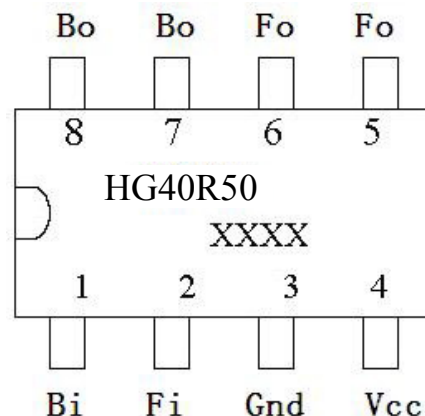


Description

HG40R50 is a BICMOS process of motor drive circuit, the chip has a good anti-jamming; two outputs can directly drive the motor forward and reverse movement, which has a 5A current drive capability, and it has a low output saturation pressure drop and quiescent current; built-in clamp diode to reverse the impact of the release of inductive load current, making it in the drive relays, DC motors, stepper motors or control the use of switching power safe and reliable. HG40R50 motor drive for toy vehicles, remote-controlled aircraft motor drive, automatic valve motor, electromagnetic lock drive, precision instruments and other circuits. It has two logic inputs to control the motor forward and backward.



Ordering information

Device	Package	Operating Temp.
HG40R50	DIP-8	-25°C ~ 85°C

Features

- Quiescent current is less than: 2μA.
- Wide supply voltage range: 3.0V~12.0V.
- Temperature protects the circuit ..
- Over-current embedded current and short circuit protection Function
- Built-in clamp diode.
- Built-in emergency stop function (When the twoinputs while the output is high potential for the braking function, which is "11" Protect).

Pin Assignment

Pin NO	Name	Function
1	Bi	Backward input
2	Fi	Forward input
3	Gnd	Ground
4	Vcc	Vcc
5	Fo	Forward output
6	Fo	Forward output
7	Bo	Backward output
8	Bo	Backward output

Input Truth Table

2 Pin Finput	1 Pin Binput	5.6 Pin Foutput	7.8 Pin Boutput	Function
H	L	H	L	Forward
L	H	L	H	Backward
H	H	L	L	Brake
L	L	Open	Open	Stand-by(Stop)

Absolute Maximum Rating ($V_{CC}=6V, T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Power dissipation	P_D	1 Notes1	W
		3 Notes2	
Maximum supply voltage	$V_{CC(MAX)}$	18	V
Peak output current	$I_{OUT(PEAK)}$	9	A
Operating Temperature	Top	-25~+85	$^{\circ}C$
Storage temperature	Tstg	-55~+125	$^{\circ}C$
ESD Susceptibility Notes3	HBM	2	KV
	MM	200	V

Electrical Characteristics ($V_{CC}=6V, T_A=25^{\circ}C$, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operating Voltage	V_{OPR}		3.0	--	12.0	V
Quiescent Current	I_S	$V_{CC} = 9V, V_{in} = 0$			2	μA
No-load operating current	I_{CC}	$V_{CC} = 6V, V_{in} = 3V$ (No-load)	2	4	7	mA
High Output Voltage	V_{HOUT}	$V_{CC} = 6V, I_o = 3A$	5.5	5.7	5.9	V
Low Output Voltage	V_{LOUT}	$V_{CC} = 6V, I_o = 3A$	0.1	0.2	0.3	V
High input Voltage	V_{IH}	Notes 7	2.0	3.5	6	V
Low input Voltage	V_{IL}	Notes 7		0.5	0.7	V
Low input current	I_{in}	$V_{CC} = 6V, V_{in} = 2V$		70	100	μA
		$V_{CC} = 6V, V_{in} = 3V$		100	150	μA
On-resistance	R_{DS}	$I_{out} = 2A, V_{DD} = 6V, T_A = 25^{\circ}C$ (HS+LS MOS total Ron resistance)	--	0.09	--	Ω
		$I_{out} = 4A, V_{DD} = 6V, T_A = 25^{\circ}C$ (HS+LS MOS total Ron resistance)	--	0.11	--	
Continuous Output Current	I_{out}	DIP-8 Package Notes 4		5	7	A
Peak output current	I_{PEAK}	Rating for fusing ($t < 8.3ms$)			9	A

Typical Thermal Characteristics

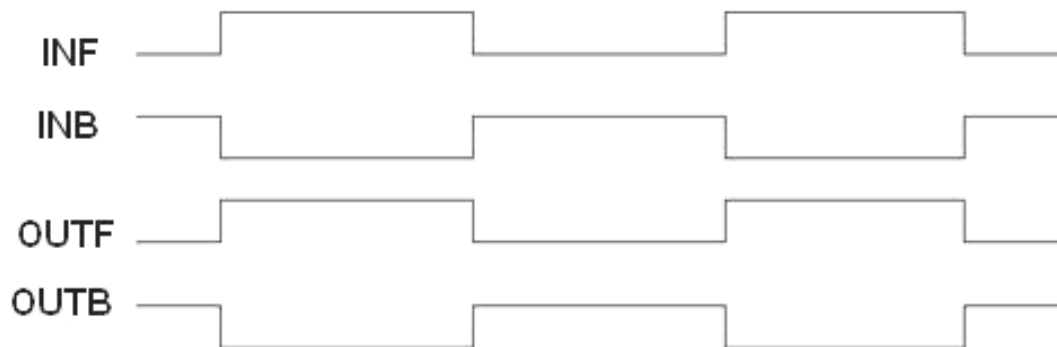
Parameter	Symbol	Value	Unit
Junction temperature	T_J	150	$^{\circ}C$
Thermal shutdown temperature	T_{SD} note5	130	$^{\circ}C$
Thermal shutdown hysteresis temperature	ΔT_{SD} note6	30	$^{\circ}C$

Notes:

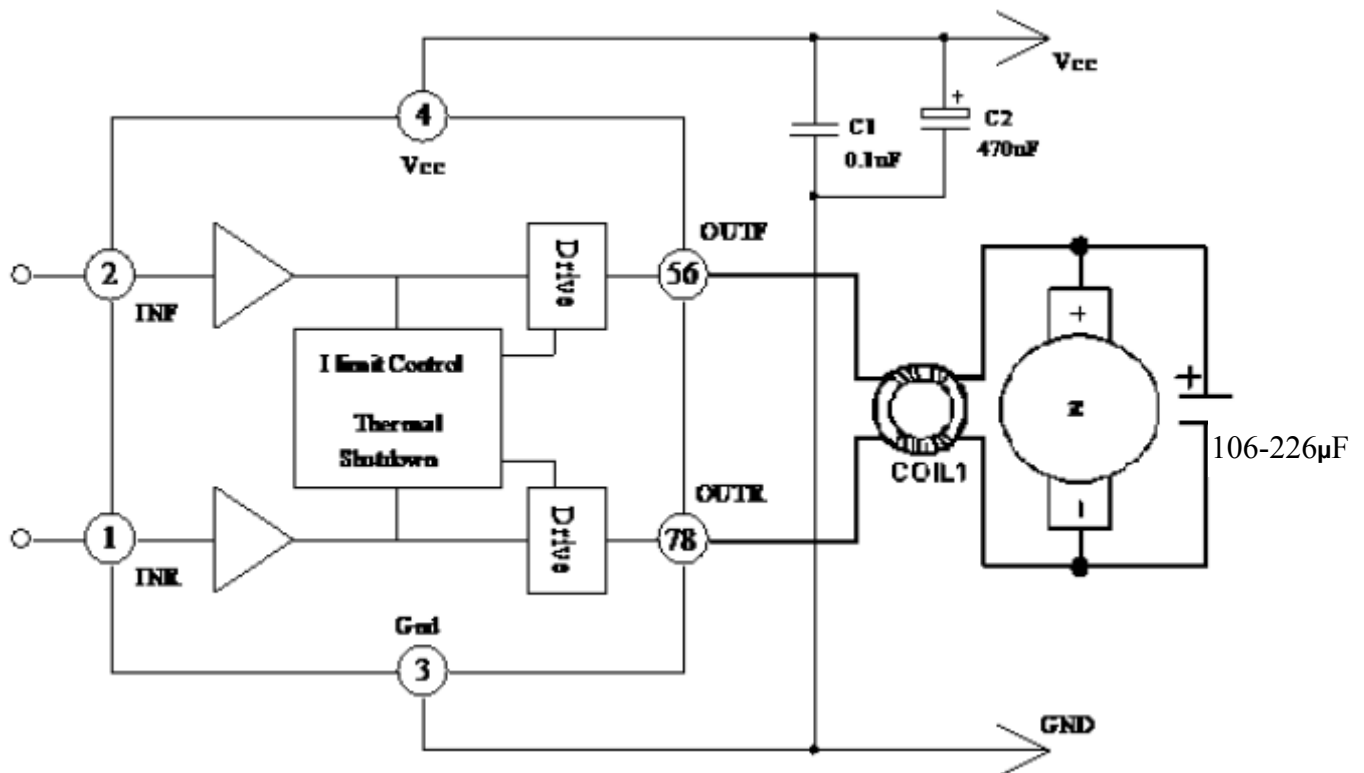
- 1, $T_A = 25^{\circ}C$, When mounted on JEDEC 50mm .40mm .16mm PCB (FR-4 epoxy glass material).
- 2, $T_A = 25^{\circ}C$, When mounted on JEDEC 50mm .40mm .16mm PCB (FR-4 glass epoxy material). around of the no.5, 6, no.7, 8 pins needs copper (top and bottom 25mm.20mm copper) to auxiliary heat dissipation.
- 3, Device are ESD sensitive. Handling precaution recommended. The Human Body model is a 100pF Capacitor discharged through a 1.5K Ω resistor into each pin.

4. Around of the no.5,no.6,no.7 & no.8 pins needs copper (top and bottom 25mm.20mm copper) to auxiliary heat dissipation.
5. When mounted on JEDEC 50mm .40mm .16mm PCB (FR-4 glass epoxy material), around of the no.5, 6, no.7, 8 pins needs copper (top and bottom 25mm.20mm copper) to auxiliary heat dissipation.
6. On the junction. These values are design specifications.
7. **When input voltage is 0.7-2.2V, the IC's working status will be unstable. Please avoid this input voltage range when you apply.**

Pins Waveforms

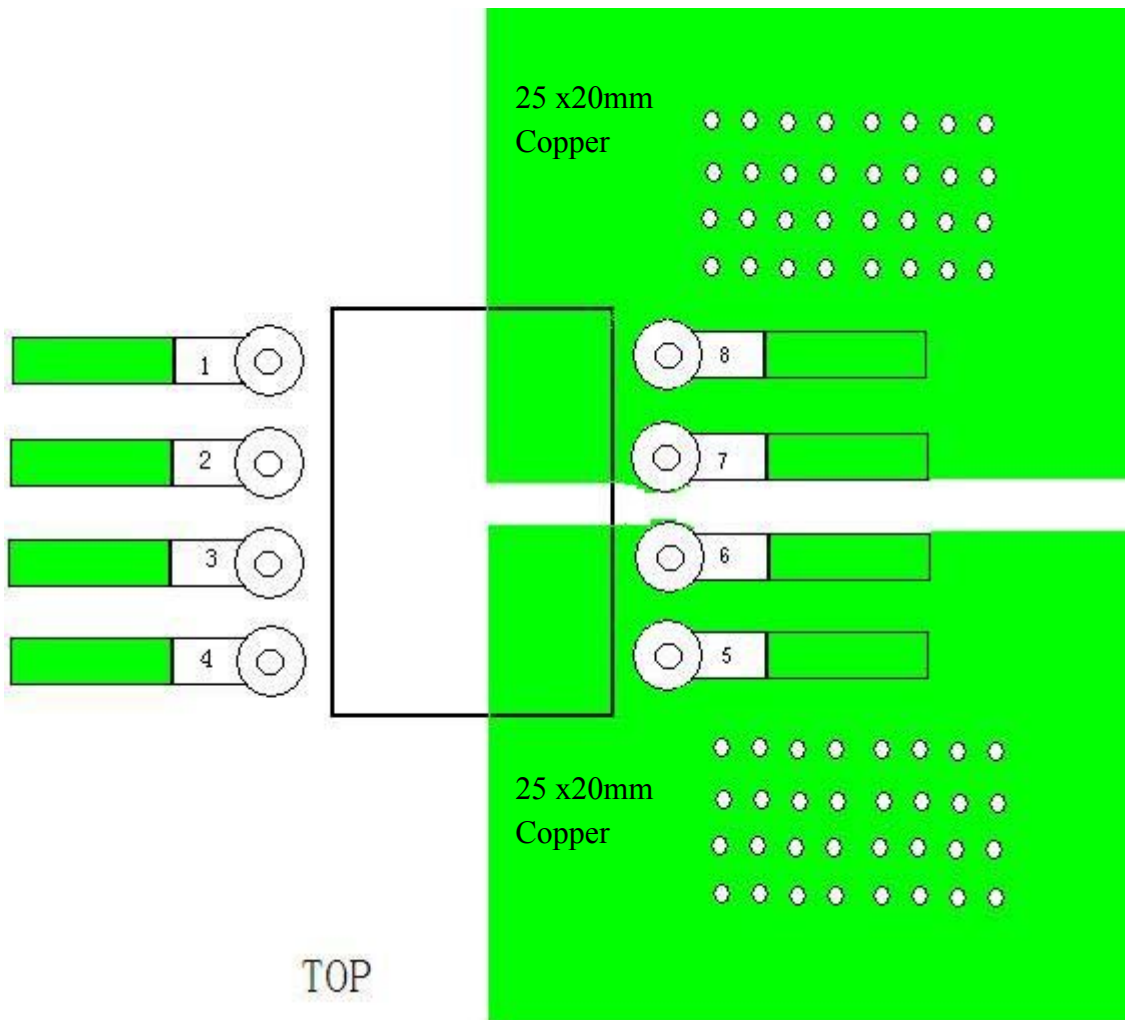


Application circuit



PCB Layout

In order to help heat dissipation, the proposed increase SOP-8 package PCB copper area .



Outline Dimensions

8-DIP

