

◆ General Description

The GH466 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.

When there is no motion about 0.5 second, the IC will automatically detect the locked rotor conditions, and enter protection mode, shutting off the motor driver for 4 seconds. Then, the IC will turn on the motor driver for 0.5 second to detect whether there is rotation condition, if fails, the IC will shut off motor driver for 4 seconds again. This sequence will be repeated until rotation condition is detected, and the IC enters normal operation. This feature can effectively prevent the IC from overheating and damage due to long-time locked rotor condition. Thermal-shutdown protection ensures that the motor driver operates under specified temperature ranges.

GH466 is available in TO-94 (SIP-4L) package.

◆ Features

- On Chip Hall Effect Sensor
- Full Bridge Driver
- Power Supply Voltage: 2.5~18V
- Continuous Output Current:600mA
- Locked Rotor Protection and Auto-restart
- 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

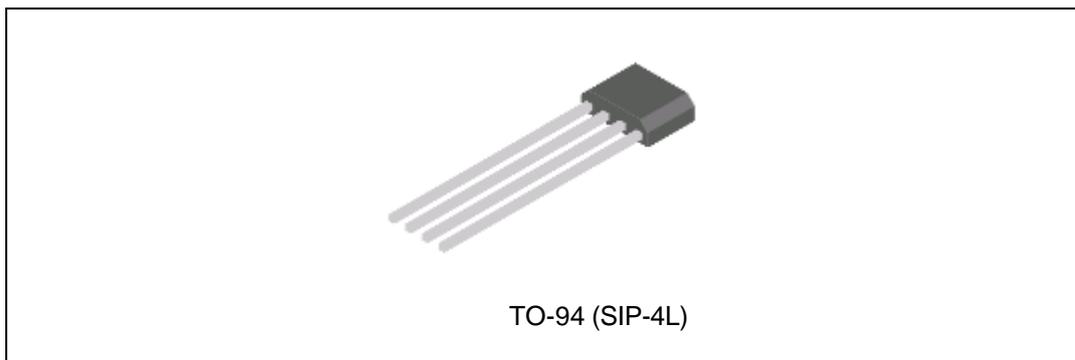


Figure 1. Package Type of GH466

◆ Order Information

Package	Temperature Range	Part Number	Marking ID	Packing Type
TO-94(SIP-4L)	-40 to 85 °C	GH466EUB	GH466	Bulk (1000 pieces/bag)

◆ Pin Configuration

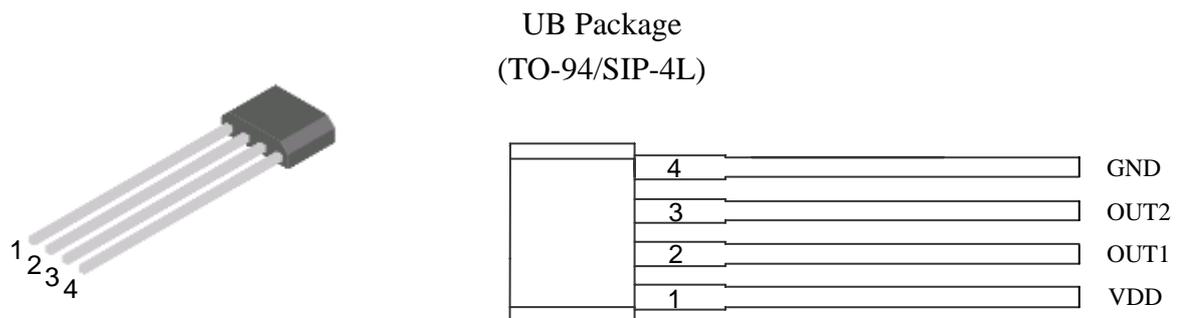


Figure 2. Pin Configuration of GH466 (Front View)

◆ 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

◆ **Functional Block Diagram**

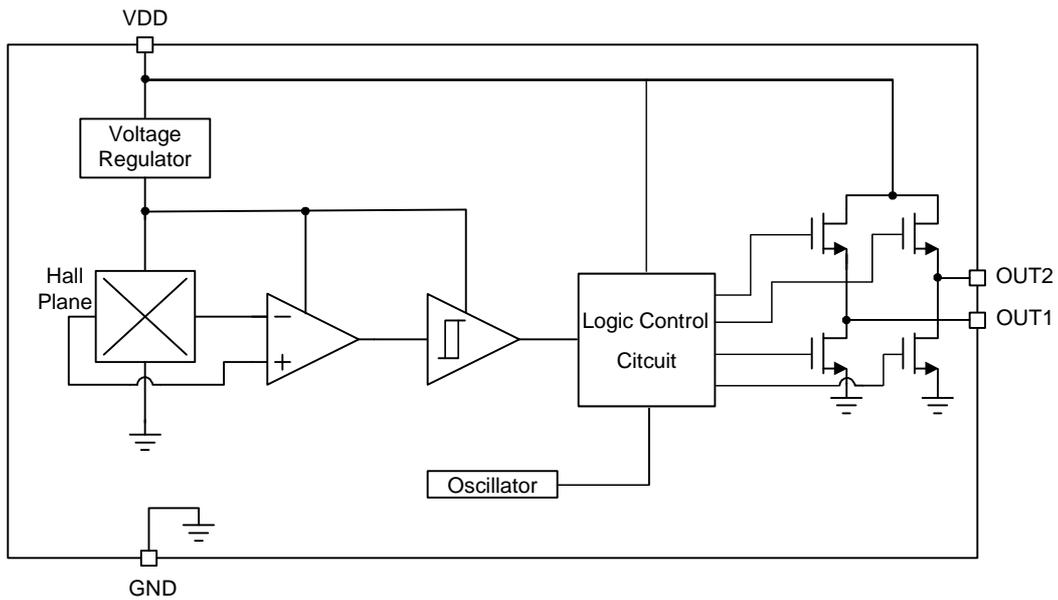


Figure 3. Functional Block Diagram of GH466

◆ **Absolute Maximum Ratings** $T_A = 25^\circ\text{C}$ (Note 1)

Parameter	Symbol	Condition	Value	Unit
Supply Voltage (Continuous)	$V_{DD(\text{CONT})}$		-0.3 to 20	V
Supply Voltage (Peak)	$V_{DD(\text{PEAK})}$	$\leq 100\text{s}$	20	V
Supply current (Fault)	$I_{DD(\text{FAULT})}$		4.0	mA
Continuous current	$I_{OUT(\text{CONT})}$		600	mA
Hold current	$I_{OUT(\text{HOLD})}$		1000	mA
Peak current	$I_{OUT(\text{PEAK})}$	$\leq 200\mu\text{s}$	1500	mA
Power dissipation	P_D	TO-94(SIP-4L)	550	mW
Thermal Resistance (Junction to Ambient)	θ_{JA}	TO-94(SIP-4L)	227	$^\circ\text{C}/\text{W}$
Thermal Resistance (Junction to Case)	θ_{JC}	TO-94(SIP-4L)	49	$^\circ\text{C}/\text{W}$
Operating Junction temperature	T_J		-40 to 85	$^\circ\text{C}$
Storage temperature	T_{STG}		-55 to 160	$^\circ\text{C}$
Magnetic Flux Density	B		Unlimited	Gauss
IR-Reflow Lead Temperature	T_P	10s	260	$^\circ\text{C}$

◆ **Recommended Operating Conditions**

Parameter	Symbol	Min	Max	Unit
Power Supply Voltage	V_{DD}	2.5	18	V
Operation Temperature	T_A	-40	85	$^\circ\text{C}$

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

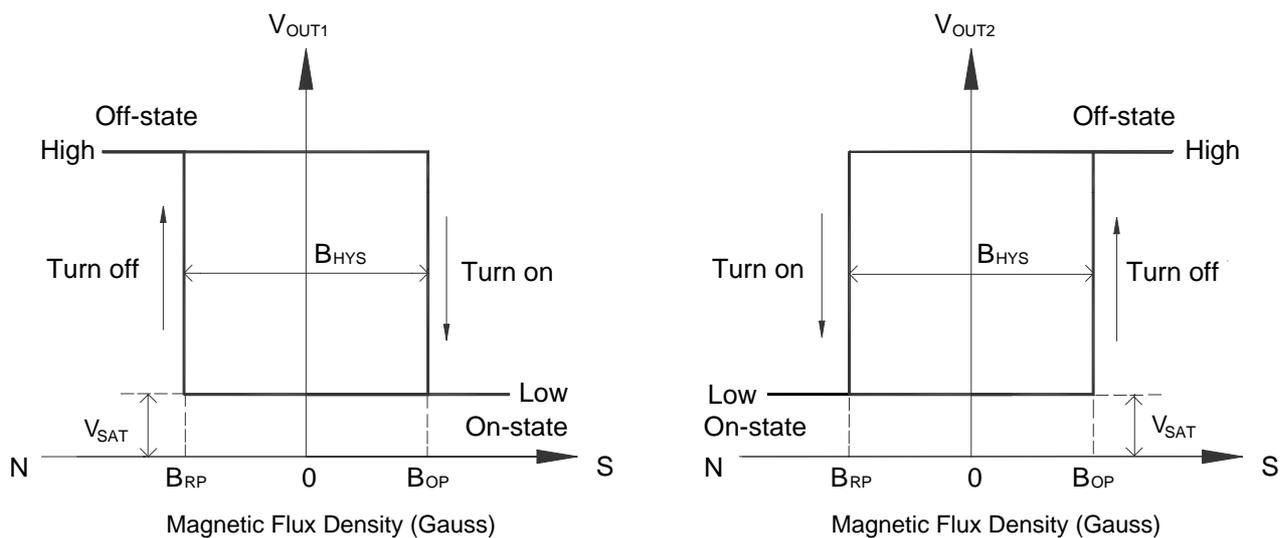
$V_{DD}=12V$, $T_A=25^\circ C$, unless otherwise specified.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}	Operating	2.5		18	V
Supply Current	I_{DD}	Output open		4.0	5.5	mA
Continuous Current	I_{OUT}	Average		600		mA
Output Driver ON-Resistance	R_{DSON}	$T_A=25^\circ C$, $I_{OUT}=500mA$		2.3		Ohm
Output ON Time (Restart)	t_{ON}	Locked Rotor		0.5		s
Output OFF Time	t_{OFF}	Locked Rotor		4.0		s
Thermal Shutdown Threshold	T_{SD}			170		$^\circ C$

◆ Magnetic Characteristics

$V_{DD}=12V$, $T_A=25^\circ C$, unless otherwise specified.

Parameter	Symbol	Min	Typ	Max	Unit
Operating Point	B_{OP}		15	35	Gauss
Releasing Point	B_{RP}	-35	-15		Gauss
Hysteresis	B_{HYS}		30		Gauss



◆ Test Circuit

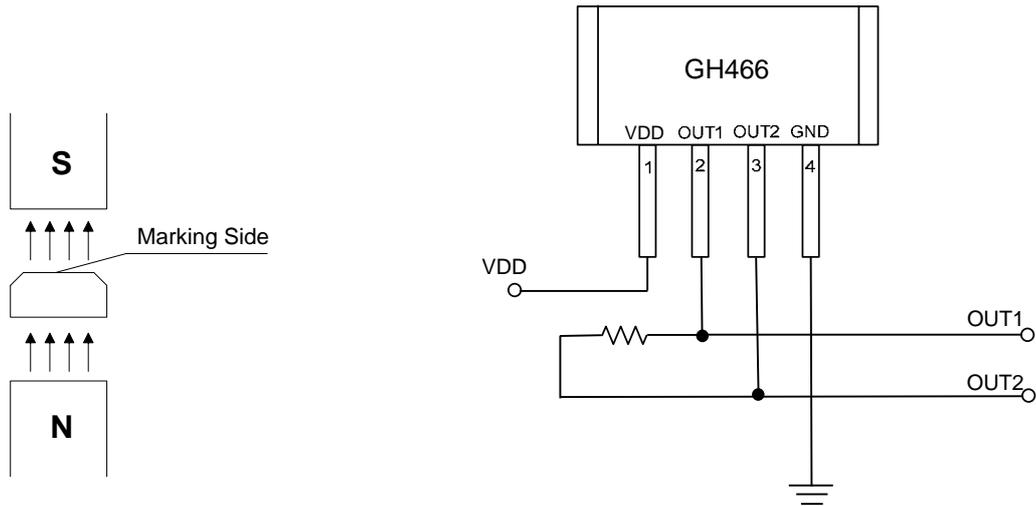


Figure 4. Basic Test Circuit

◆ Typical Application

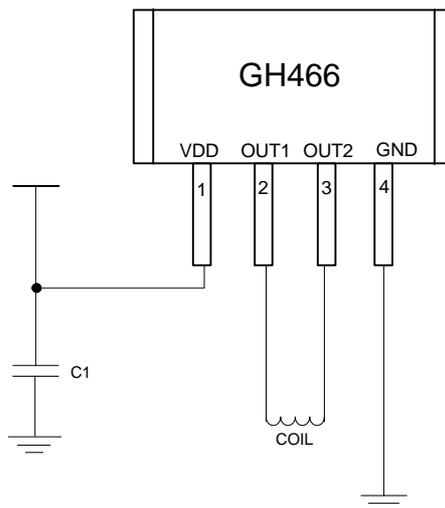
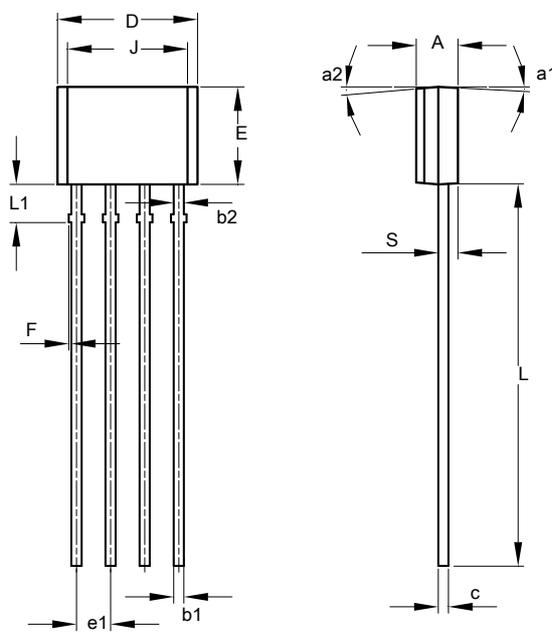
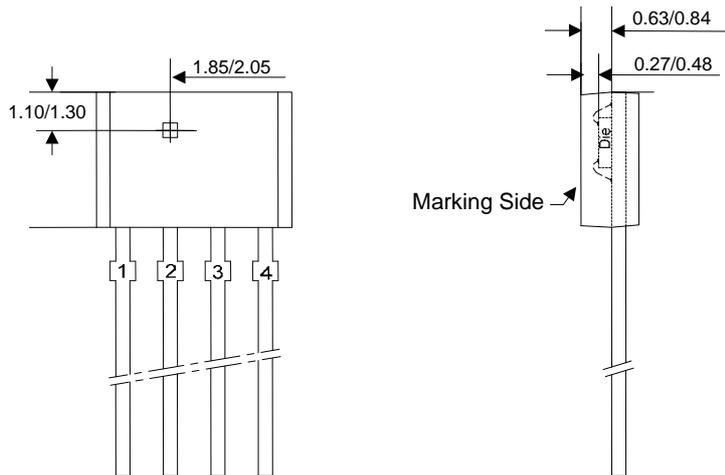


Figure 5. Typical Application Circuit

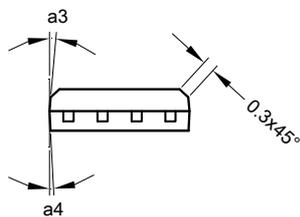
◆ Package Information

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



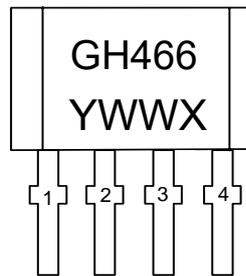
Size	MIN.	MAX.	TYP.
A	1.45	1.65	1.55
b1	0.38	0.44	0.40
b2	-	-	0.48
c	0.35	0.45	0.40
D	5.12	5.32	5.22
e1	1.24	1.30	1.27
E	3.55	3.75	3.65
F	0.00	0.20	-
J	4.10	4.30	4.20
L	14.00	14.60	14.30
L1	1.32	1.52	1.42
S	0.63	0.83	0.73
a1	-	5°	3°
a3	10°	12°	11°
a4	5°	7°	6°

Unit: mm



◆ Marking Information

(SIP-4L/TO-94)



GH466 :IC Mode Name

Y :last number of manufacture year 0~9, “7”=2017

WW :week number of manufacture 01~52

X :Internal code