ChenYang
Technologies GmbH & Co. KG

Unipolar Hall Effect Switch CYD1102G

The CYD1102G is an integrated Hall Effect sensor designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and open-collector output. An internal band gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.
A north pole of sufficient strength will turn the output ON. In the absence of a magnetic field, the output is OFF.

Features

◆ Wide operating voltage range 3V to 28V	◆ Reverse polarity protection
◆ Maximum output sink current 50mA	◆ Package : SIP-3L
◆ Open collector pre-driver	

Block Diagram

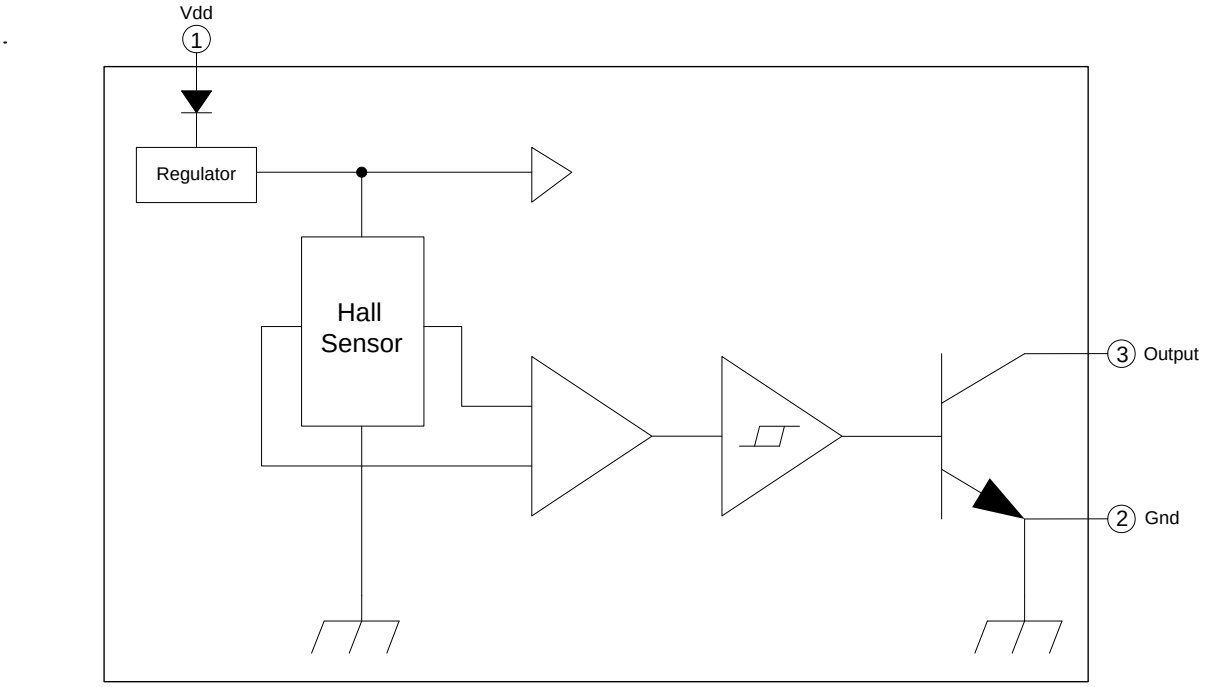

Figure.1

Recommended Operating Conditions

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Supply Voltage	V_{DD}	-	3.0		28	V
Operating Temperature Range	T_A	-	-40		150	℃

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Absolute Maximum Ratings

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Operating Temperature	T_{OP}	-	-40		150	℃
Storage Temperature	T_{ST}	-	-65		150	℃
DC Supply Voltage	V_{DD}	-	3.0		28	V
Supply Current	I_{DD}	-			10	mA
Continuous Current	$I_{O(CONT)}$				50	mA
Junction temperature	T_J				160	℃
Power Dissipation	P_D	SIP-3L			500	mW
Thermal Resistance	θ_{JC}	SIP-3L		0.27		℃/mW
Lead Temperature		10sec			260	℃

Electrical Characteristics V_{DD}=12.0V, T_A=25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Average Supply Current(no load)	I_{DD}	-		3.5	10	mA
Output Saturation Voltage	V_{SAT}	Iout= 20mA		165	200	mV
Output Rise time	t_r	RL=500Ω, CL=20pF(Figure 7)	0.2	-	0.75	μs
Output Fall time	t_f	RL=500Ω, CL=20pF(Figure 7)	20	-	150	ns

Magnetic Characteristics

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Operate Points	B_{OP}		+140	-	-	G
Release Points	B_{RP}		-	-	+60	G
Hysteresis	B_{HYST}		30	-	120	G

Hysteresis Characteristics

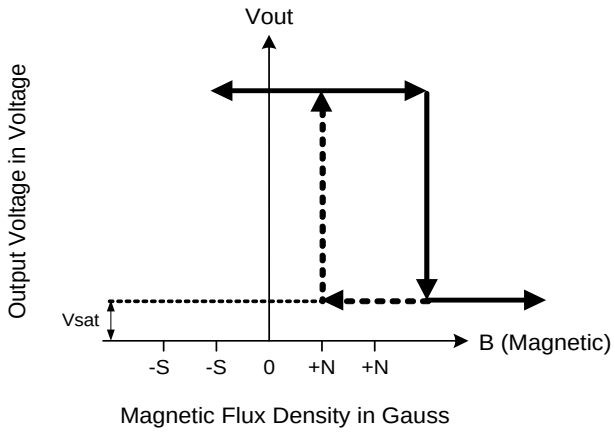

Figure.2

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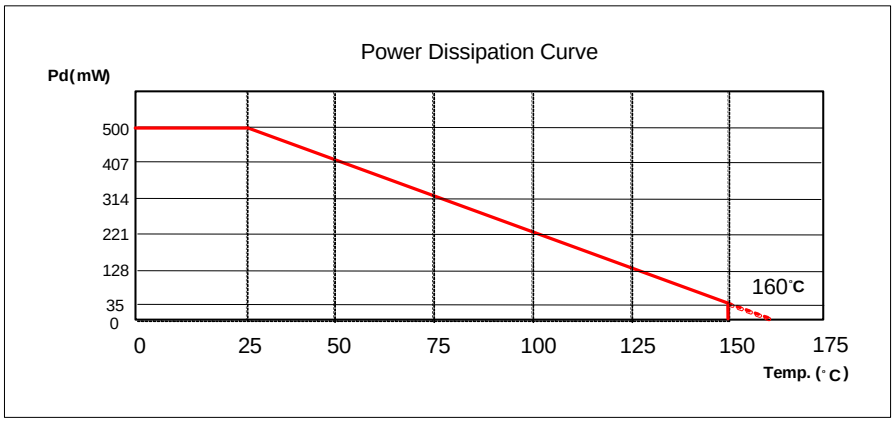
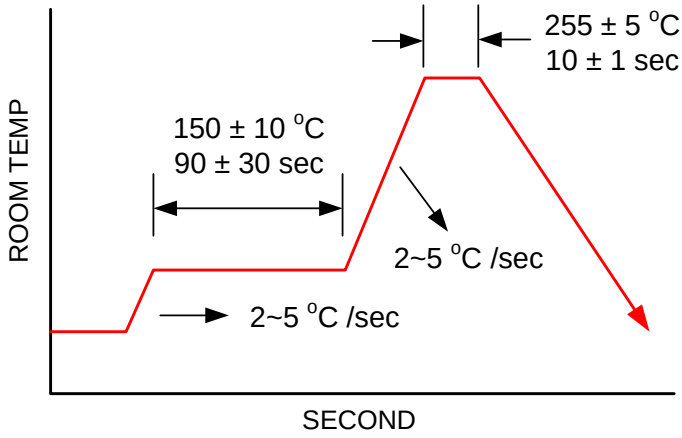


Figure.3



Soldering Condition

Figure.4

Pin Connection

[Top View]

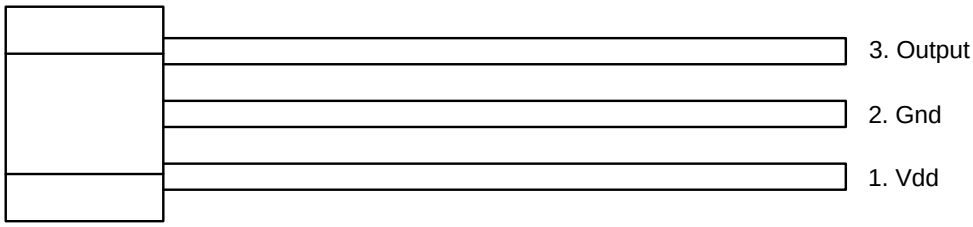


Figure.5

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Pin Description

Name	I/O	Pin No.	Description
Vdd	P	1	Positive power supply
Gnd	G	2	Ground
Output	O	3	Driver output

Legend: I=input, O=output, I/O=input/output, P=power supply, G=ground

Marking Information

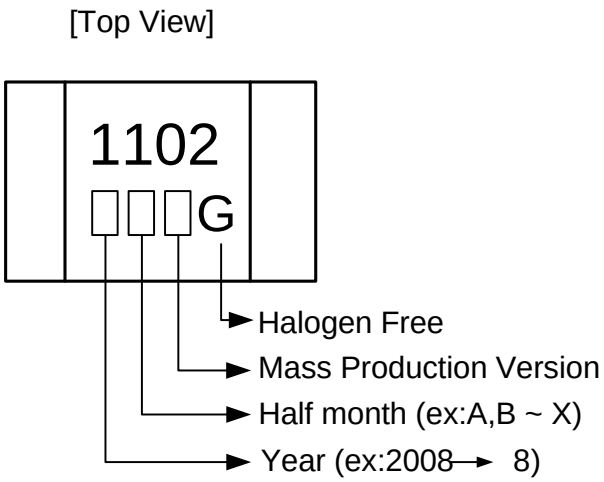

Figure.6

Order Information

Part Number	Operating Temperature	Package	MOQ
CYD1102G	-40 ℃ to +150 ℃	SIP-3L	1000ea

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Package Dimension (Unit: mm)

SIP-3L(Halogen Free)

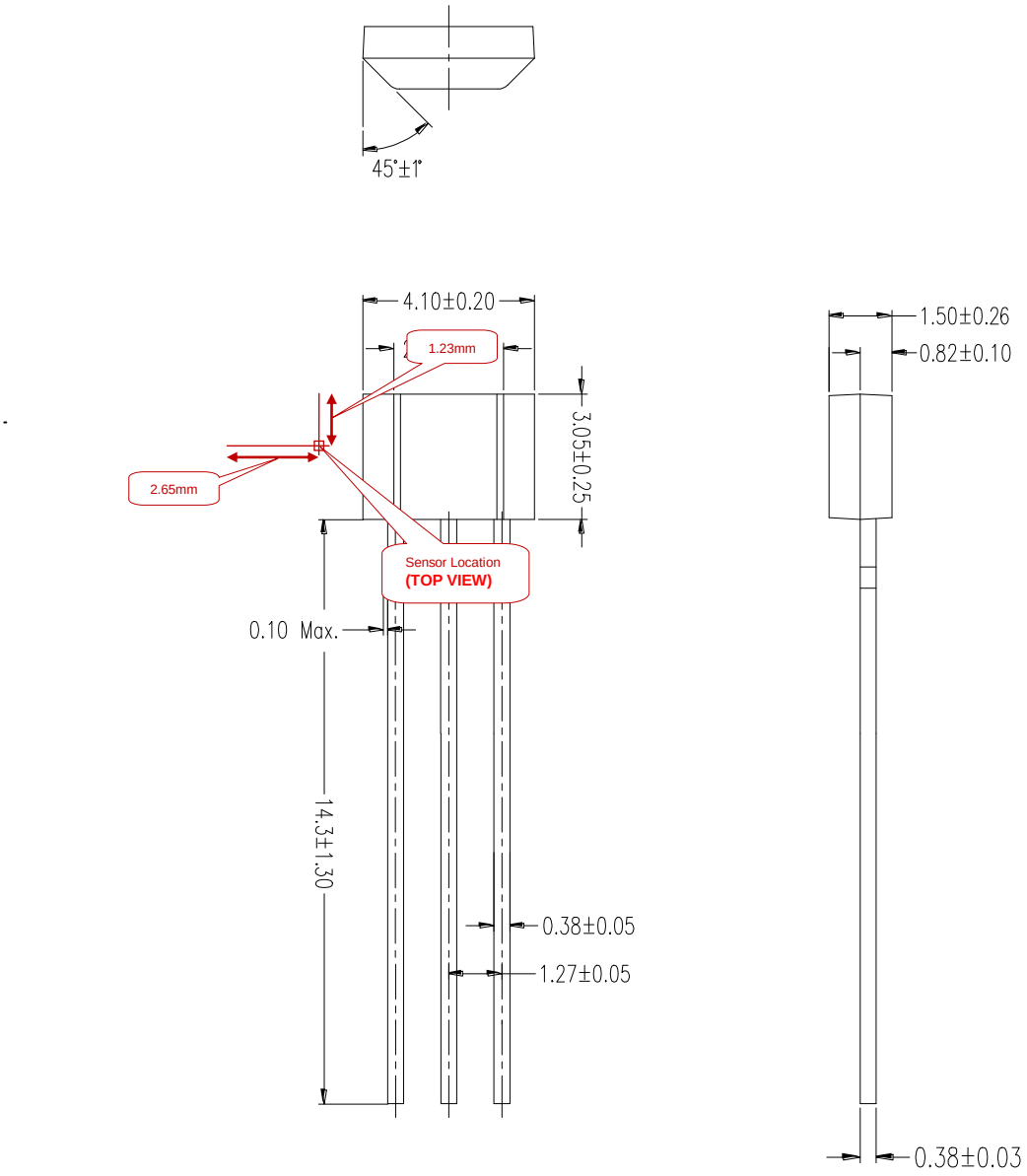

Figure.7

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Test Circuit

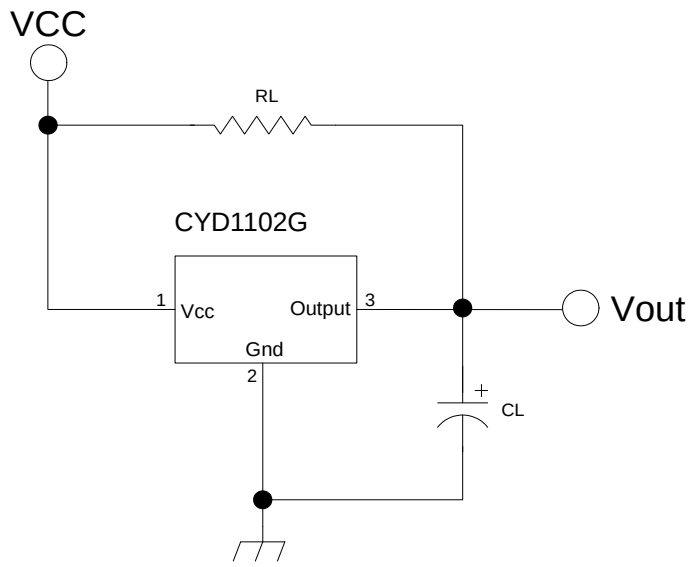

Figure.8

Functional Application Circuit

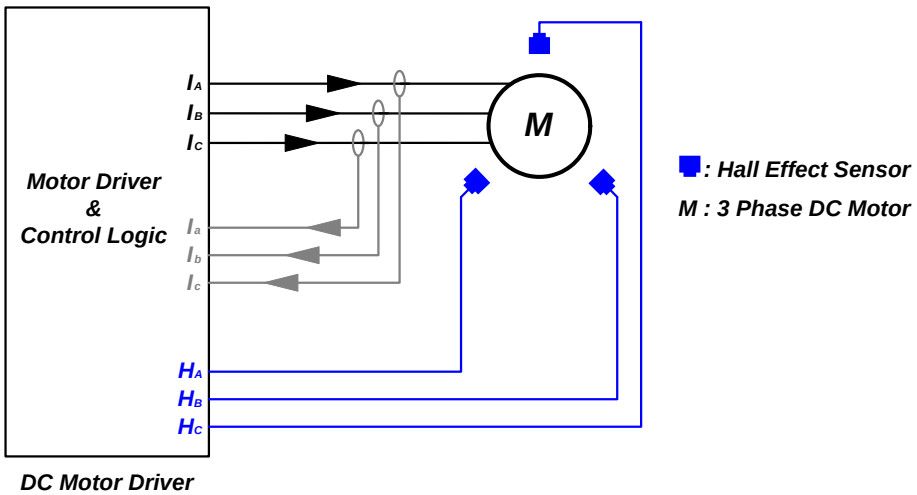

Figure.9

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