	Unit
From chip conjunction dissipation to external environment	Rja	Ta=25°C	--	°C/W
From chip conjunction dissipation to package surface	Rjc		--	

RECOMMENED OPERATING CONDICTION

Parameter	Symbol	Min	Typ	Max	Unit
Motor power supply voltage range	V_{CC}	4	--	16	V
Input “H” level	V_{IH}	1.8	--	--	V
Input “L” level	V_{IL}	--	--	0.7	V

ELECTRICAL CHARACTERISTIC

TA=25℃ , VCC=12V , over recommended operating conditions unless otherwise noted

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Power supply voltage	I_{CC0}	Standby mode ENA=L			1	uA
	I_{CC01}	ENA=H		1.7	2.3	mA
Input current	I_{IN}	V_{IN}=5V	30	50	65	uA
Thermal shutdown operating temperature	T_{tsd}	Design certification	140	160	180	°C
Width of temperature hysteria	ΔT_{tsd}	Design certification		60		°C
Low voltage protection function operation voltage	$VthV_{CC}$		3.3	3.5	3.65	V
Release voltage	Vthret		3.55	3.8	3.95	V
Output ON resistance (Upper and lower total)	R_{ON}	I_{OUT}=1.0A	0.7	1	1.25	Ω
Output leak current	I_O leak	V_O =16V			10	uA
Diode forward voltage	VD	ID=1.0A		1	1.2	V

FUNCTION DESCRIPTION

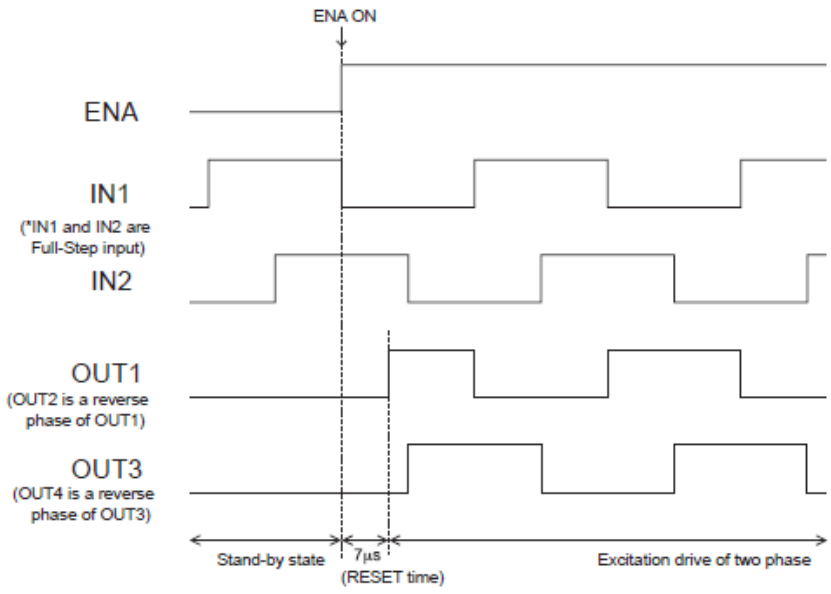
OPERATION EXPLANATION

1. STM output control logic

Input			Output				State
ENA	IN1	IN2	OUT1	OUT2	OUT3	OUT4	
L	-	-	OFF	OFF	OFF	OFF	Stand-by
H	L	L	H	L	H	L	Step 1
	H	L	L	H	H	L	Step2
	H	H	L	H	L	H	Step3
	L	H	H	L	L	H	Step4

2. About the switch time from the stand-by state to the state of operation

When ENA pin are "L", this IC has completely stopped operating. After the time of reset (about 7μs of an internal setting) it shifts to a prescribed output status corresponding to the state of the input when the signal enters the ENA pin.



3. Example of current wave type in each excitation mode when stepping motor parallel input is controlled.