

EM-1712

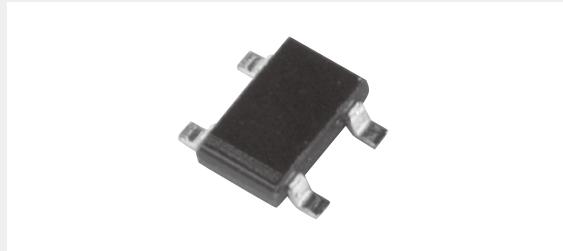
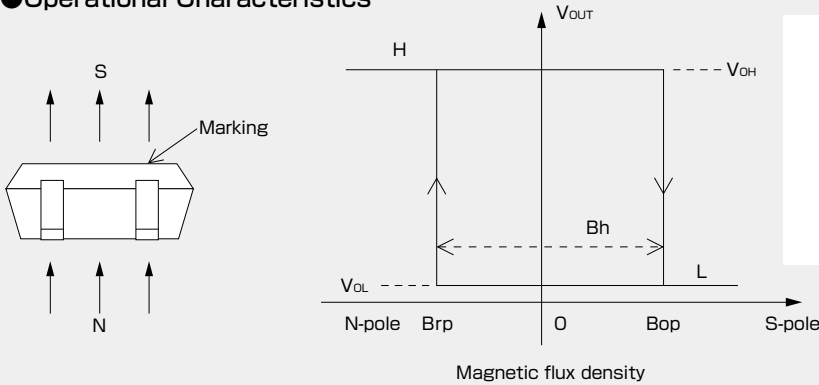
Shipped in packet-tape reel(5000pcs/Reel)

EM-1712 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

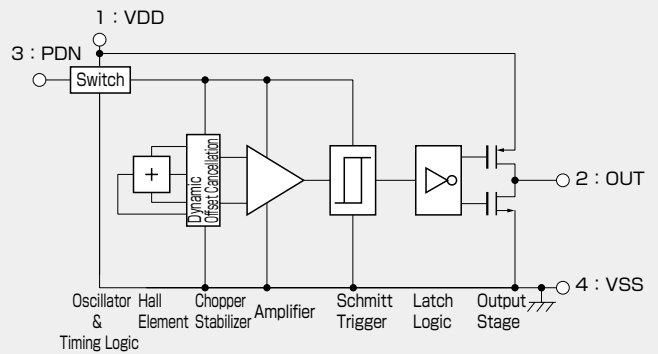
Magnetic ① and Electrical Characteristics (Ta=25°C V_{DD}=3.0V)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point *1	B _{op}			1.8	4.0	mT
Releasing Point *1	B _{rp}		-4.0	-1.8		mT
Hysteresis	B _h			3.6		mT
PDN input High voltage	V _{IH}		0.7V _{DD}			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		μA
Supply Current2*2	I _{DD2}	PDN=H,Average		60	150	μA
PDN input Current	I _{IN}		-1	1		μA
PDN mode transition time1*3	T _{PD1}	Active→PDN			(36.6)	μs
PDN mode transition time2	T _{PD2}	PDN→Active			100	μs

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.
 *3: This transition time is not guarantee

Functional Block Diagram



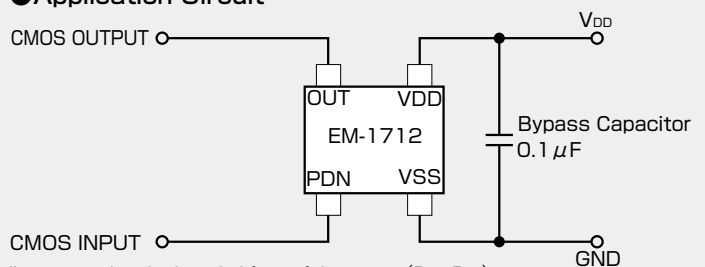
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Pulse Drive Period	T _{PD3}	PDN=H	0.5	1.0	1.5	ms
PDN input Pulse Width	T _w		100			μs
Pulse Drive Time	T _{PD4}	PDN=H	12.2	24.4	36.6	μs

Magnetic Characteristics ② (Ta=-30~+85°C V_{DD}=3.0V)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	B _{op}			1.8	4.2	mT
Releasing Point	B _{rp}		-4.2	-1.8		mT
Hysteresis	B _h			3.6		mT

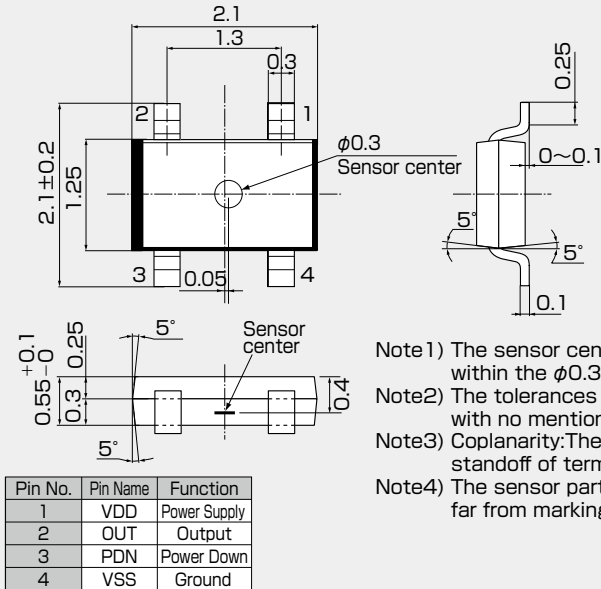
Note) The above specifications are design targets.

Application Circuit

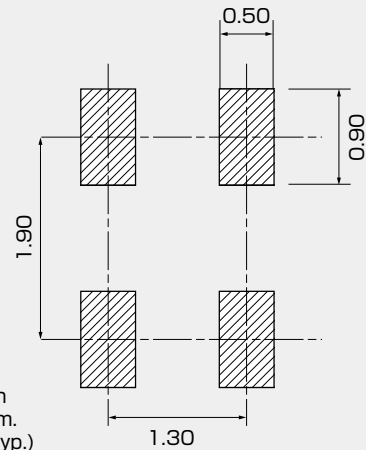


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●Package (Unit:mm)

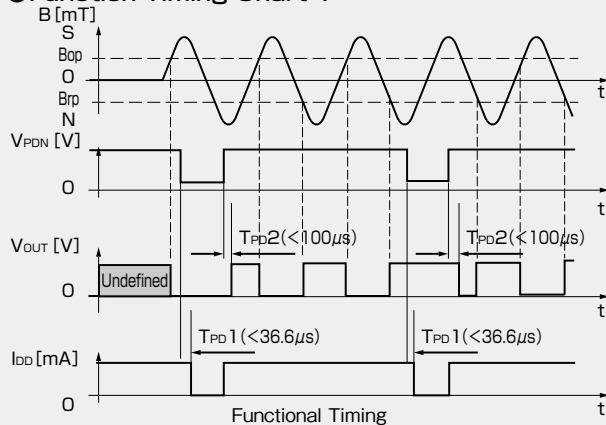


●(For reference only)Land Pattern (Unit:mm)



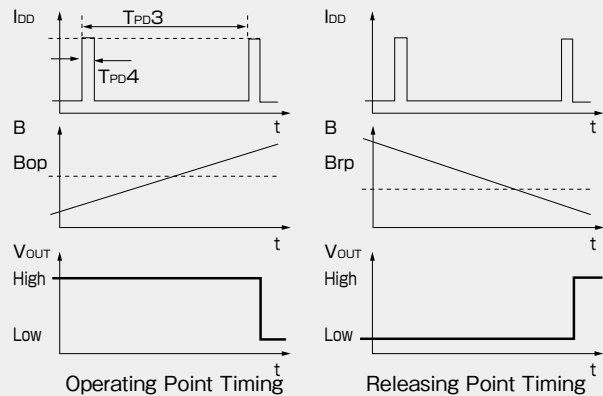
- Note1) The sensor center is located within the $\phi 0.3$ mm circle.
- Note2) The tolerances of dimensions with no mentions is ± 0.1 mm.
- Note3) Coplanarity: The differences between standoff of terminals are max.0.1mm.
- Note4) The sensor part is located 0.4mm(typ.) far from marking surface.

●Function Timing Chart 1

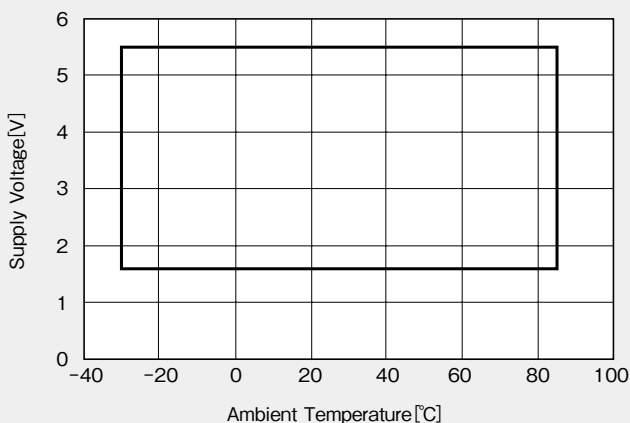


- Note1) During power down mode, output is latched in its previous state.
- Note2) When VDD is supplied, the time from reaching $V_{DD} = 1.6V$ to the update of the output state is equal to T_{PD2} .

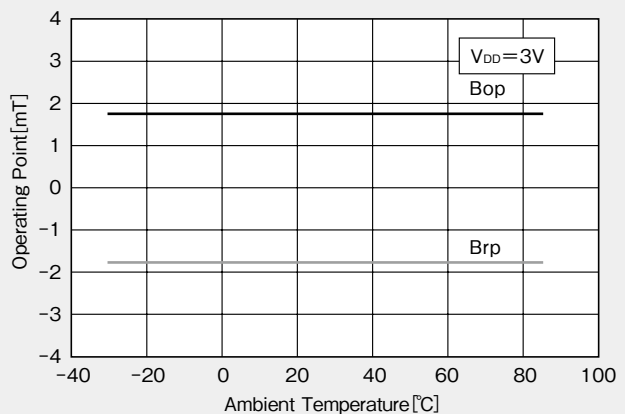
●Function Timing Chart 2 (PDN=H)



●Supply Voltage



●Temperature Dependence of Bop. Brp



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April 1, 2015