

General Description

The HXJ1843 is an integrated Hall effect High Sensitivity latched sensor designed for electronic commutation of brush-less DC motor applications. The device using High Voltage process includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifiers the Hall voltage, and a Schmitt trigger to provide switching hysteresis for noise rejection, and an open-drain output. An internal band-gap regulator is used to provide temperature compensated supply voltage for internal circuits and allows a wide operating supply range.

Features

- ※ Wide operating voltage range: 2.7V~24V
- ※ Operating temperature range: -40°C ~+150°C
- ※ Supply Reverse polarity protection
- ※ Output current limiting protection
- ※ OD Output
- ※ Package: SIP-3L

Applications

- ※ Rotor Position Sensing
- ※ Brush-less DC Motor
- ※ Speed measurement

Pin Configuration

(Top View)



SIP-3L

Pin Name	Pin Number	HXJ1843 Description
V _{DD}	1	IC Power Supply
GND	2	IC Ground
OUTPUT	3	Output PIN

Application Circuit

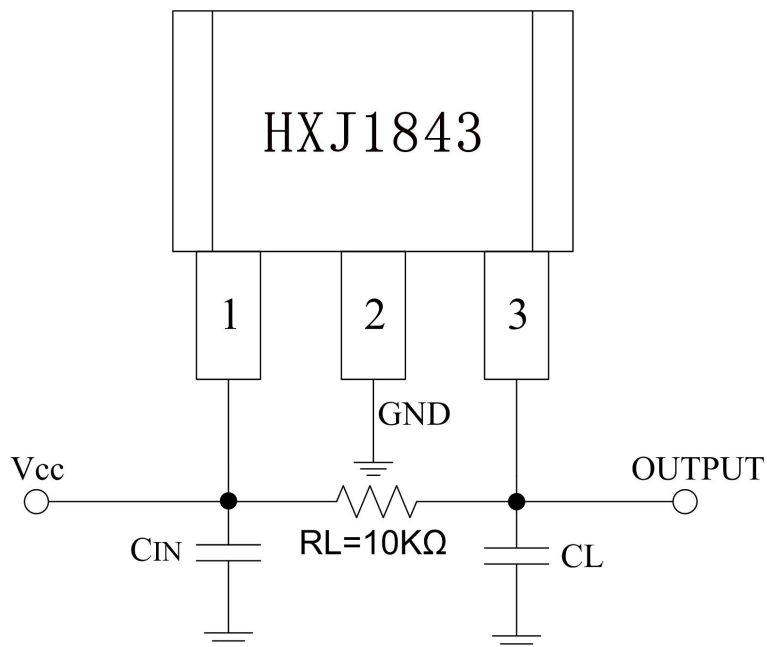


Figure 1, Application Circuit

Note: C_{IN} is for power stabilization and to strengthen the noise immunity, the recommended capacitance is 0.1~1uF. If the VCC power supply is clean, the C_{IN} can be cancelled.

Ordering Information

Part Number	Package Type	Packing Qty	B _{OP} (Gauss)	B _{RP} (Gauss)	Temperature	Eco Plan	Lead
HXJ1843DMF	SIP-3L	1000pcs	25(Typ.)	-25(Typ.)	-40~ 150°C	ROHS	Cu

Block Diagram

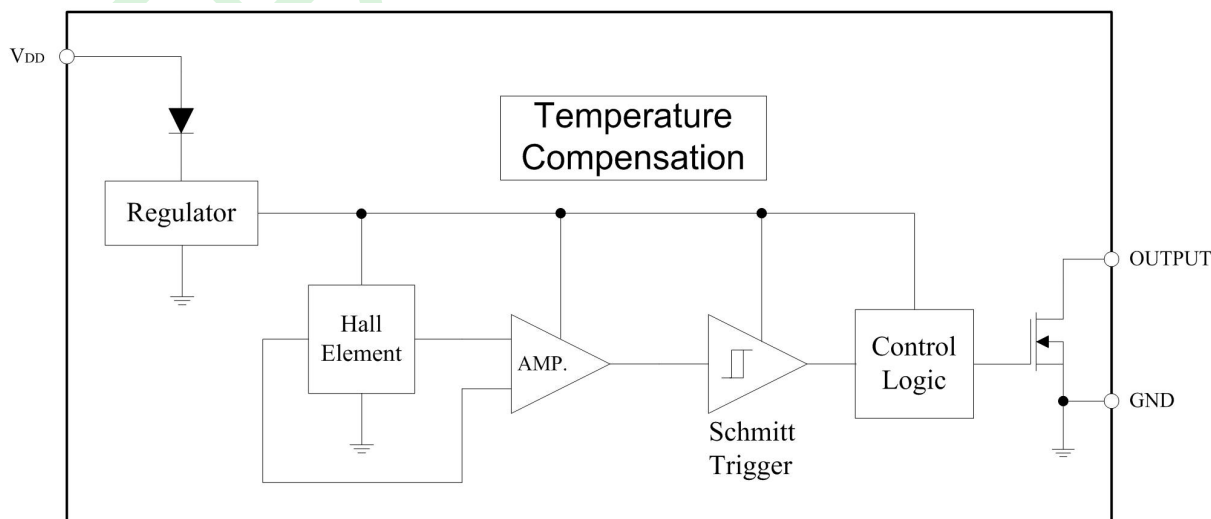


Figure 2, Block Diagram Of HXJ1843D

Absolute Maximum Ratings

HXJ1843 Parameter		Value
Supply Voltage		36V
Output OFF Voltage, V_{out}		36V
Reverse Voltage		30V
Output Maximum Sink Current(AVG)		25mA
Power Dissipation	$T_a=25^{\circ}\text{C}$	400mW
Thermal Resistance (SIP-3L)	T_{ja}	0.34 $^{\circ}\text{C}/\text{mW}$
	T_{jc}	0.42 $^{\circ}\text{C}/\text{mW}$
Operating Temperature Range		-40 $^{\circ}\text{C}$ ~+150 $^{\circ}\text{C}$
Storage Temperature Range		-40 $^{\circ}\text{C}$ ~+150 $^{\circ}\text{C}$
Junction Temperature		+150 $^{\circ}\text{C}$
Lead Temperature(Soldering,10 sec)		+260 $^{\circ}\text{C}$

Recommended Operating Conditions^{3/4/5}

HXJ1843 Parameter	Symbol	Rating	Unit
V_{DD} Pin Voltage To GND	V_{DD}	2.7 to 24	V
Operating Temperature Range	T_{OP}	-40 to +150	$^{\circ}\text{C}$

DC Electrical Characteristics(at $T_a=25^{\circ}\text{C}$)

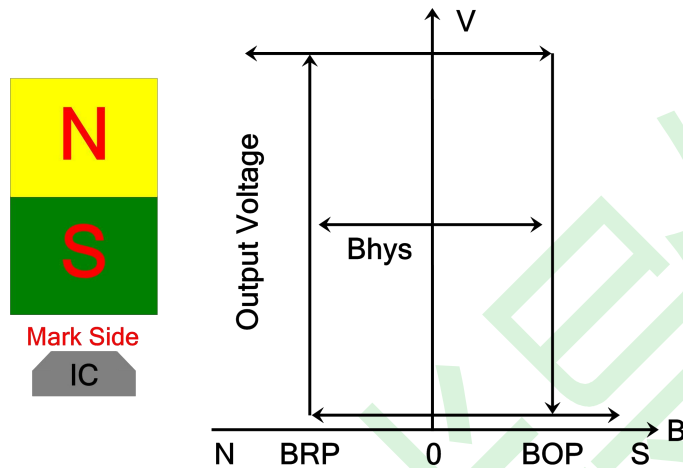
HXJ1843 Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Operating Voltage	V_{DD}		2.7	-	24	V
Supply current	I_{DD}	Pin3 is NC $V_{CC}=2.7\text{V}\sim 24\text{V}$, $B=-50\text{GS}$	0.8	2.55	5	mA
Output Saturation Voltage	V_{SAT}	$V_{CC}=5\text{V}$, $B=50\text{GS}$, $I_o=15\text{mA}$	-	0.24	0.5	V
Output Pin Leakage Current	I_{OL}	Pin3=24V	-	0.01	1	μA
Output Over Current Limiting	I_L	Pin3=5V, $B=50\text{GS}$	30	50	70	mA
Output rise time	t_r	$R_L=1.5\text{K}\Omega$, $C_L=50\text{PF}$	0.001	-	2	μS
Output fall time	t_f	$R_L=1.5\text{K}\Omega$, $C_L=50\text{PF}$	0.001	-	2	μS

Magnetic Characteristics

$T_a=25^{\circ}\text{C}$					
HXJ1843 Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate point	B_{OP}	8	25	40	G
Release Point	B_{RP}	-40	-25	-8	G
Hysteresis	B_{HY}	30	50	70	G

Output Vs. Magnetic Pole

Part No.	Magnetic Pole	Test Conditions	Output
HXJ1843D	South Pole	$B > B_{OP}$	Low
HXJ1843D	North Pole	$B < B_{RP}$	High



HXJ1843

Figure 3, Operational Characteristics

Hall Sensor Location

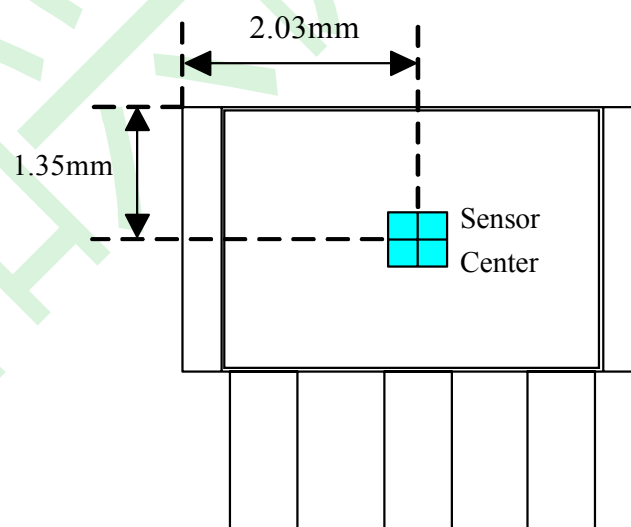
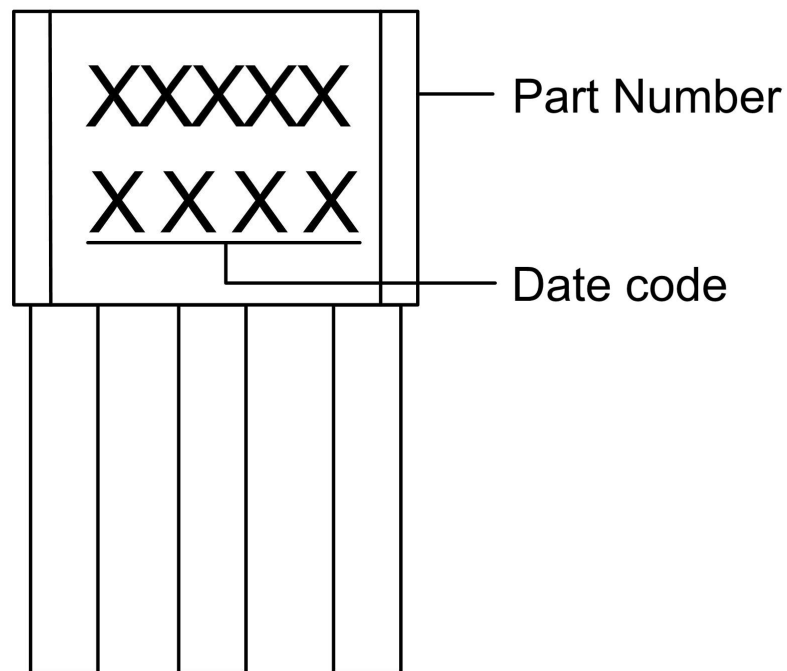


Figure. 4, Hall Sensor Location

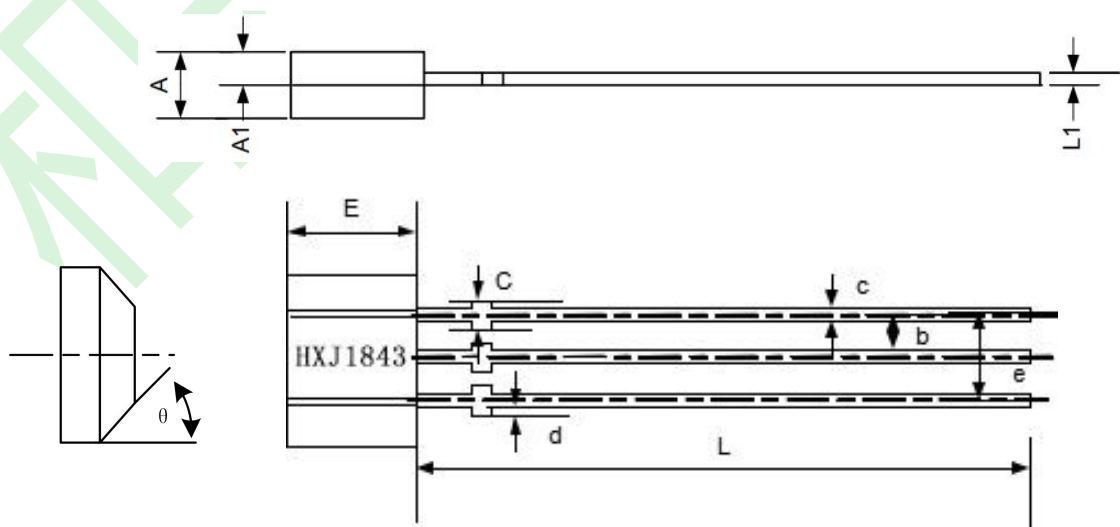
Marking Information

HXJ1843 SIP-3L



Package Information

HXJ1843 SIP-3L



Symbol	HXJ1843Dimensions In Millimeters		HXJ1843Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.245	1.753	0.049	0.069
A1	0.750REF		0.030REF	
b	1.270REF		0.050REF	
C	0.406	0.550	0.016	0.022
c	0.330	0.495	0.013	0.019
D	4.05REF		0.159REF	
d		0.100		0.004
E	2.73	3.27	0.107	0.129
e	2.540REF		0.100REF	
L	13.60	15.60	0.535	0.614
L1	0.350	0.410	0.014	0.016
θ		45°		45°

Packing Information

HXJ1843 SIP-3L

1. Packing type: Box
2. Packing minimum: 1000pcs