EM-0712

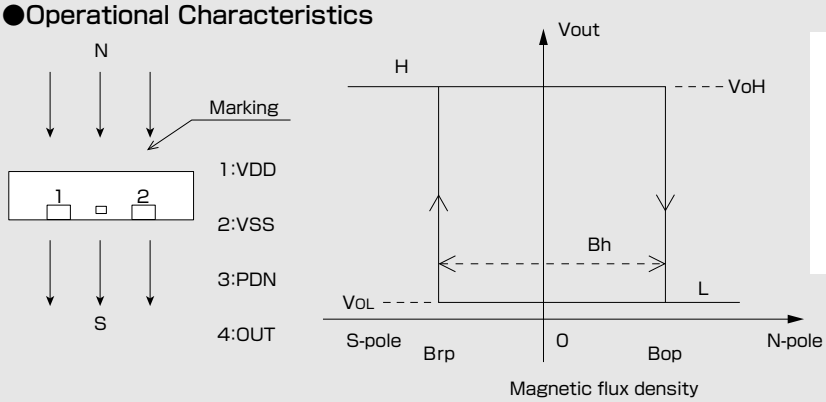
Shipped in packet-tape reel(5000pcs/Reel)

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

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

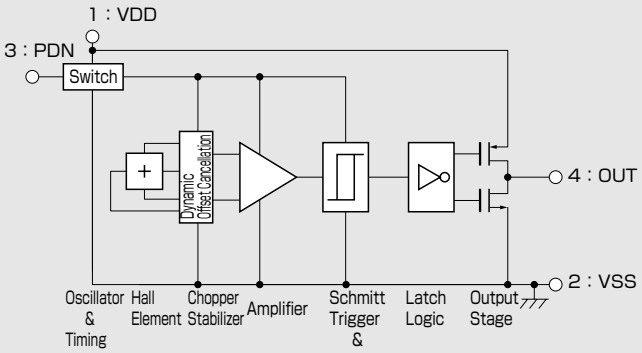
●Operational Characteristics



●Absolute Maximum Ratings (Ta=25℃)

Item	Symbol	Limit	Unit
Supply Voltage	VDD	−0.1 ~ 6.0	V
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	℃
Storage Temperature Range	Tstg	−40 ~ +125	℃

●Functional Block Diagram



●Magnetic ① and Electrical Characteristics (Ta=25℃ 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}	Io=−0.5mA	VDD −0.4			V
Output Low Voltage	V_{OL}	Io=+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	T_{PD1}	Active→PDN			(36.6)	μsec
PDN mode transition time2	T_{PD2}	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 Pluse 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℃ VDD=3.0V)

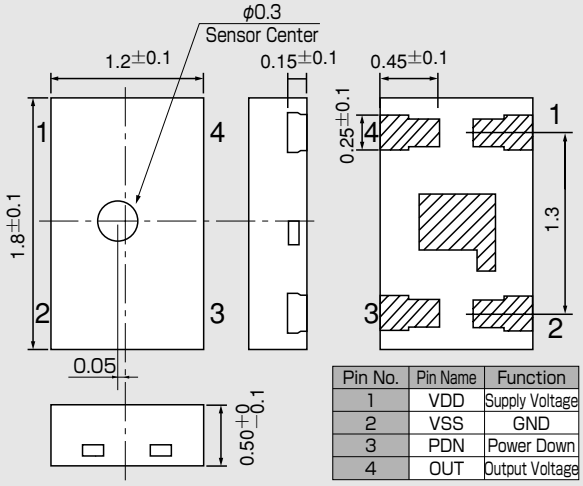
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Operating Point	B_{OP}			1.8	4.2	mT
Release Point	B_{rp}		−4.2	−1.8		mT
Hysteresis	B_h			3.6		mT

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

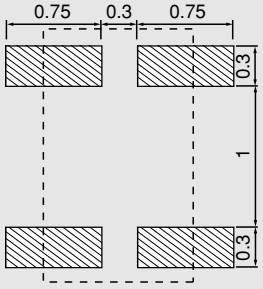
●Package (Unit:mm)



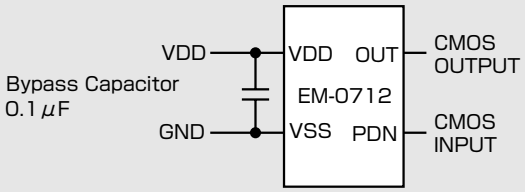
Pin No.	Pin Name	Function
1	VDD	Supply Voltage
2	VSS	GND
3	PDN	Power Down
4	OUT	Output Voltage

※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.50μm.
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.

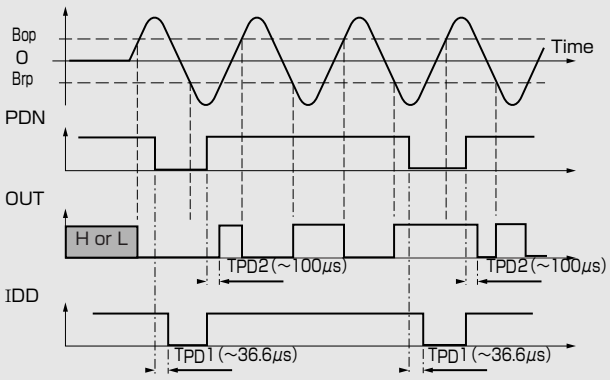
●(For reference only)Land Pattern (Unit:mm)



●Application Circuit

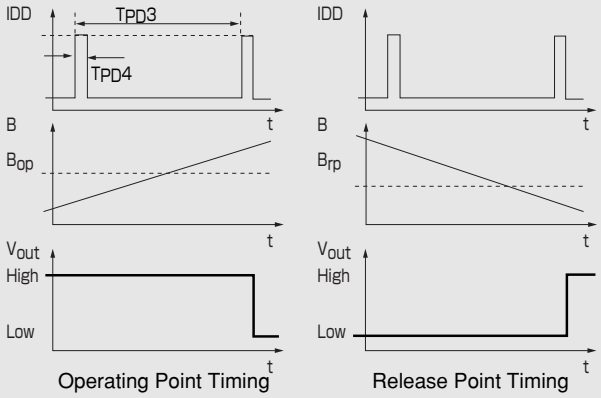


●Function Timing Chart1

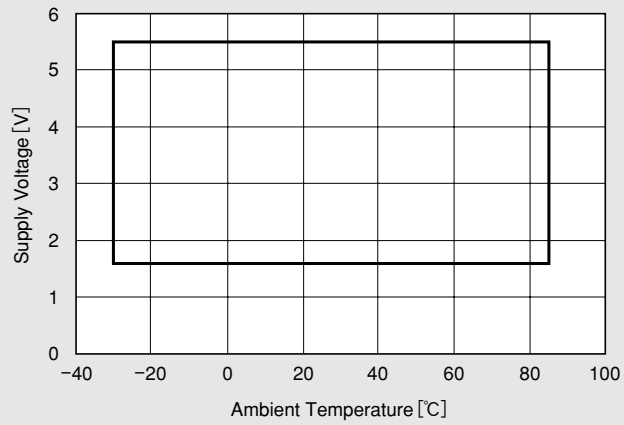


Note1) In power down mode, Output is kept current status.
Note2) When VDD is supplied ,output settling time after power supply voltage exceeds 1.6V is equal to TPD2.

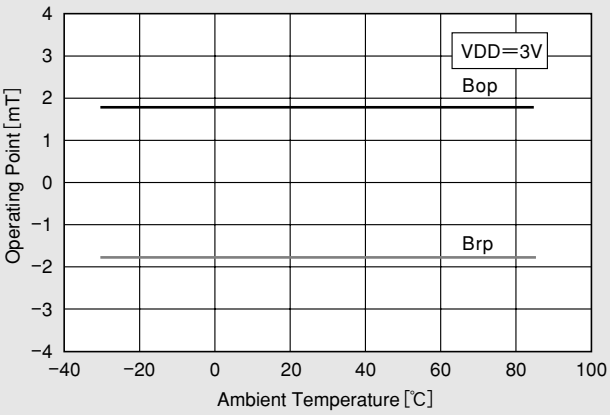
●Function Timing Chart2 (PDN=H)



●Supply Voltage



●Temparature Dependence of Bop. Brp



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June 2, 2010