# EM-1791

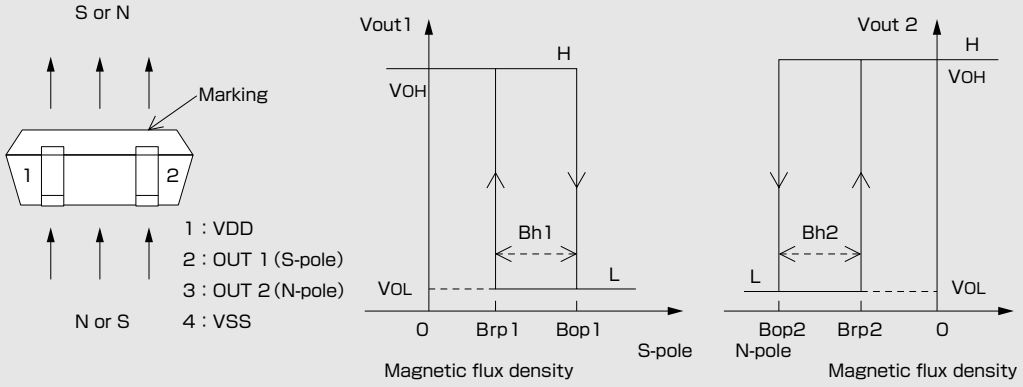
Shipped in packet-tape reel(5000pcs/Reel)

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 |

Notice:It is requested to read and accept "IMPORTANT NOTICE" written on the back of the front cover of this catalogue.

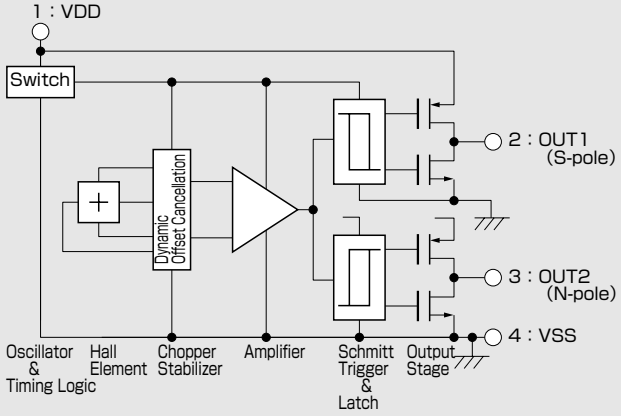
## ●Operational Characteristics




## ●Absolute Maximum Ratings (Ta=25℃)

| 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 | ℃ |

## ●Functional Block Diagram




## ●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 | $B_{OP}1$ | | *1.4 | 2.5 | 3.2 | mT |
| | $B_{OP}2$ | | −3.2 | −2.5 | *−1.4 | |
| Release Point | $B_{rp}1$ | | 1.2 | 2.0 | *3.0 | mT |
| | $B_{rp}2$ | | *−3.0 | −2.0 | −1.2 | |
| Hysteresis | $B_h1$,$B_h2$ | | | 0.5 | | mT |
| Period | $T_p$ | | | 50 | 100 | ms |
| Output High Voltage | VOH | Io=−0.2mA | VDD−0.4 | | | V |
| Output Low Voltage | VOL | Io=+0.2mA | | | 0.4 | V |
| Supply Current | IDD | Average | | 6.5 | 9 | μA |

1 [mT] =10 [Gauss]

※ The characteristics with 「*」 marks are design targets.

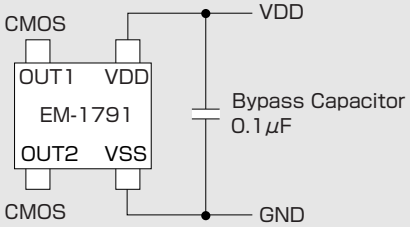
※ OUT1 responds to the positive flux from the south pole(Bop1,Brp1) ,OUT2 to the negative flux from the north pole(Bop2,Brp2) .

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

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| Operating Point | $B_{OP}S$ \|$B_{OP}N$\| | | 1.3 | 2.5 | 3.5 | mT |
| Release Point | $B_{rp}S$ \|$B_{rp}N$\| | | 1.1 | 2.0 | 3.3 | mT |
| Hysteresis | $B_hS$ \|$B_hN$\| | | | 0.5 | | mT |

Note) The above specifications are design targets.

## ●Application Circuit



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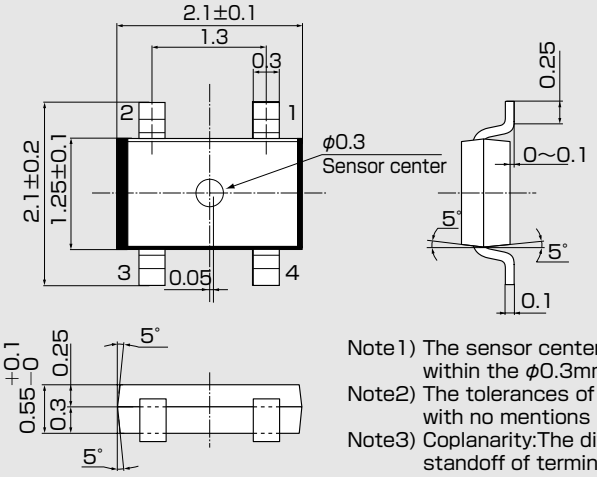
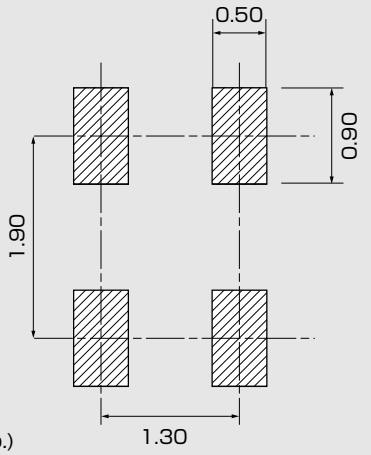
## ●Package (Unit:mm)



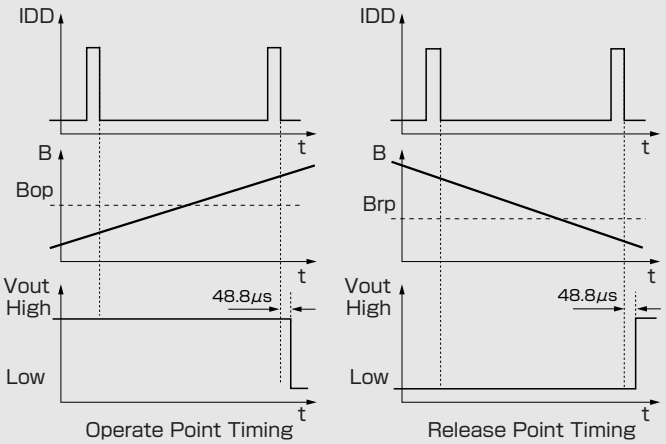

| Pin No. | Connection | Function | Comment |
|---|---|---|---|
| 1 | VDD | Supply Voltage | |
| 2 | OUT1 | Output Voltage | S-pole |
| 3 | OUT2 | Output Voltage | N-pole |
| 4 | VSS | GND | |

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.

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

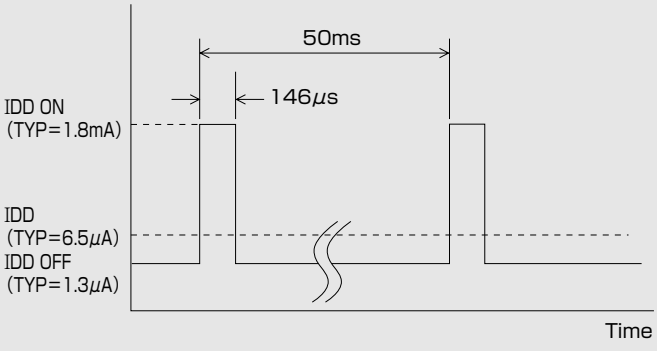



## ●Function Timing Chart

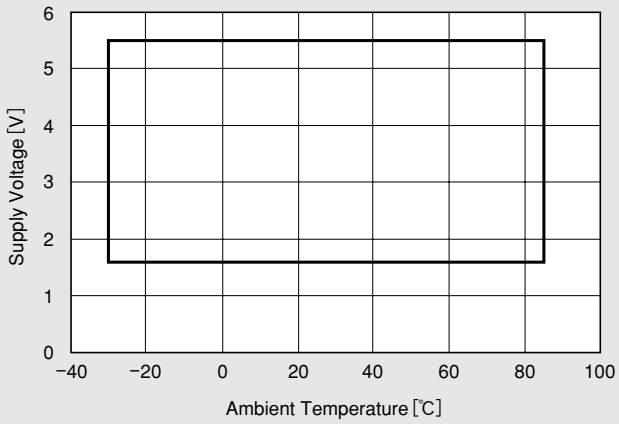



This Hall IC's output is held as internal data just before the internal circuit turns OFF (IDD OFF). And after 48.8 μs, the output changes.
Note) 48.8 μs in figures is typical value

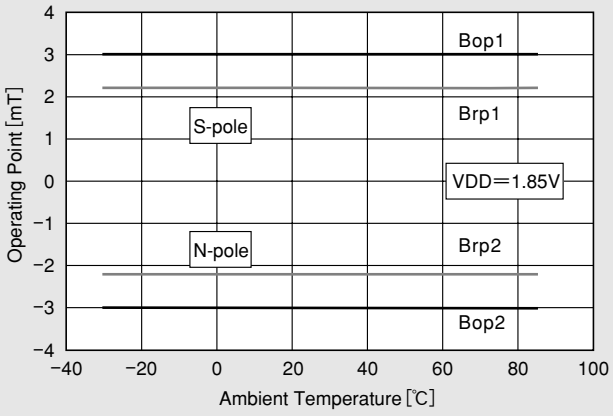
## ●IDD Pulse Driving (VDD=1.85V)




## ●Supply Voltage




## ●Temparature Dependence of Bop. Brp



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