Complementary Output Hall Effect Fan Driver

❖ GENERAL DESCRIPTION

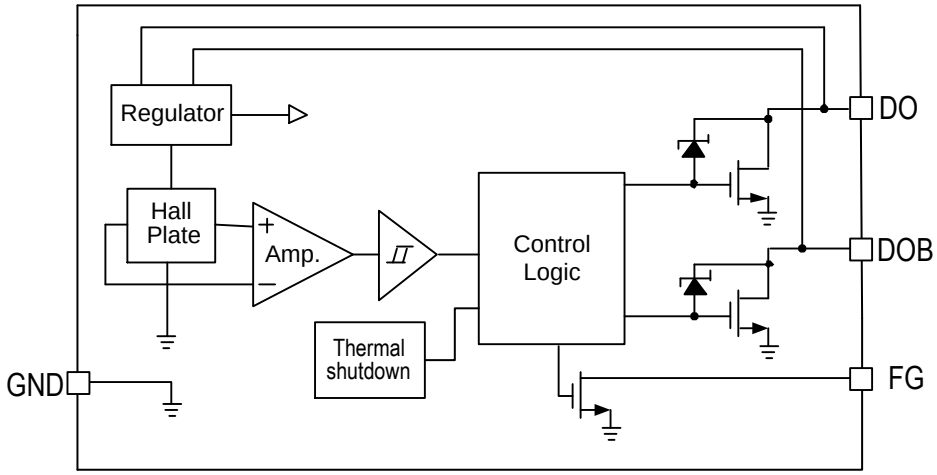
MA211F are integrated Hall sensors with output drivers, mainly designed for electronic commutation of brush-less DC Fan. This IC is using HV BCD process internally includes the regulator, protecting diode, Hall plate, amplifier, comparator, and a pair of complementary open-Drain outputs (DO, DOB).

While the magnetic flux density (B) is larger than operate point (Bop), DO will turn on (low), and meanwhile DOB will turn off (high). Each output is latched until B is lower than release point (Brp), and then DO, DOB transfer each state. For DC fan application, sometimes need to test power reverse connection condition. Internal diode only protects chip-side but not for coil-side. If necessary, add one external diode to block the reverse current from coil-side.

❖ FEATURES

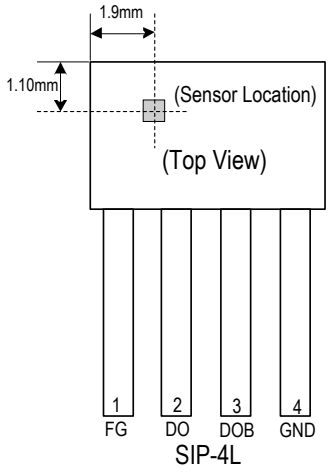
- On-chip Hall effect sensor with two different sensitivity and hysteresis settings
- Wide operating voltage range: 4.0V~20V
- Output sink current up to 0.4A
- Built-in FG output
- -40°C to 85°C operating temperature
- Low Profile SIP-4L Package(Green and Lead Free)

❖ BLOCK DIAGRAM



❖ PIN ASSIGNMENT

The package of MA211F is SIP-4L; the pin assignment is given by:



Name	Description
FG	Rotation speed output
DO	Output 1
DOB	Output 2
GND	Ground.

❖ ORDER / MARKING INFORMATION

Order Information	Top Marking
MA211XX X Package Type P4: SIP-4L Packing Blank: BAG A : Taping	211F → Part number Y Y WW X → ID code:internal WW:01~52 Year:15=2015

❖ ABSOLUTE MAXIMUM RATINGS (at T_A=25°C)

Characteristics		Symbol	Rating	Unit
Fan Supply Voltage		V_{CC}	20	V
FG Voltage		V_{FG}	20	V
FG Sink Current		I_{FG}	20	mA
Magnetic Flux Density		B	Unlimited	Gauss
Output Current	Continuous	I_O	400	mA
	Hold		500	
	Peak (start up)		700	
Power Dissipation		P_D	550	mW
Storage Temperature Range		T_{STG}	-65 to +150	°C
Thermal Resistance from Junction to case		θ_{JC}	49	°C/W
Thermal Resistance from Junction to ambient		θ_{JA}	227	°C/W
Junction Temperature		T_J	150	°C
Ambient Temperature		T_A	-40 to 85	°C