Recommended Operating Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		2.5 to 16	V
Common-phase input voltage range of Hall input	V_{ICM}		0.3 to V_{CC}-1.5	V

Electrical Characteristics at Ta = 25°C, V_{CC} = 12.0V, unless especially specified.

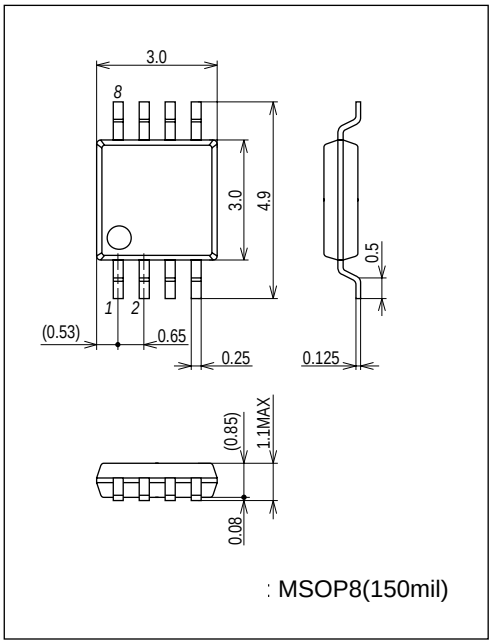
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Circuit current	I_{CC}	IN^- = 5.8V, IN^+ = 6.0V, R_L = ∞		14	19	mA
OUT output low voltage	V_{OL}	I_O = 100mA		0.1	0.2	V
OUT output high voltage	V_{OH}	I_O = 100mA		0.1	0.2	V
Hall bias voltage	V_{HB}	RH = 360Ω+91Ω	1.85	1.95	2.05	V
Hall amplifier gain	Vg		52	55	58	dB
Hall amplifier input current	V_{INR}		-10	-2	10	μA
FG output low voltage	V_{FG}	I_{FG} = 3mA		0.2	0.3	V
FG output leakage current	I_{FGL}	V_{FG} = 7V			30	μA
Thermal protection circuit	Th	* Design guarantee	150	180	200	°C

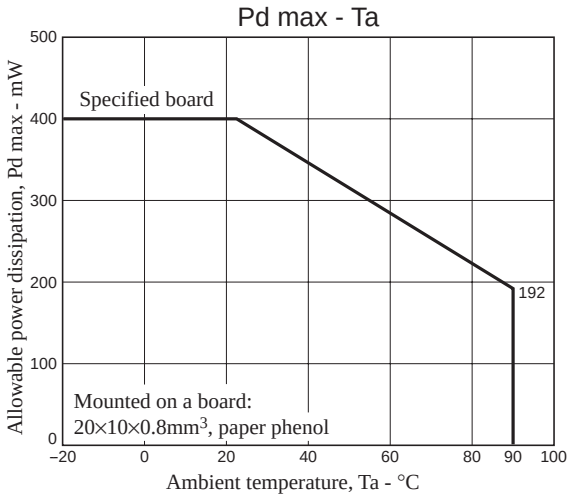
* Design guarantee : Design target. Measurement with a single unit not made.

Package Dimensions

unit : mm (typ)

3245B

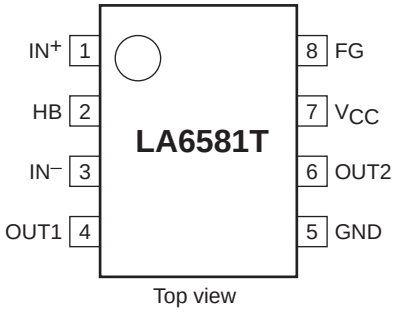




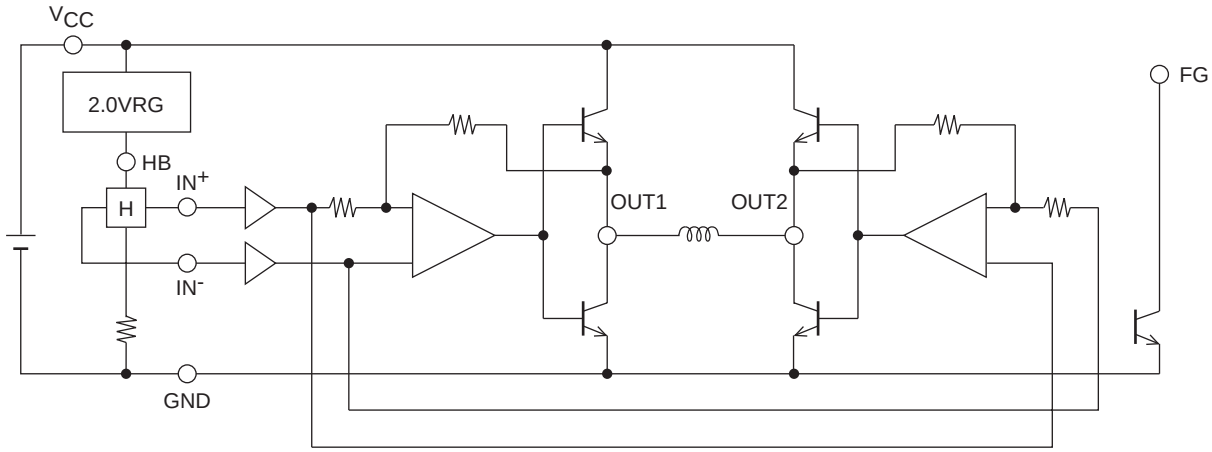
Truth Table

IN^-	IN^+	OUT1	OUT2	FG	Mode
H	L	H	L	L	During rotation
L	H	L	H	off	
–	–	off	off	–	During overheat protection

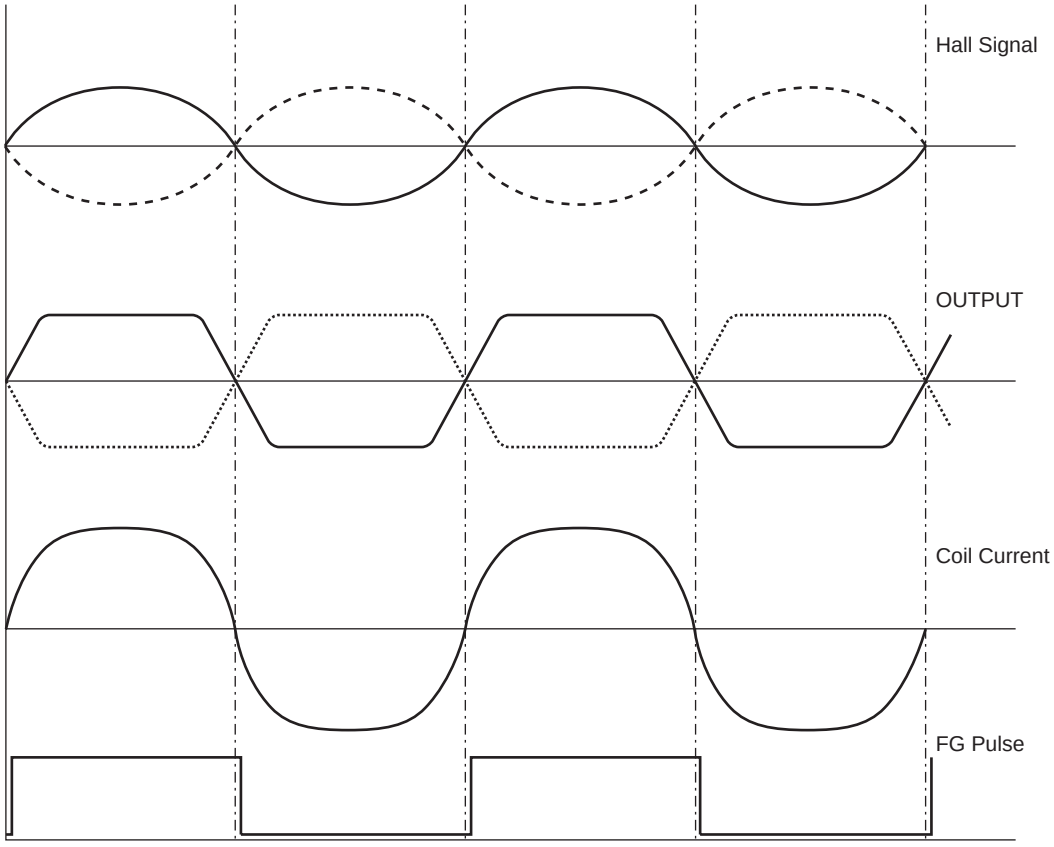
Pin Assignment



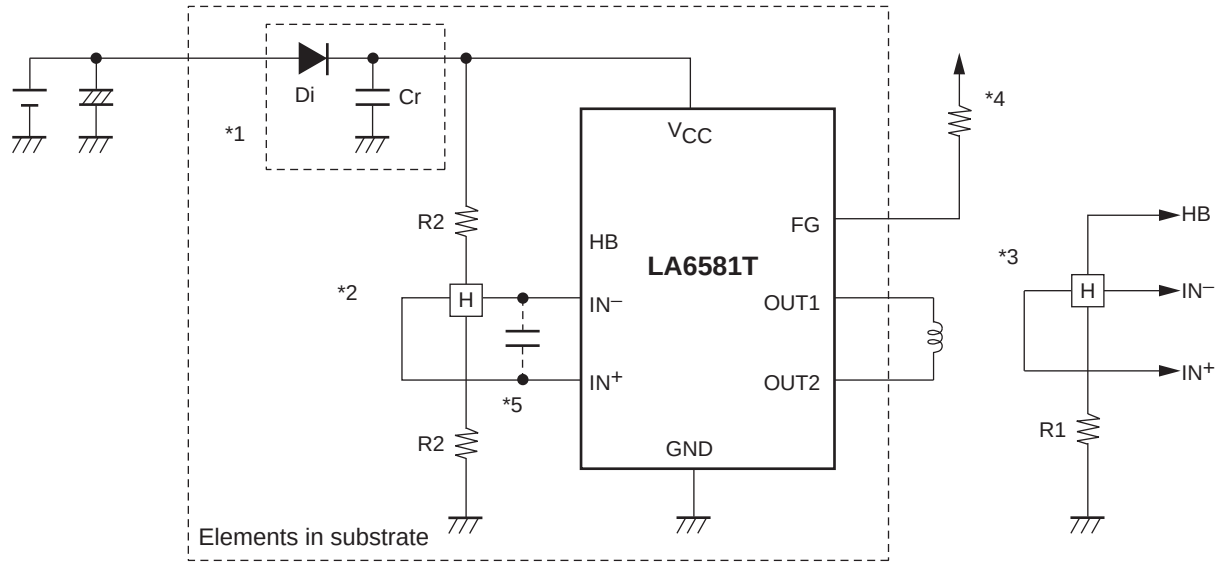
Block Diagram



Timing Chart



Application Circuit Example



*1 : When Di to prevent breakdown in case of reverse connection is used, it is necessary to insert a capacitor Cr to secure the regenerative current route. Similarly, Cr is necessary to enhance the reliability when there is no capacitor near the fan power line.

*2 : To obtain Hall bias from V_{CC}, carry out $1/2 \times V_{CC}$ bias as shown in the figure. Linear driving is made through voltage control of the coil by amplifying the Hall output. When the Hall element output is large, the startup performance and efficiency are improved. Adjustment of the Hall element can reduce the noise further.

*3 : When the Hall bias is taken from the HB pin, constant-voltage bias is made with about 2.0V. Therefore, the Hall element can provide the output satisfactory in temperature characteristics. Adjustment of the Hall output amplitude is made with R1. (When V_{CC} = 12V, the step *2 above proves advantageous for IC heat generation.)

*4 : Keep this open when not used.

*5 : When the wiring from the Hall output to IC Hall input is long, noise may be carried through the wiring.