

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

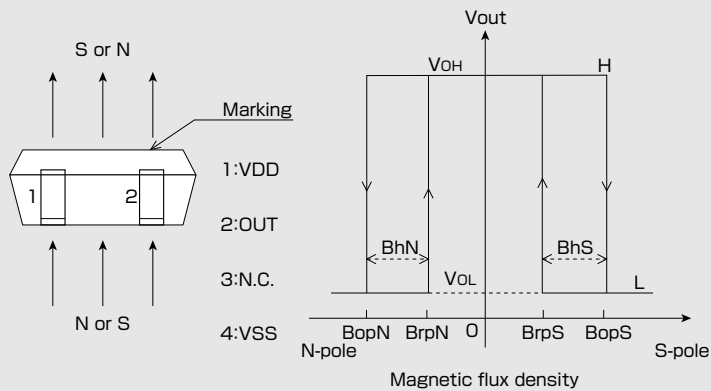
Hall Element Pulse Excitation

High Sensitivity Bop:3mT

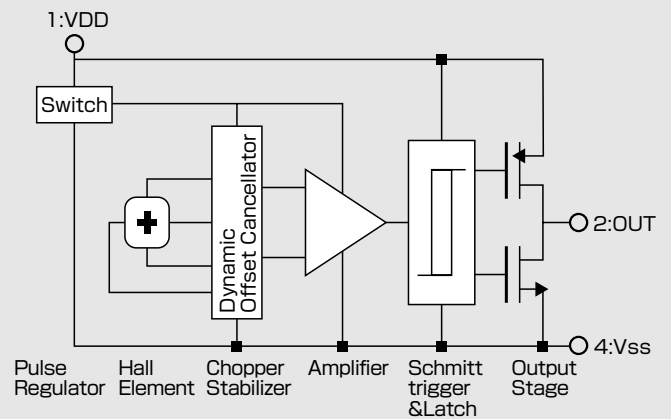
Output CMOS

SMT

Operational Characteristics



Functional Block Diagram



Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Limit	Unit
Supply Voltage	VDD	-0.1 ~ 6.0	V
Output Current	I_{out}	± 0.5	mA
Operating Temperature Range	T_{opr}	-30 ~ 85	°C
Storage Temperature Range	T_{stg}	-40 ~ 125	°C

Magnetic ① and Electrical Characteristics (Ta=25°C VDD=1.85V)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	VDD		1.6		5.5	V
Operating Point	B_{opS} $ B_{opN} $		1.4*	3.0	4.0	mT
Release Point	B_{rpS} $ B_{rpN} $		1.1	2.2	3.7*	mT
Hysteresis	B_{hS} $ B_{hN} $		0.3*	0.8	1.5*	mT
Period	T_p			50	100	ms
Output High Voltage	V_{OH}	$I_o = -0.5mA$	$VDD - 0.4$			V
Output Low Voltage	V_{OL}	$I_o = +0.5mA$			0.4	V
Supply Current	IDD	Average		6.5	9	μA

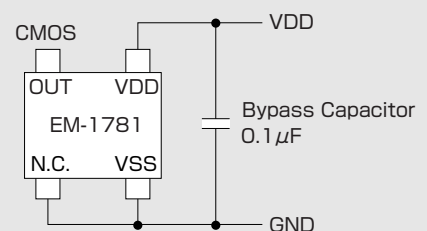
The characteristics with [*] marks are design targets. 1 [mT]=10 [Gauss]

Magnetic Characteristics ② (Ta=-30°C~85°C VDD=1.85V)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	B_{opS} $ B_{opN} $		1.2	3.0	4.4	mT
Release Point	B_{rpS} $ B_{rpN} $		0.9	2.2	4.1	mT
Hysteresis	B_{hS} $ B_{hN} $		0.1	0.8	1.7	mT

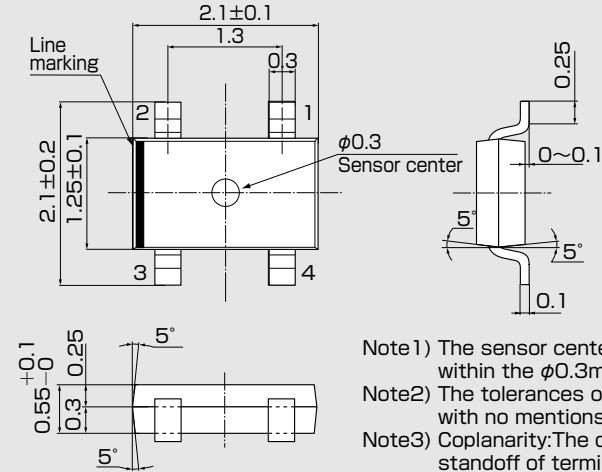
Note) The above specifications are design targets.

Application Circuit



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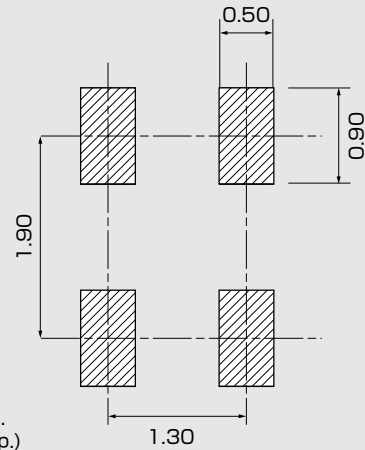
●Package (Unit:mm)



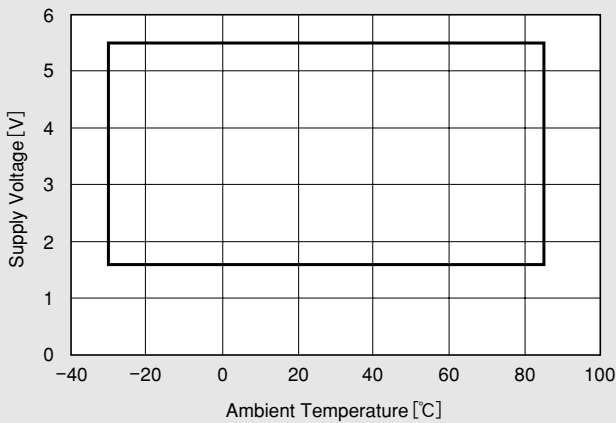
- Note1) The sensor center is located within the φ0.3mm circle.
- Note2) The tolerances of dimensions with no mentions is ±0.1mm.
- Note3) Coplanarity: The differences between standoff of terminals are max.0.1mm.
- Note4) The sensor part is located 0.4mm(typ.) far from marking surface.

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

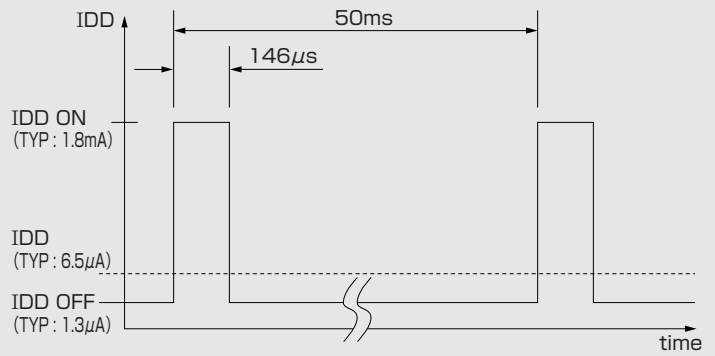
●(For reference only)Land Pattern (Unit:mm)



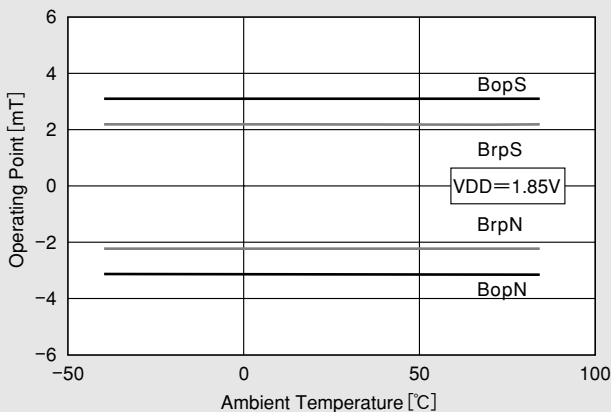
●Supply Voltage



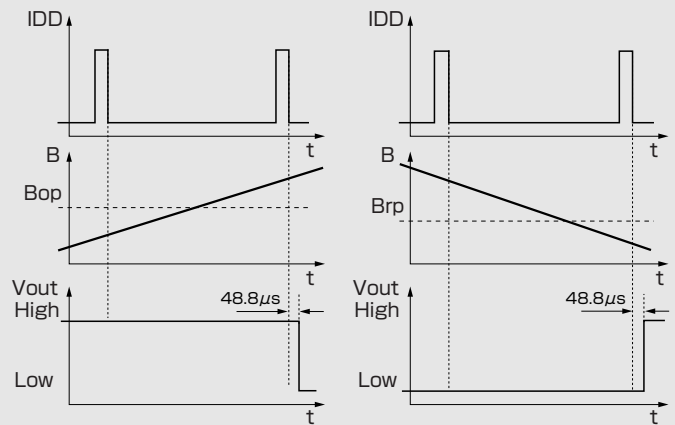
●IDD Pulse Driving (VDD=1.85V)



●Temperature 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

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