

EM-0712

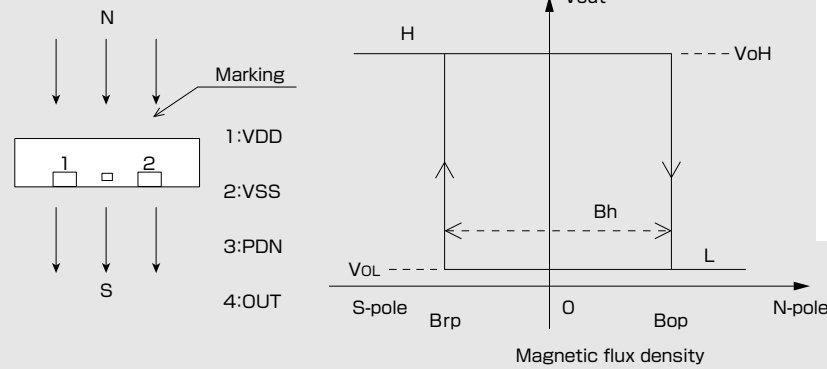
Shipped in packet-tape reel(5000pcs/Reel)

EM-0712 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	SON
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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.

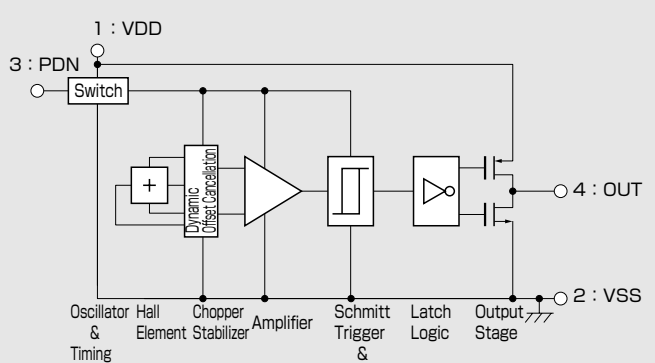
●Operational Characteristics



●Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Limit	Unit
Supply Voltage	VDD	-0.1 ~ 6.0	V
PDN input voltage	V _{in}	-0.1 ~ VDD+0.1	V
PDN input current	I _{in}	±10	mA
Output Current	I _{out}	±0.5	mA
Operating Temperature Range	Topr	-30 ~ +85	°C
Storage Temperature Range	Tstg	-40 ~ +125	°C

●Functional Block Diagram



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

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply Voltage	VDD		1.6		5.5	V
Operating Point	B _{OP}			1.8	4.0	mT
Release Point	B _{RP}		-4.0	-1.8		mT
Hysteresis	B _H			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	VDD-0.4			V
Output Low Voltage	V _{OL}	I _o =+0.5mA			0.4	V
Supply Current1*2	IDD1	PDN=L			1	μA
Supply Current2*2	IDD2	PDN=H,Average		60	150	μA
PDN input Current	I _{in}		-1		1	μA
PDN mode transition time1	TPD1	Active→PDN			(36.6)	μsec
PDN mode transition time2	TPD2	PDN→Active			100	μsec

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

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

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	B _{OP}			1.8	4.2	mT
Release Point	B _{RP}		-4.2	-1.8		mT
Hysteresis	B _H			3.6		mT

Note) The above specifications are design targets.

1 [mT]=10 [Gauss]

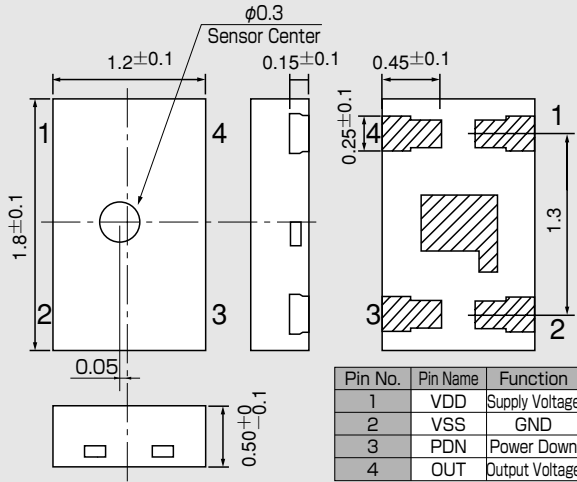
*1: Positive (“+”) polarity flux is defined as the magnetic flux from south pole which is direct toward to the branded face of the sensor (Bop,Brp)

*2: In case of PDN pin is held at VDD or VSS.

*3: This transition time is not guarantee

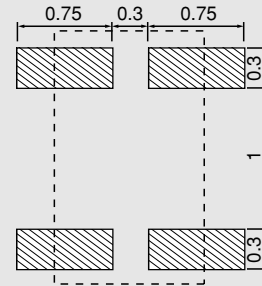
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●Package (Unit:mm)

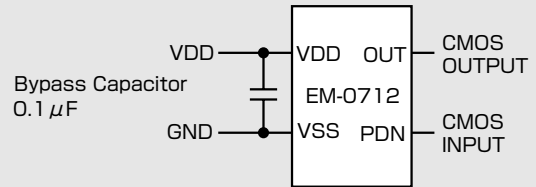


- ※Note1) The sensor center is located within the $\phi 0.3$ mm circle.
- Note2) The tolerances of dimensions with no mentions is ± 0.1 mm.
- Note3) Coplanarity: The differences between standoff of terminals are max. $50\mu\text{m}$.
- Note4) Shaded area is plating area
- Note5) The center shadow area of the bottom of HIC does not need to be soldered. This area shares the lead frame with VSS inside the package and please be careful not to short this area to pins except No.2.

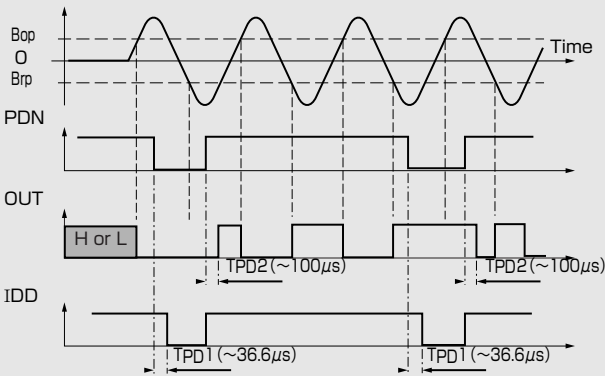
●(For reference only) Land Pattern (Unit:mm)



●Application Circuit

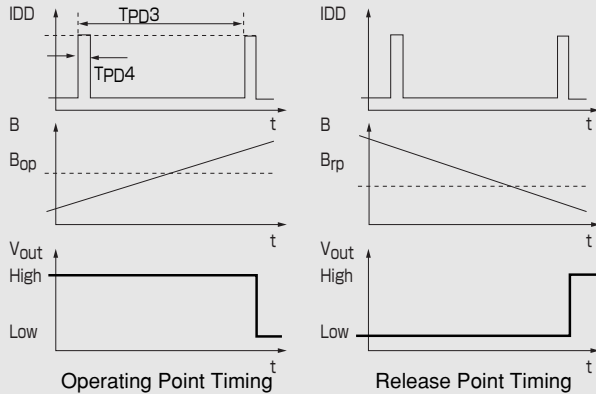


●Function Timing Chart 1

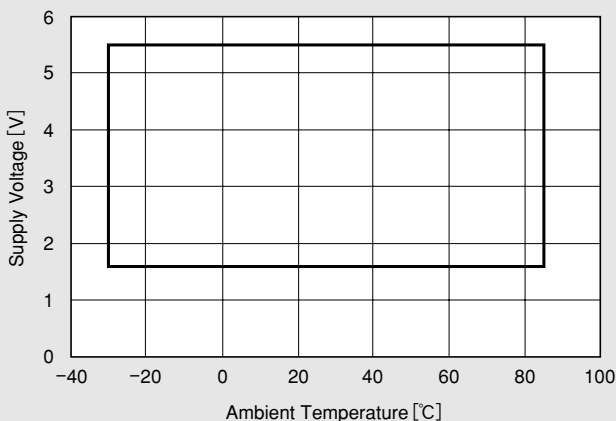


- Note1) In power down mode, Output is kept current status.
- Note2) When VDD is supplied, output settling time after power supply voltage exceeds 1.6V is equal to TPD2.

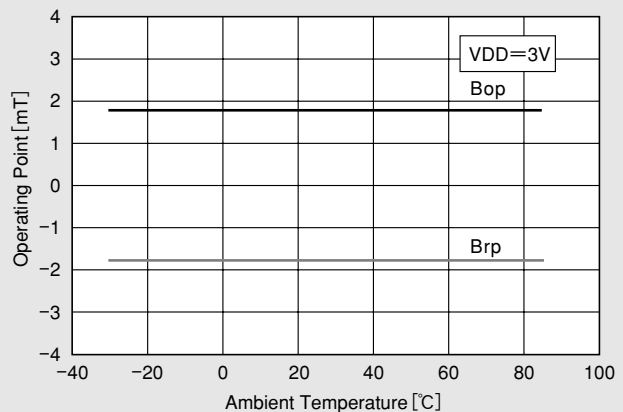
●Function Timing Chart2 (PDN=H)



●Supply Voltage



●Temperature Dependence of Bop, Brp



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June 2, 2010