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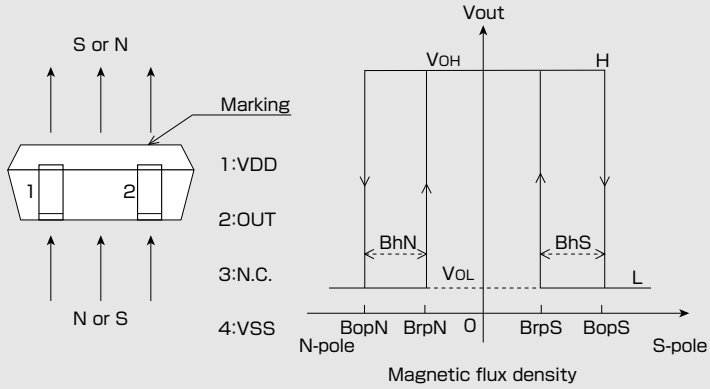
EM-1781

Shipped in packet-tape reel(5000pcs/Reel)

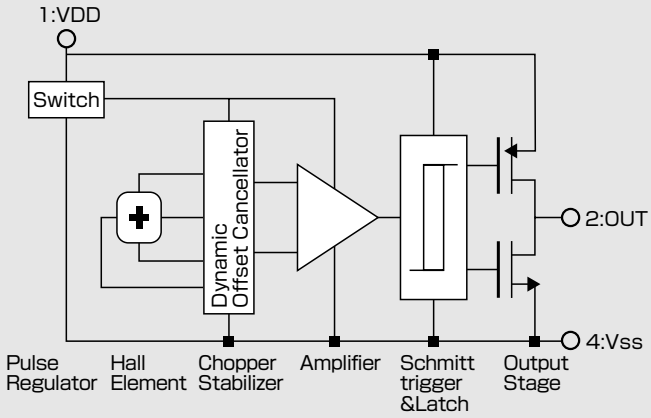
EM-1781 is ultra-small Hall effect ICs of a single silicon chip composed of Hall element and a signal processing IC.

Omnipolar Hall Effect Switch	Supply Voltage 1.6~5.5V	Hall Element Pulse Excitation	High Sensitivity Bop:3mT	Output CMOS	SMT

●Operational Characteristics



●Functional Block Diagram



●Absolute Maximum Ratings (Ta=25℃)

Item	Symbol	Limit	Unit
Supply Voltage	VDD	−0.1 ~ 6.0	V
Output Current	I_{out}	±0.5	mA
Operating Temperature Range	Topr	−30 ~ 85	℃
Storage Temperature Range	Tstg	−40 ~ 125	℃

●Magnetic ① and Electrical Characteristics (Ta=25℃ VDD=1.85V)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	VDD		1.6		5.5	V
Operating Point	$B_{OP}S$ $\lvert B_{OP}N\rvert$		1.4*	3.0	4.0	mT
Release Point	$B_{rp}S$ $\lvert B_{rp}N\rvert$		1.1	2.2	3.7*	mT
Hysteresis	B_hS $\lvert B_hN\rvert$		0.3*	0.8	1.5*	mT
Period	T_p			50	100	ms
Output High Voltage	VOH	Io=−0.5mA	VDD−0.4			V
Output Low Voltage	VOL	Io=+0.5mA			0.4	V
Supply Current	IDD	Average		6.5	9	μA

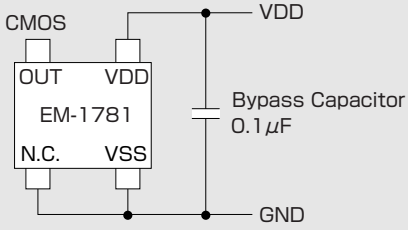
The characteristics with 「*」 marks are design targets. 1 [mT] =10 [Gauss]

●Magnetic Characteristics ② (Ta=−30℃~85℃ VDD=1.85V)

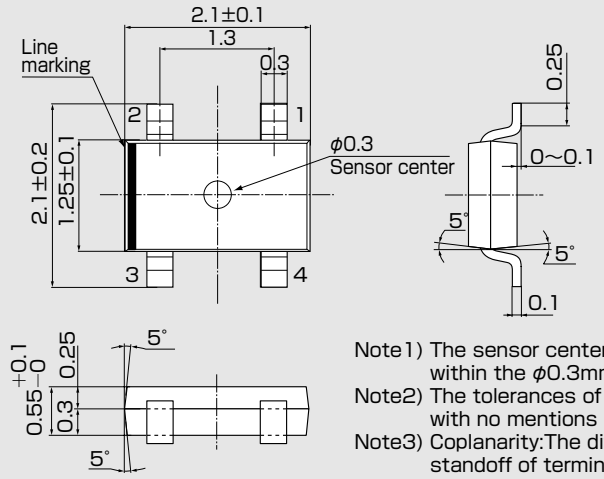
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	$B_{OP}S$ $\lvert B_{OP}N\rvert$		1.2	3.0	4.4	mT
Release Point	$B_{rp}S$ $\lvert B_{rp}N\rvert$		0.9	2.2	4.1	mT
Hysteresis	B_hS $\lvert B_hN\rvert$		0.1	0.8	1.7	mT

Note) The above specifications are design targets.

●Application Circuit



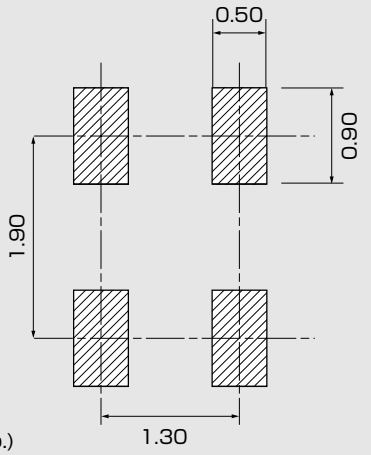
●Package (Unit:mm)



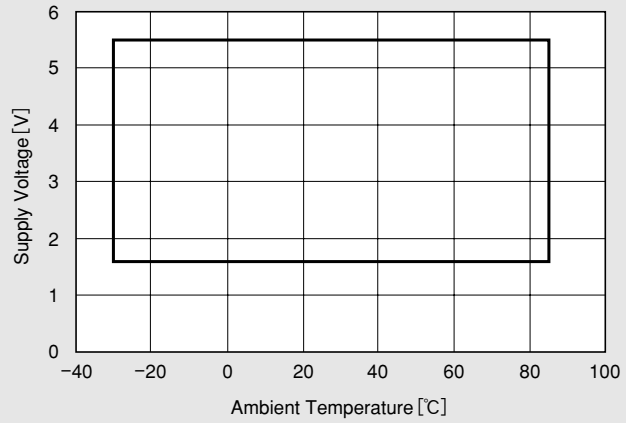
Note1) The sensor center is located within the φ0.3mm circle.
Note2) The tolerances of dimensions with no mentions is ±0.1mm.
Note3) Coplanarity:The differnces between standoff of terminals are max.0.1mm.
Note4) The sensor part is located 0.4mm(typ.) far from marking surface.

Pin No.	Pin Name	Function	Comment
1	VDD	Supply Voltage	
2	OUT	Output Voltage	
3	N.C.	—	Short to GND
4	VSS	GND	

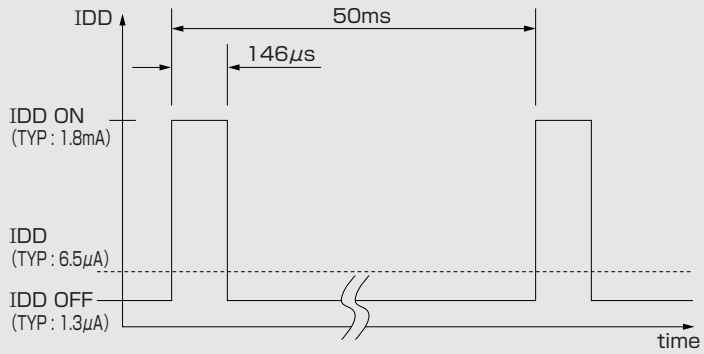
●(For reference only)Land Pattern (Unit:mm)



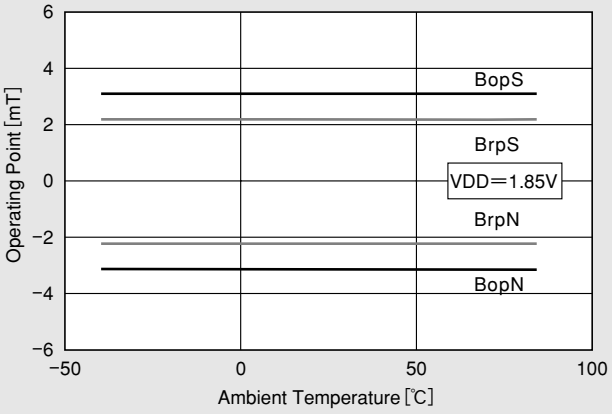
●Supply Voltage



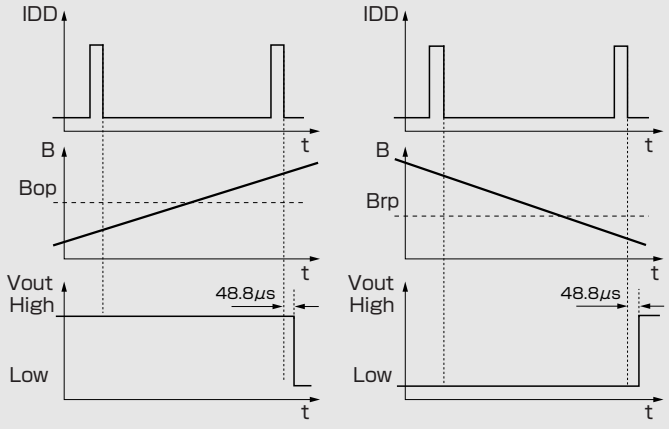
●IDD Pulse Driving (VDD=1.85V)



●Temparature Dependence of Bop. Brp



●Function Timing Chart



This Hall IC's output is held as internal data just before the internal circuit turns OFF (IDD OFF). And after 48.8 μs, the output changes.
Note) 48.8 μs in figures is typical value

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April 4, 2012