◆ General Description

The GH477 is a single chip solution for single coil brushless DC motors. It combines a motor driver with a high sensitivity Hall sensor, which simplifies the PCB design and makes the fabrication of small-size motors possible.

The IC has built-in reverse supply voltage protection function. If it is connected to a reversed power supply, it wouldn't be damaged. When the voltage returns to the correct polarity, the chip will resume normal operation.

Thermal-shutdown protection ensures that the motor driver operates under specified temperature ranges.

GH477 is available in TO-94 (SIP-4L) package.

◆ Features

- On Chip Hall Effect Sensor
- Full Bridge Driver
- Power Supply Voltage: 3.5~28V
- Built-in Reverse Supply Voltage Protection
- Continuous Output Current: 250mA
- Embedded Over-Temperature Protection
- High Sensitivity Integrated Hall Sensor

◆ Applications

- Single Coil BLDC Cooling Fans
- Low Voltage / Low Power BLDC Motors
- Notebook DC Fans / Blowers
- Automotive Low Noise Climate Control Fans
- Micro-motors

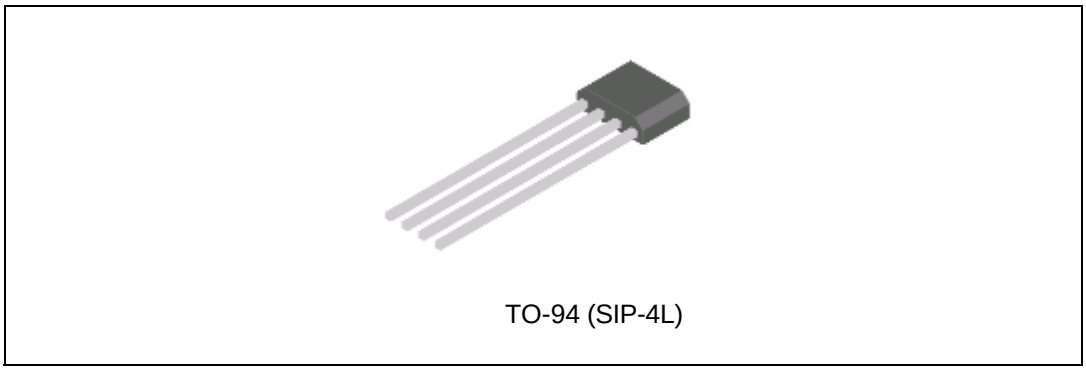


Figure 1. Package Type of GH477

◆ Order Information

Package	Temperature Range	Part Number	Marking ID	Packing Type
TO-94(SIP-4L)	-40 to 85 ℃	GH477EUB	GH477	Bulk (1000 pieces/bag)

◆ Pin Configuration

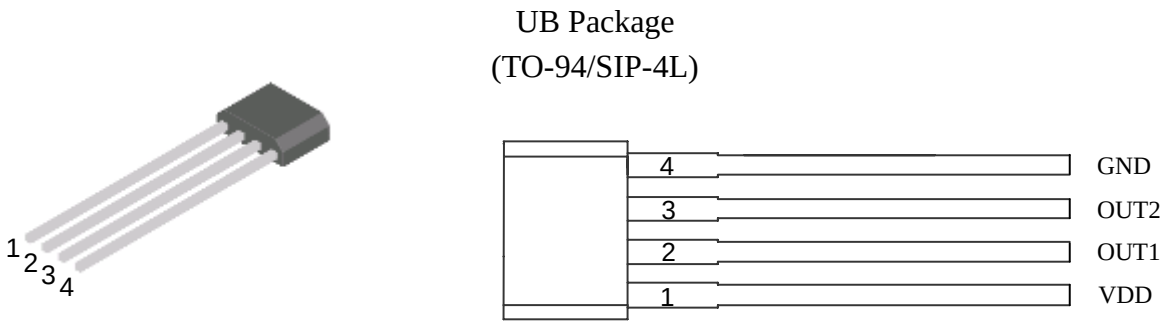


Figure 2. Pin Configuration of GH477 (Front View)

◆ Pin Description

Pin Number	Pin Name	Function
1	VDD	Power Supply Pin
2	OUT1	Driver Output Pin 1
3	OUT2	Driver Output Pin 2
4	GND	Ground Pin

◆ Functinal Block Diagram

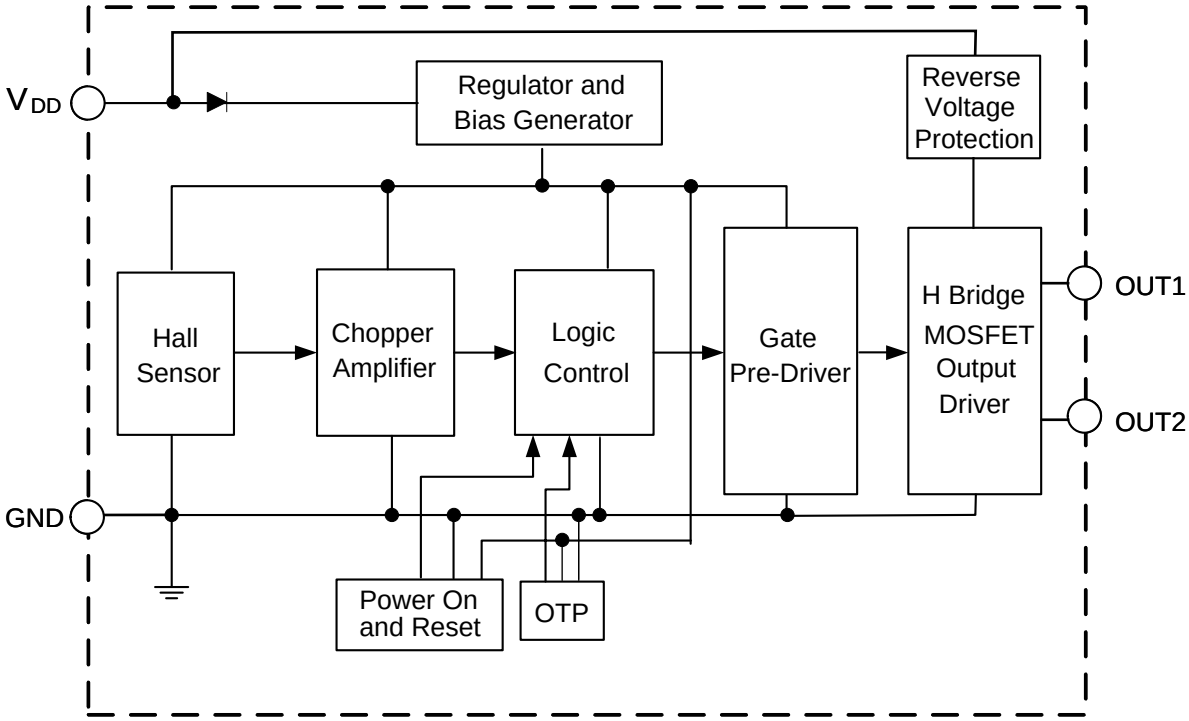


Figure 3. Functional Block Diagram of GH477

◆ Absolute Maximum Ratings T_A =25℃ (Note 1)

Parameter	Symbol	Condition	Value	Unit
Supply Voltage (Continuous)	$V_{DD(CONT)}$		-28 to 28	V
Supply Voltage (Peak)	$V_{DD(PEAK)}$	≤100s	28	V
Supply current (Fault)	$I_{DD(FAULT)}$		3.5	mA
Continuous current	$I_{OUT(CONT)}$		250	mA
Hold current	$I_{OUT(HOLD)}$		500	mA
Peak current	$I_{OUT(PEAK)}$	≤200μs	700	mA
Power dissipation	P_D	TO-94(SIP-4L)	550	mW
Thermal Resistance (Junction to Ambient)	θ_{JA}	TO-94(SIP-4L)	227	℃/W
Thermal Resistance (Junction to Case)	θ_{JC}	TO-94(SIP-4L)	49	℃/W
Operating Junction temperature	T_J		-40 to 85	℃
Storage temperature	T_{STG}		-55 to 160	℃
Magnetic Flux Density	B		Unlimited	Gauss
IR-Reflow Lead Temperature	T_P	10s	260	℃

◆ Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Power Supply Voltage	V_{DD}	3.5	28	V
Operation Temperature	T_A	-40	85	℃

Note 1: Stresses greater than those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated above “Recommended Operating Conditions” is not implied. Exposure to “Absolute Maximum Ratings” for extended periods may affect device reliability.

◆ Electrical Characteristics

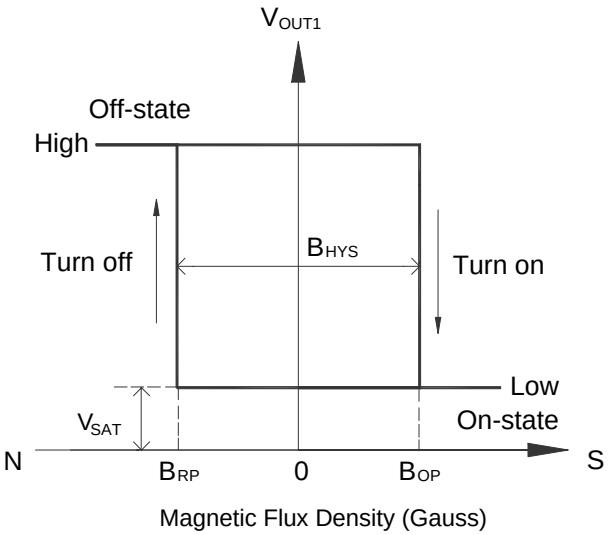
V_{DD} =12V , T_A =25°C, unless otherwise specified.

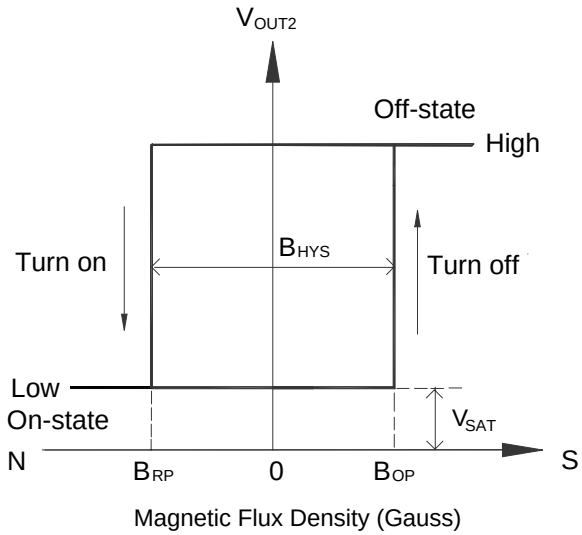
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}	Operating	3.5		28	V
Supply Current	I_{DD}	Output open		1.5	3.0	mA
Continuous Output Current	I_{OUT}	Average			250	mA
Output Driver ON-Resistance	R_{DSON}	T_A=25℃, I_{OUT} =300mA		3.6		Ohm
		T_A=85℃, I_{OUT} =300mA		6.0		Ohm
Thermal Shutdown Threshold	T_{SD}			160		℃

◆ Magnetic Characteristics

V_{DD} =12V, T_A =25°C, unless otherwise specified.

Parameter	Symbol	Min	Typ	Max	Unit
Operating Point	B_{OP}		25	50	Gauss
Releasing Point	B_{RP}	-50	-25		Gauss
Hysteresis	B_{HYS}		50		Gauss





◆ Test Circuit

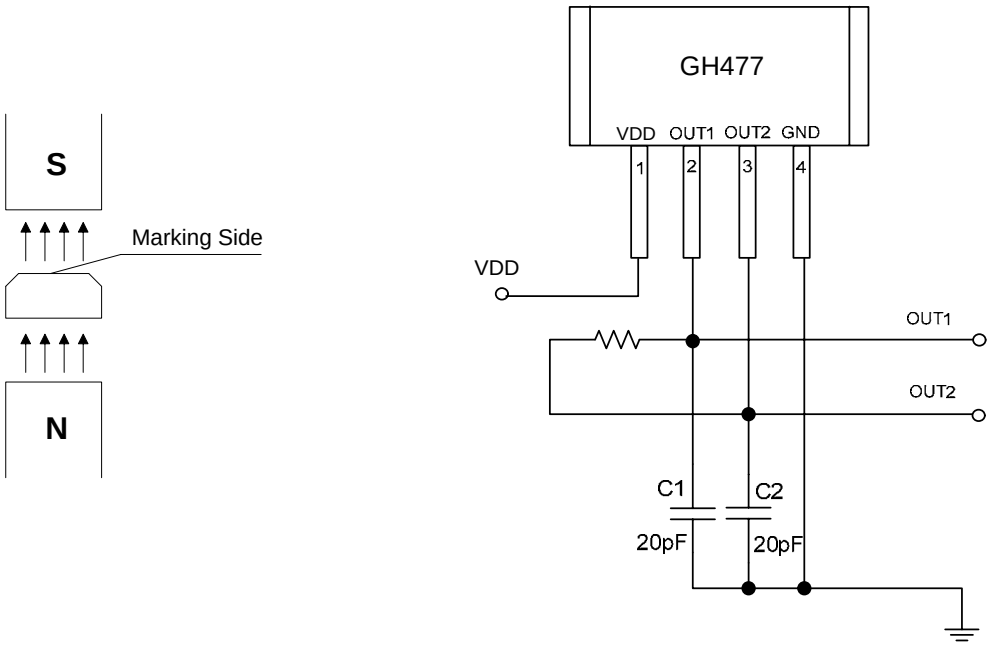


Figure 4. Basic Test Circuit

◆ Typical Application

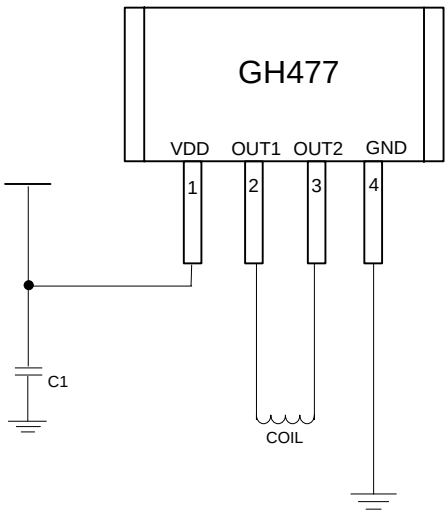
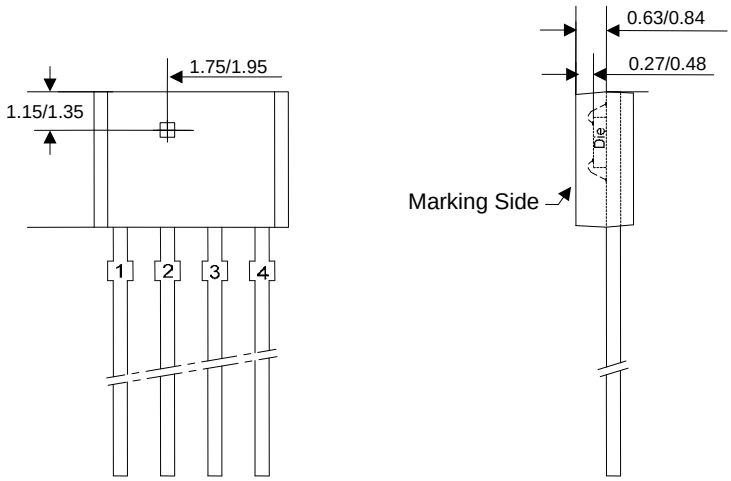
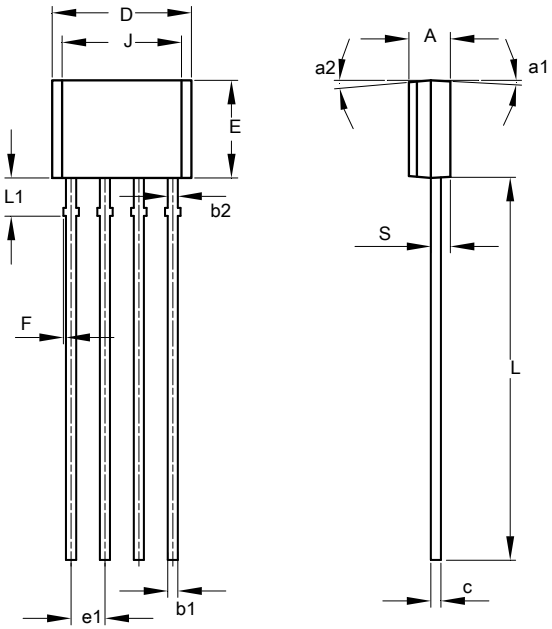


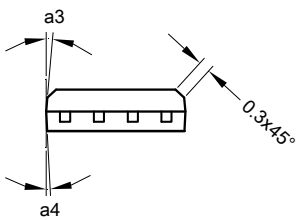
Figure 5. Typical Application Circuit

◆ Pacakge Information

(UB: TO-94/SIP-4L) Unit: mm



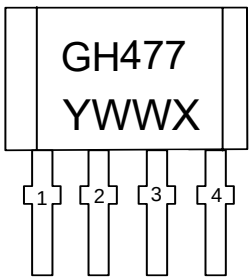




Size	MIN.	MAX.	TYP.
A	1.45	1.65	1.55
b1	0.38	0.44	0.40
b2	-	-	0.48
c	0.35	0.45	0.40
D	5.12	5.32	5.22
e1	1.24	1.30	1.27
E	3.55	3.75	3.65
F	0.00	0.20	-
J	4.10	4.30	4.20
L	14.00	14.60	14.30
L1	1.32	1.52	1.42
S	0.63	0.83	0.73
a1	-	5°	3°
a2	4°	7°	5°
a3	10°	12°	11°
a4	5°	7°	6°
Unit: mm			

◆ Marking Information

(SIP-4L/TO-94)



GH477 :Model Name

Y：Year, only one number.such as 1 indicate 2021

WW：Weeks,have two numbers.(01~52)

X：Internal code,Only one number(x,h,y....)