

# EM-1711

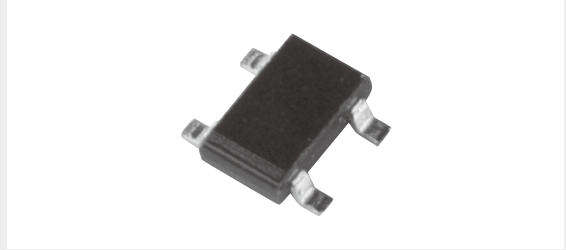
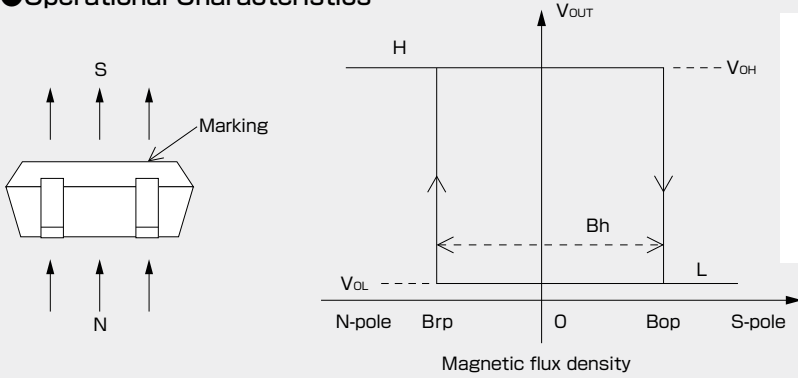
Shipped in packet-tape reel(5000pcs/Reel)

EM-1711 is ultra-small Hall effect ICs of a single silicon chip composed of Hall element and a signal processing IC.

Bipolar Hall Effect Latch	Supply Voltage 1.6~5.5V	Power down Function	Ultra High Sensitivity Bop:1.8mT	Output CMOS	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	$V_{DD}$	-0.1	6.0	V
PDN input voltage	$V_{IN}$	-0.1	$V_{DD}+0.1$	V
PDN input current	$I_{IN}$	-10	+10	mA
Output Current	$I_{OUT}$	-0.5	+0.5	mA
Storage Temperature Range	$T_{STG}$	-40	+125	°C

### ●Recommended Operating Conditions

Item	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	$V_{DD}$	1.6	3.0	5.5	V
Operating Temperature Range	$T_{opr}$	-30	+25	+85	°C

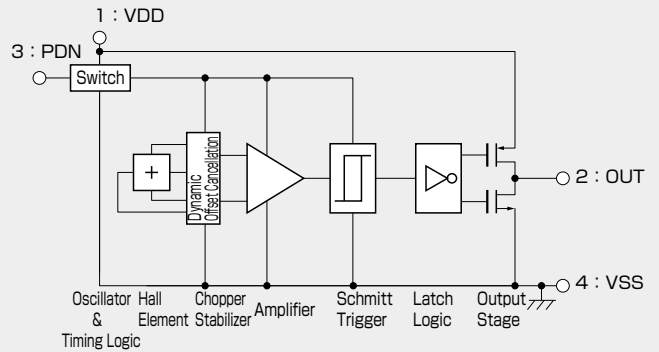
### ●Magnetic ① and Electrical Characteristics (Ta=25°C VDD=3.0V)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point *1	Bop			1.8	4.0	mT
Releasing Point *1	Brp		-4.0	-1.8		mT
Hysteresis	Bh			3.6		mT
PDN input High voltage	$V_{IH}$		0.7VDD			V
PDN input Low voltage	$V_{IL}$				0.3	V
Output High Voltage	$V_{OH}$	$I_o=-0.5mA$	$V_{DD}-0.4$			V
Output Low Voltage	$V_{OL}$	$I_o=+0.5mA$			0.4	V
Supply Current1*2	$I_{DD1}$	PDN=L			1	$\mu A$
Supply Current2*2	$I_{DD2}$	PDN=H		2.5	6	mA
PDN input Current	$I_{IN}$		-1		1	$\mu A$
PDN mode transition time1	$T_{PD1}$	Active→PDN			100	$\mu s$
PDN mode transition time2	$T_{PD2}$	PDN→Active			100	$\mu s$

1 [mT]=10 [Gauss]

\*1: Positive(+) polarity flux is defined as the magnetic flux from south pole which is direct toward to the branded face of the sensor (Bop, Brp)  
 \*2: In case of PDN pin is held at VDD or GND.

### ●Functional Block Diagram



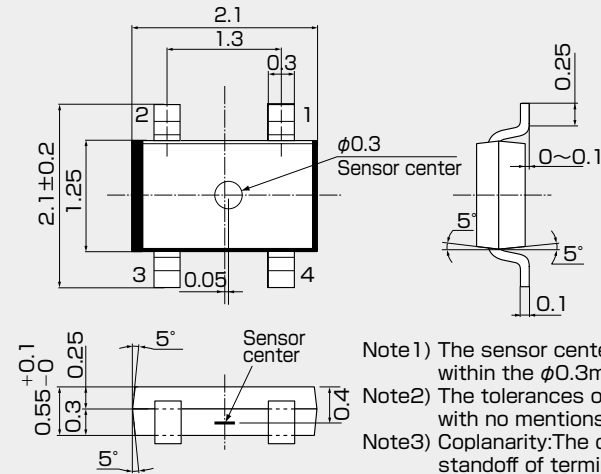
### ●Magnetic Characteristics ② (Ta=-30~+85°C VDD=3.0V)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	Bop			1.8	4.2	mT
Releasing Point	Brp		-4.2	-1.8		mT
Hysteresis	Bh			3.6		mT

Note) The above specifications are design targets.

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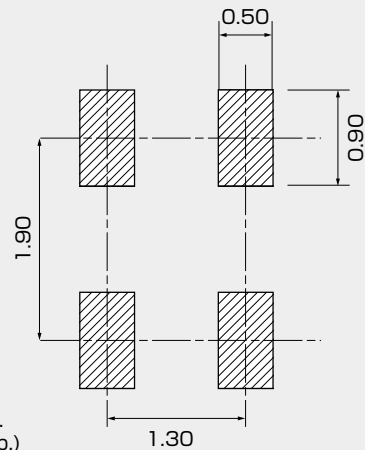
●Package (Unit:mm)



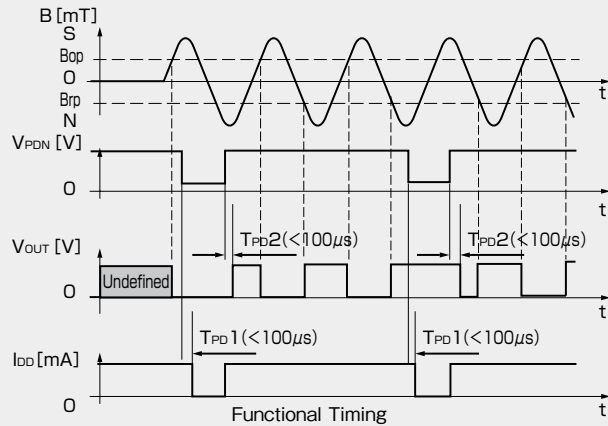
Pin No.	Pin Name	Function
1	VDD	Power Supply
2	OUT	Output
3	PDN	Power Down
4	VSS	Ground

- 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

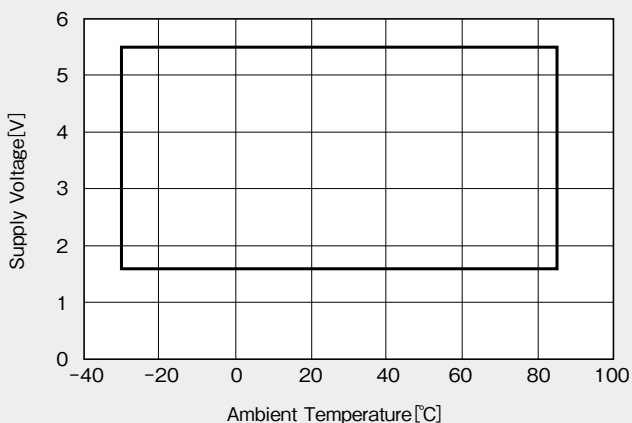


●Function Timing Chart

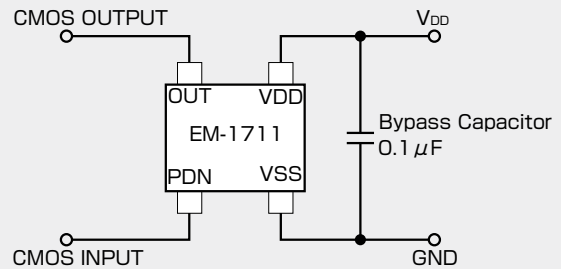


- Note 1) During power down mode, output is latched in its previous state.
- Note 2) When VDD is supplied, the time from reaching  $V_{DD}=1.6$ V to the update of the output state is equal to  $T_{PD2}$ .

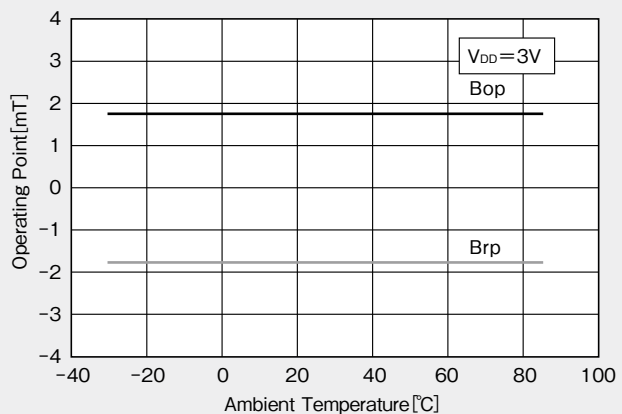
●Supply Voltage



●Application Circuit



●Temperature Dependence of Bop, Brp



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