

# EM-1791

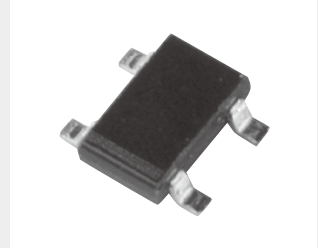
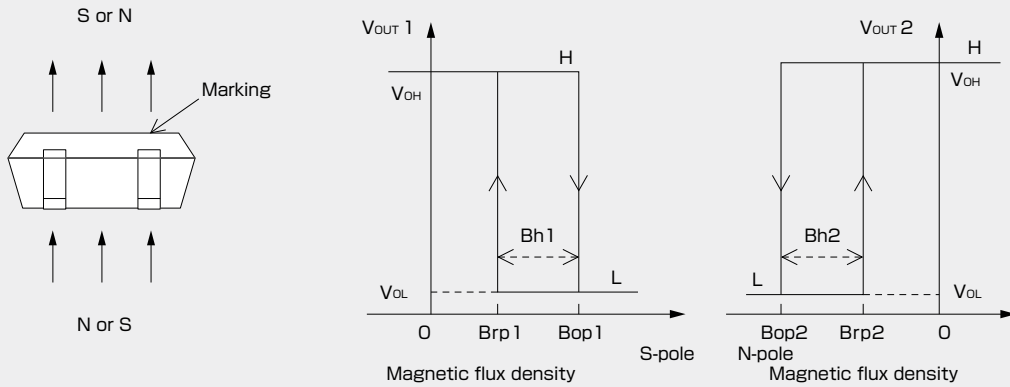
Shipped in packet-tape reel(5000pcs/Reel)

EM-1791 is ultra-small Hall effect ICs of a single silicon chip composed of Hall element and a signal processing IC.

Unipolar Hall Effect Switch Two output for S and N-pole	Supply Voltage 1.6~5.5V	Hall Element Pulse Excitation	High Sensitivity Bop:2.5mT	Output CMOS Two output for S and N-pole	SMT
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Notice:It is requested to read and accept "IMPORTANT NOTICE" written on the back of the front cover of this catalogue.

### ●Operational Characteristics



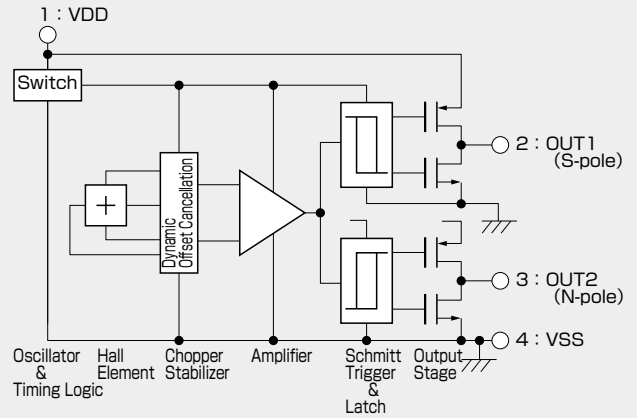
### ●Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Min.	Max.	Unit
Supply Voltage	V <sub>DD</sub>	-0.1	6.0	V
Output Current	I <sub>OUT</sub>	-0.5	+0.5	mA
Storage Temperature Range	T <sub>STG</sub>	-40	+125	°C

### ●Recommended Operating Conditions

Item	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V <sub>DD</sub>	1.6	1.85	5.5	V
Operating Temperature Range	T <sub>opr</sub>	-30	+25	+85	°C

### ●Functional Block Diagram



### ●Magnetic ① and Electrical Characteristics (Ta=25°C V<sub>DD</sub>=1.85V)

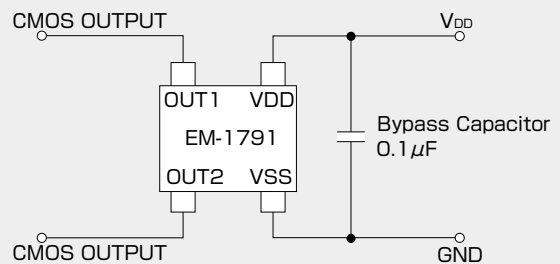
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	Bop1		*1.4	2.5	3.2	mT
	Bop2		-3.2	-2.5	*-1.4	
Releasing Point	Brp1		1.2	2.0	*3.0	mT
	Brp2		*-3.0	-2.0	-1.2	
Hysteresis	Bh1,Bh2			0.5		mT
Period	Tp			50	100	ms
Output High Voltage	V <sub>OH</sub>	I <sub>o</sub> =-0.2mA	V <sub>DD</sub> -0.4			V
Output Low Voltage	V <sub>OL</sub>	I <sub>o</sub> =+0.2mA			0.4	V
Supply Current	I <sub>DD</sub>	Average		6.5	9	μA

### ●Magnetic Characteristics ② (Ta=-30~+85°C V<sub>DD</sub>=1.85V)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	Bop1   Bop2		1.3	2.5	3.5	mT
Releasing Point	Brp1   Brp2		1.1	2.0	3.3	mT
Hysteresis	Bh1   Bh2			0.5		mT

Note) The above specifications are design targets.

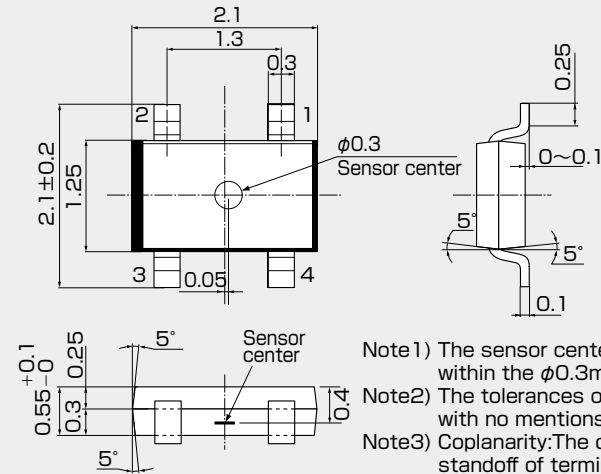
### ●Application Circuit



\* The characteristics with[\*] marks are design targets.  
 \* OUT1 responds to the positive flux from the south pole(Bop1,Brp1) ,OUT2 to the negative flux from the north pole(Bop2,Brp2) .  
 1 [mT] = 10 [Gauss]

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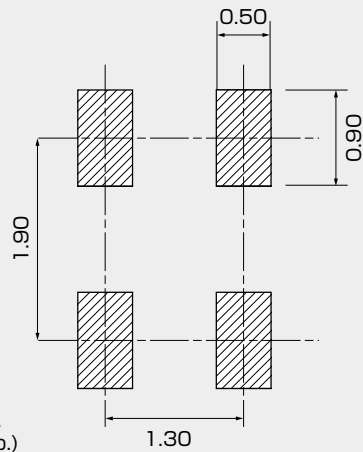
●Package (Unit:mm)



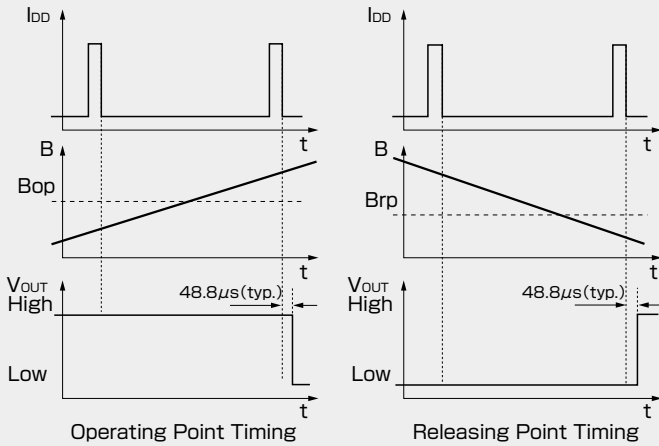
Pin No.	Pin Name	Function	Note
1	VDD	Power Supply	
2	OUT1	Output	S-pole
3	OUT2	Output	N-pole
4	VSS	Ground	

- Note 1) The sensor center is located within the  $\phi 0.3$ mm circle.
- Note 2) The tolerances of dimensions with no mentions is  $\pm 0.1$ mm.
- Note 3) Coplanarity: The differences between standoff of terminals are max. 0.1mm.
- Note 4) The sensor part is located 0.4mm (typ.) far from marking surface.

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

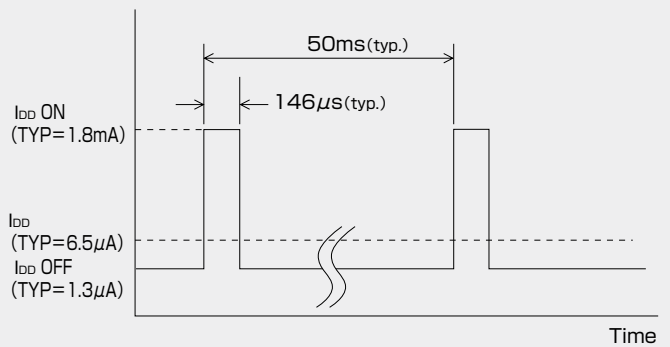


●Function Timing Chart

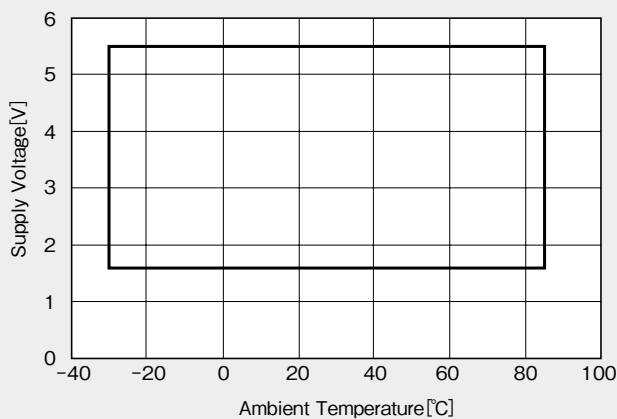


This Hall effect IC's output is held as internal data just before the internal circuit turns OFF ( $I_{DD}$  OFF). And after 48.8  $\mu$ s, the output changes.

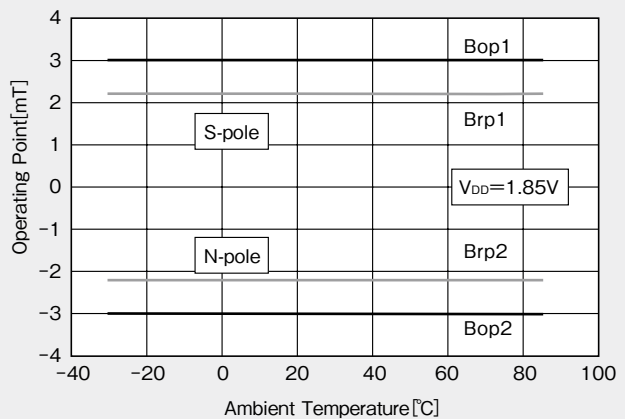
●IDD Pulse Driving ( $V_{DD}=1.85V$ )



●Supply Voltage



●Temperature Dependence of Bop, Brp



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