

◆ General Description

GH2101 is a latch Hall sensor IC, designed in BiCMOS technology, consists of devices that feature fast power-on time and low-noise operation. GH2101 offers superior stability and stress-resistance and include voltage regulator, Hall-voltage generator, small-signal amplifier, Schmitt trigger, and NMOS output transistor. While the magnetic flux density is larger than operate point (BOP), the output will be turned off (High) and the output is latched “off” state until the magnetic flux density is lower than release point (BRP), then turn on (Low). The GH2101 can operate in the Voltage range of 3~24V and the temperature range of -40~+150°C.

The small geometries of the BiCMOS process allow these devices to be provided in small packages. GH2101 is available in SOT23-3L and TO-92S.

◆ Features

- AEC-Q100 automotive qualified
- Operating voltage range: 3~24V
- Operating temperature range:40~+150°C
- Fast power-on time
- Low NOISE
- Reverse-battery protection
- Robust EMC performance
- Regulator stability without a bypass capacitor

◆ Applications

- Automotive seat motor detection
- Automotive smart cockpit
- Window lifter sensor
- Sunroof/Tailgate sensor
- Industrial motor position detection
- Medical devices utilizing motors

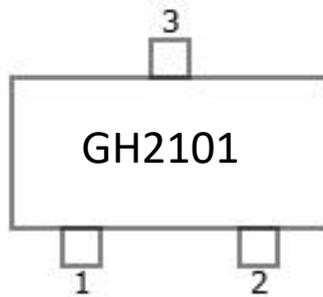


Figure 1 .Package Type of GH2101

◆ Ordering information

Product	Package	Temp	BOP/BRP	Marking ID	Packing Type	Quantity
GH2101LSW8	SOT23-3L	-40~150C	±80GS	GH2101	Tape and Reel	3000 pcs
GH2101LUA8	TO-92S	-40~150C	±80GS	GH2101	Bulk	1000 pcs
GH2101LSW2	SOT23-3L	-40~150C	±20GS	GH2101	Tape and Reel	3000 pcs

◆ Pin Configuration



Pin Number	Pin Name	Function
1	VCC	Power supply
2	VOUT	Output
3	GND	Ground

◆ Functional Block Diagram

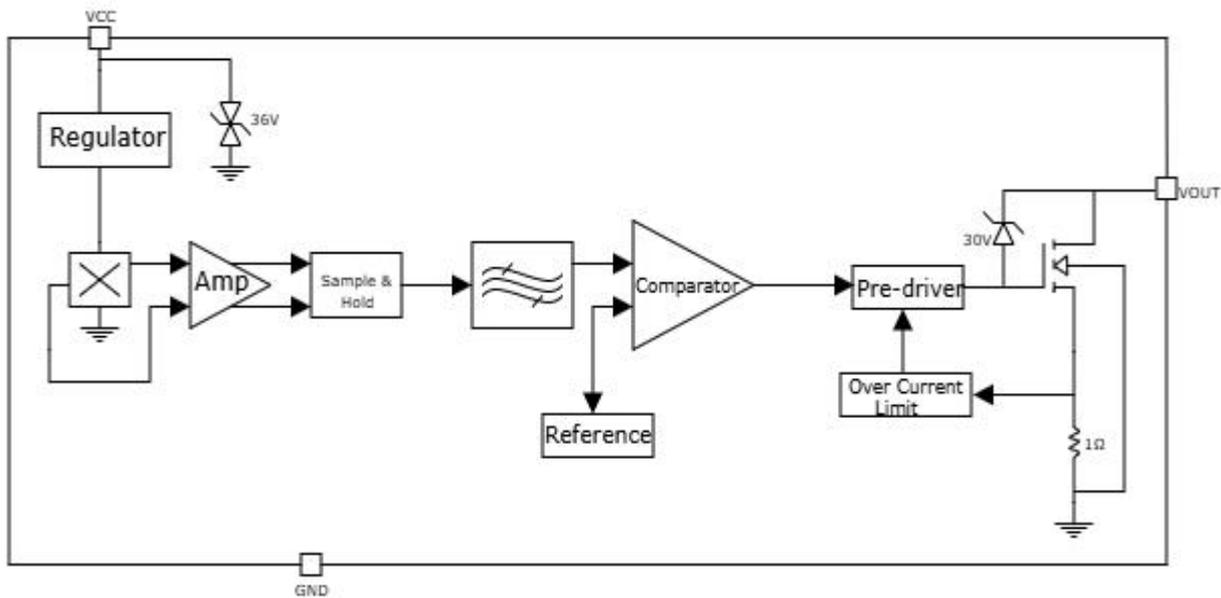


Figure 2 .Block Diagram of GH2101

◆ Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ (Note)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	36	V
Reverse Supply Voltage	V_{RCC}	-36	V
Output Off Voltage	V_{OUT}	30	V
Reverse Output Voltage	V_{RCC}	-0.5	V
Output Current	$I_{OUTSINK}$	40	mA
Operation Temperature	T_A	-40~+150	$^\circ\text{C}$
Junction Temperature	$T_{J(max)}$	+165	$^\circ\text{C}$
Storage Temperature	T_{ST}	-65~+170	$^\circ\text{C}$

Note:

- 1) If any one of the maximum ratings is exceeded, the device may be damaged.
- 2) The maximum power supply voltage that can work normally must be adjusted according to the constraints of junction temperature and power consumption.
- 3) This parameter is not mainly affected by the internal circuit of GH1836, it is mainly determined by the external interface circuit.

◆ Electrical Characteristics

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage	V_{CC}	Operating	3	--	24	V
Output Leakage Current	I_{OUTOFF}	$V_{OUT} = 24\text{V}$, $B < BRP$	--	--	10	μA
Output leakage current	$V_{OUT(SAT)}$	$I_{OUT} = 20\text{mA}$, $B > BOP$	--	160	400	mV
Supply Current	I_{CCON}	$B > BOP$	--	3.7	7.5	mA
	I_{CCOFF}	$B < BRP$	--	3.5	7.5	mA
Output Rise Time	t_r	$V_{CC} = 12\text{V}$, $R_L = 820\Omega$, $C_{OUT} = 12\text{pF}$	--	--	1.7	μs
Output Fall Time	t_f	$V_{CC} = 12\text{V}$, $R_L = 820\Omega$, $C_{OUT} = 12\text{pF}$	--	--	400	μs
Reverse Battery Current	I_{RCC}	$V_{RCC} = -36\text{V}$	--	--	-10	mA
Supply Zener Clamp Voltage	V_Z	$I_{CC} = 5\text{mA}$, $T_A = 25^\circ\text{C}$	36	--	--	V
Supply Zener Current	I_Z	$V_Z = 36\text{V}$, $T_A = 25^\circ\text{C}$	--	--	5	mA

◆ Magnetic Characteristics

For GH2101LSW8/ GH2101LUA8 models

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operate Point	BOP	VCC=12V,TA=25°C	--	80	--	GS
Release Point	BRP	VCC=12V,TA=25°C	--	-80	--	GS
Hysteresis	BHYS	VCC=12V,TA=25°C	--	160	--	GS

For GH2101LSW2 model

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Operate Point	BOP	VCC=12V,TA=25°C	--	20	--	GS
Release Point	BRP	VCC=12V,TA=25°C	--	-20	--	GS
Hysteresis	BHYS	VCC=12V,TA=25°C	--	40	--	GS

◆ Functional Description

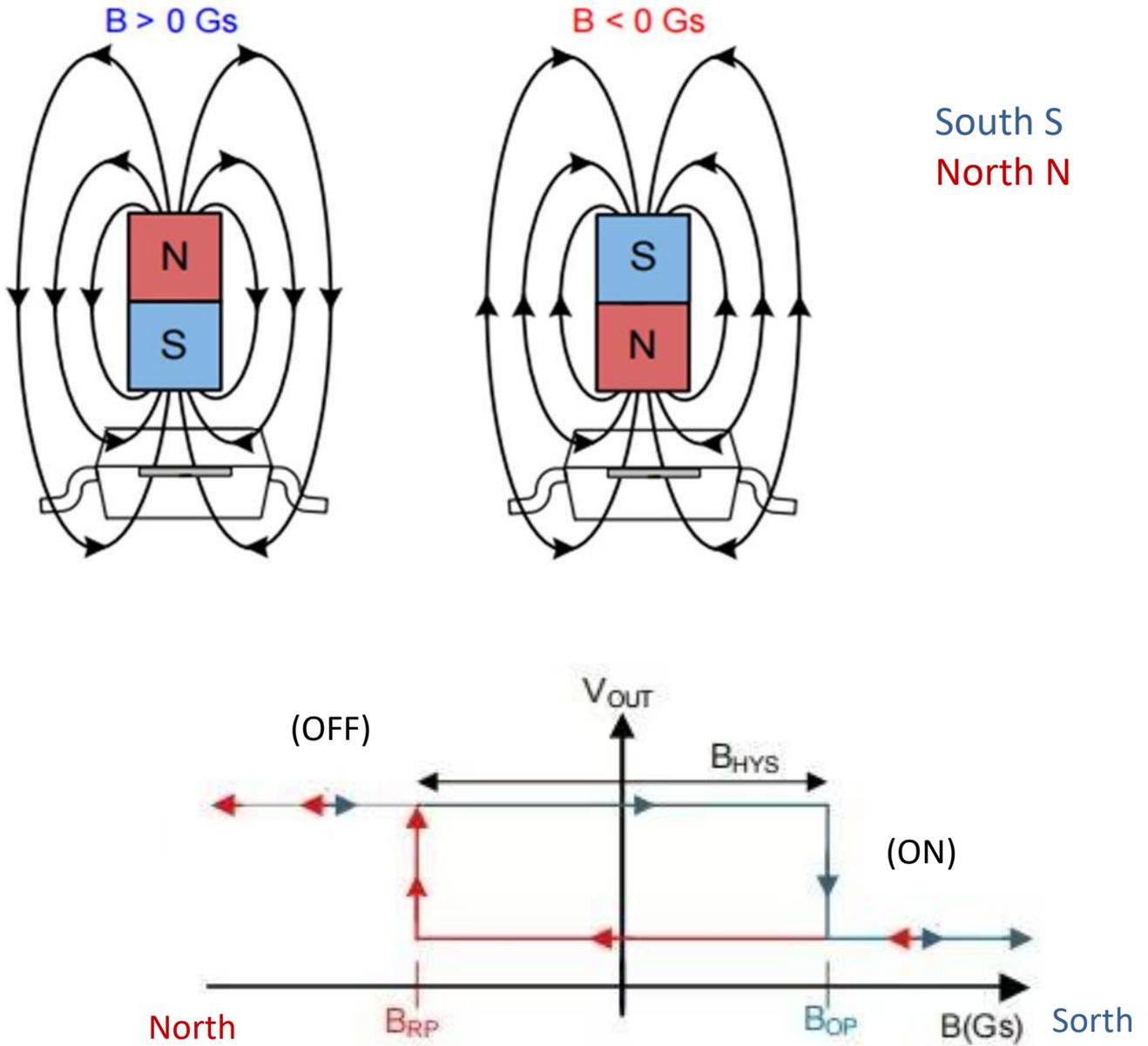
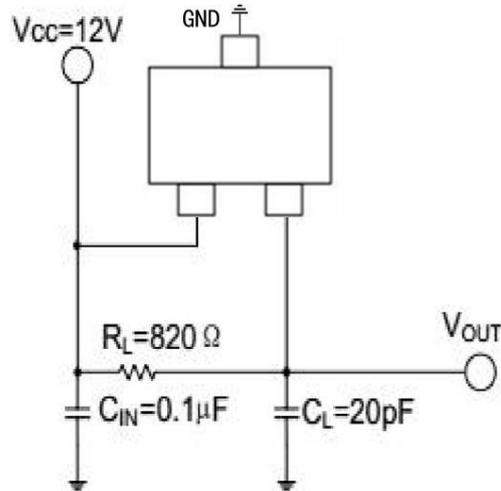


Figure 3 Output characteristics of GH2101

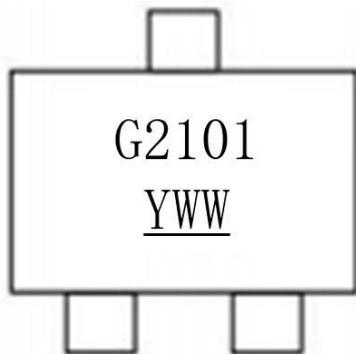
◆ Typical Application



Note:

C_{IN} is used to stabilize external power supply; R_L is the pull-up resistance necessary for open collector output, depending on the current capacity required by the back-end input. C_L is used to filter out the output noise, this capacitor will affect the rise time of the waveform.

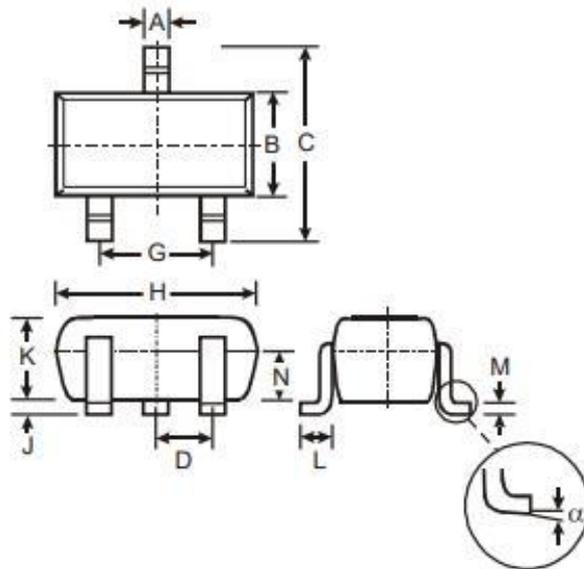
◆ Marking Information



Y: Year: " 4 " =2024

WW: Nth Week 01~52

◆ Package Information



Dim	Min	Max	Typ
A	0.35	0.50	0.38
B	1.50	1.70	1.60
C	2.70	3.00	2.80
D	-	-	0.95
G	-	-	1.90
H	2.90	3.10	3.00
J	0.013	0.10	0.05
K	1.00	1.30	1.10
L	0.35	0.55	0.40
M	0.10	0.20	0.15
N	0.70	0.80	0.75
α	0°	8°	-
All Dimensions in mm			

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◆ About GoChip

GoChip Microelectronics is a Chinese high-tech company, dedicating in the R&D, sales, and technical services of sensor chips. It was founded in 2010 and Headquarter in Shanghai, China. Now we have two R&D centers in both Shanghai and Hangzhou city, as well as marketing service networks throughout the country.

Taking the core concept of "Enhance oneself and Surpass expectations", and with more than a decade of persistent technological innovation and high-quality services, GoChip has gradually established a business mode with automotive electronics as the main track and continuously developing in the fields of new energy, industrial automation, consumer electronics. In automotive electronics, we are committed to providing customers with high-performance and reliable sensor chip solutions. Our products are widely used in automotive chassis control systems, engine power systems, and intelligent cabin electric systems. GoChip will continue to increase investment in technological R&D, actively explore the development and promotion of new products, and strive to make greater contributions to China Chip.

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