■ General Description

The OCH168(OCH168A) is an Integrated Hall effect sensor designed specifically to meet the requirements of low-power devices. e.g. as an On/Off switch in Cellular Flip-Phones, with battery operating voltages of 2.4V~ 5.5V.

Precise magnetic switching points and high temperature stability are achieved through the unique design of the internal circuit.

An onboard clock scheme is used to reduce the average operating current of the IC.

During the operate phase the IC compares the actual magnetic field detected with the internally compensated switching points. The output is switched at the end of each operating phase.

During the Stand-by phase the output stage is latched and the current consumption of the device reduced to some μA.

The IC switching behavior is Omnipolar, i.e. it can be switched on with either the North or South pole of a magnet.

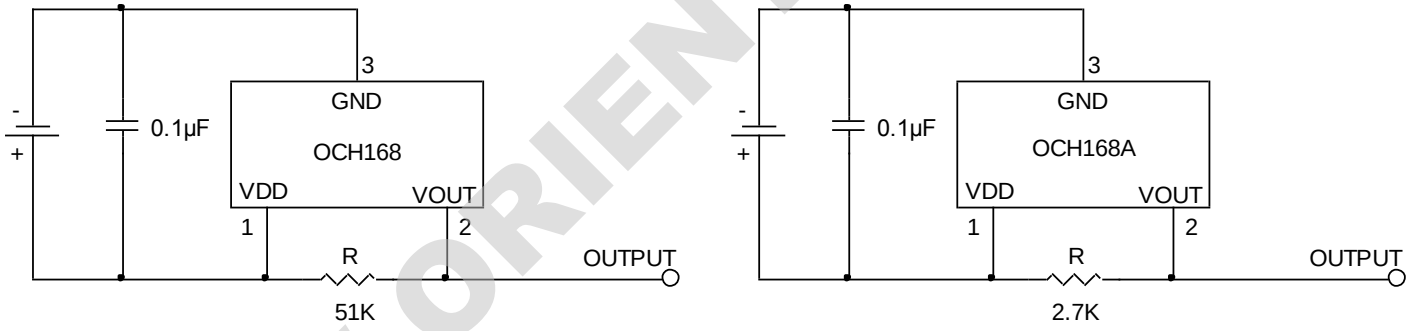
■ Features

- Micro power design
- Operation with North or South pole(omni polar)
- 2.4V to 5.5V battery operation
- High sensitivity and high stability of the magnetic switching points
- High resistance to mechanical stress
- Digital output signal
- Good RF noise immunity
- -40℃ to 85℃ operating temperature
- Package: SOT23-3L/TSOT23-3L/SIP3

■ Applications

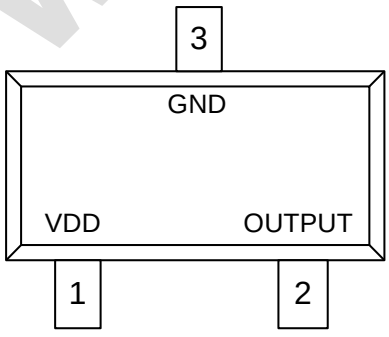
- Cellular Phone
- PDA
- Cordless Phone

■ Typical Application

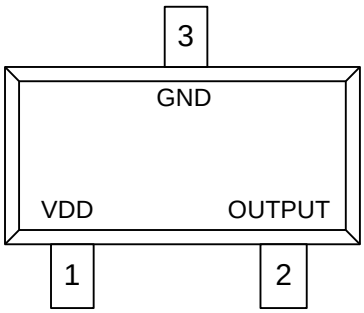


■ Pin Configuration

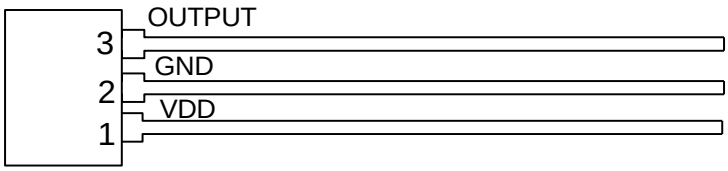
1) SOT23-3L



2) TSOT23-3L

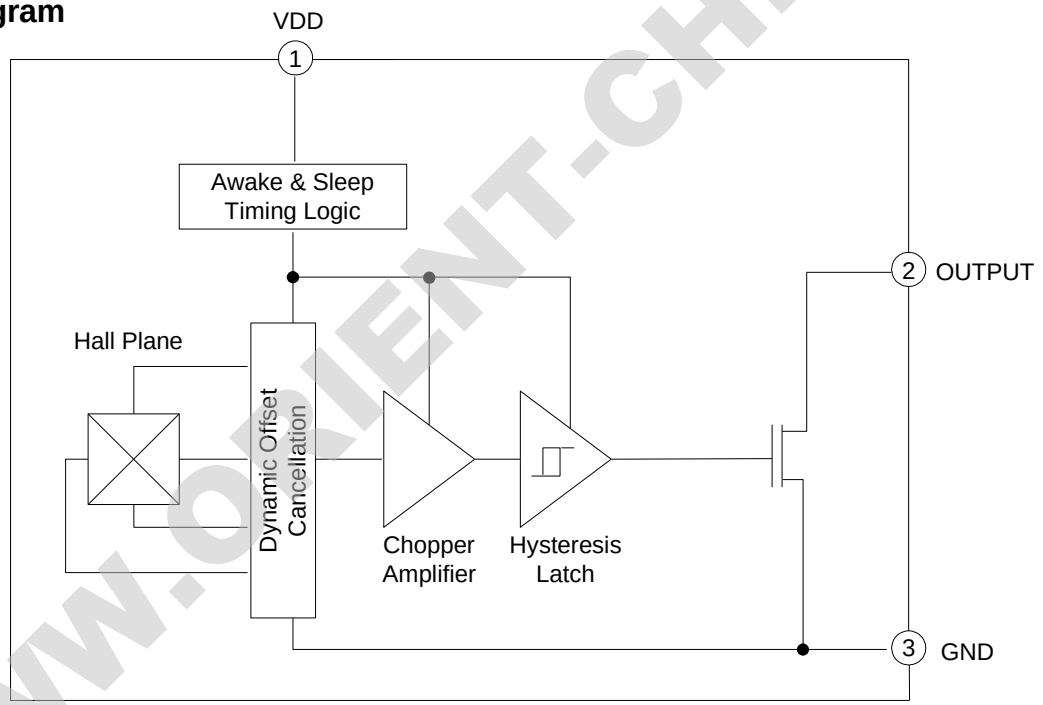


3) SIP3



Symbol	Function
VDD	Supply Voltage
OUTPUT	Signal Output (Open Drain)
GND	Ground

■ Block Diagram



■ Absolute Maximum Ratings

Parameter	Symbol	Maximum	Unit
Supply Voltage	V_{DD}	5.5	V
Supply Current	I_{DD}	2.5	mA
Output Voltage	V_O	5.5	V
Output Current	I_O	1	mA
Operating Temperature Range	T_A	-40 to 85	℃
Junction Temperature	T_J	-40 to 150	℃
Storage Temperature	T_{STG}	-40 to 150	℃
Magnetic Flux Density	B	unlimited	mT
Power Dissipation	P_D	230	mW

Note: Stress above the listed absolute maximum rating may cause permanent damage to the device

■ Electrical Characteristics

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Averaged Supply Current	$I_{DD(AVG)}$			3[1)]	20	uA
Supply Current During Operating Time	$I_{DD(OP)}$			1.1[1)]	-	mA
Supply Current During Standby Time	$I_{DD(STB)}$			2.5[1)]	-	uA
Output Saturation Voltage	$V_{O(SAT)}$	I_O=1mA		0.1	0.3	V
Output Leakage Current	$I_{O(LEAK)}$			0.01	1	uA
Operating Time	T_{OP}			56		us
Standby Time	T_{STB}			140		ms
Duty Cycle	T_{OP} / T_{STB}			0.04		%

[1)] Operating voltage is 2.7V.

■ Operating Range

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage[2)]	V_{DD}	2.4	2.7	5.5	V
Output Voltage	V_O	-0.3	2.7	5.5	V
Ambient Temperature	T_A	-40	25	85	℃

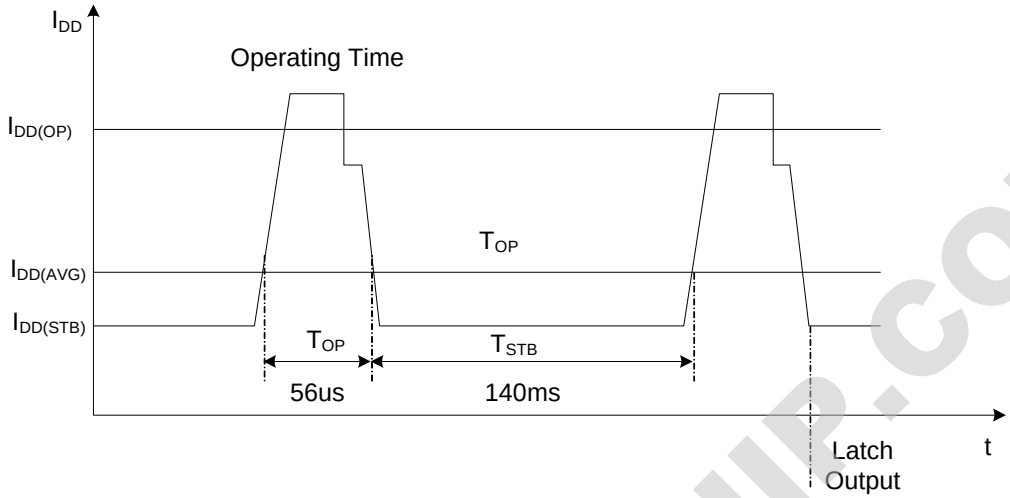
[2)]. A Ceramic Bypass Capacitor of 0.1uF at V_{DD} to GND is highly recommended.

■ Magnetic Characteristics

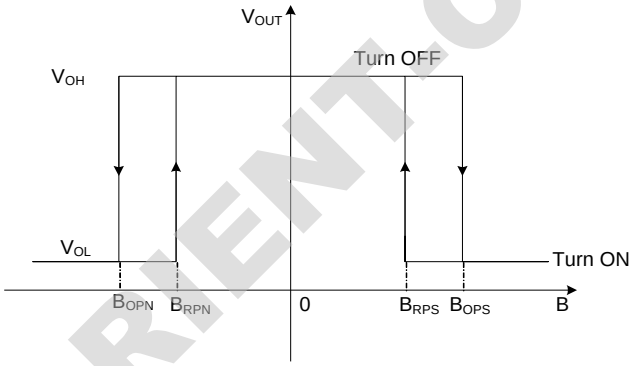
OCH168	If not other specified, typical characteristics apply at T_A = 25 °C and V_{DD} = 2.7 V				
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
Operate Points (Output ON)	B_{OPS}	40	55	70	G
	B_{OPN}	-70	-55	-40	G
Release Points (Output OFF)	B_{RPS}	30	45	60	G
	B_{RPN}	-60	-45	-30	G
Hysteresis	B_{HYS}	5	10	15	G

OCH168A	If not other specified, typical characteristics apply at T_A = 25 °C and V_{DD} = 2.7 V				
Parameter	**Symbol**	**Min.**	**Typ.**	**Max.**	**Unit**
Operate Points (Output ON)	B_{OPS}	15	25	35	G
	B_{OPN}	-35	-25	-15	G
Release Points (Output OFF)	B_{RPS}	7	15	25	G
	B_{RPN}	-25	-15	-7	G
Hysteresis	B_{HYS}	5	10	15	G

■ Timing Diagram

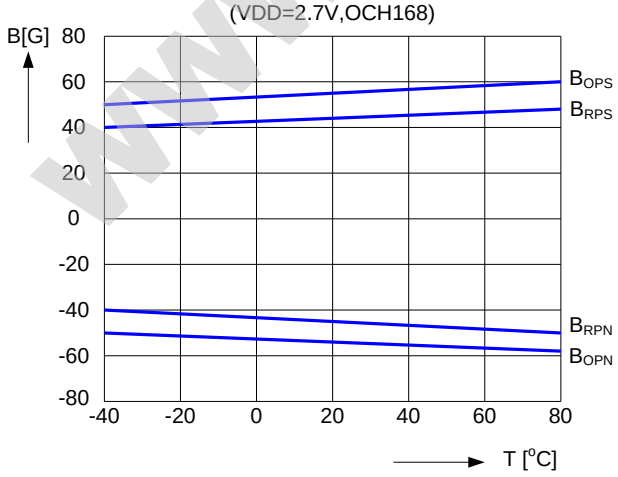


■ Output-Signal OCH168/OCH168A

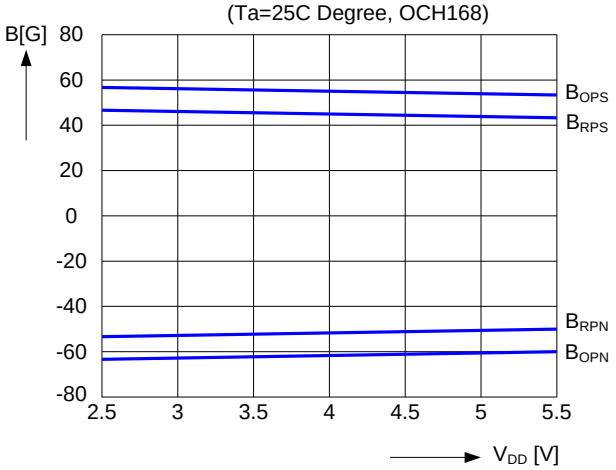


■ Typical Performance Characteristics

Magnetic switching points versus temperature
(VDD=2.7V,OCH168)

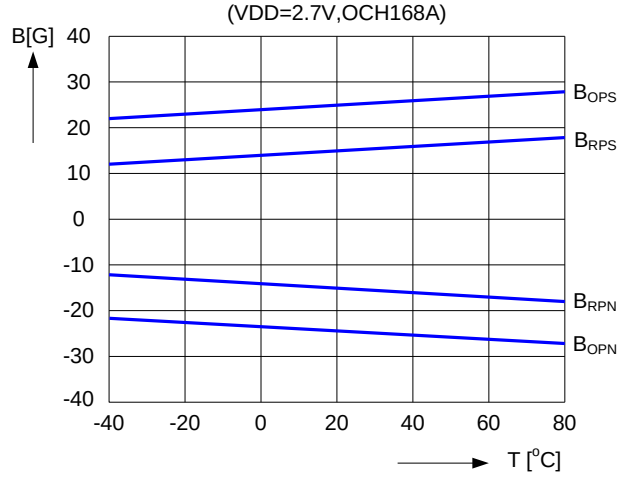


Magnetic switching points versus supply voltage
(Ta=25C Degree, OCH168)

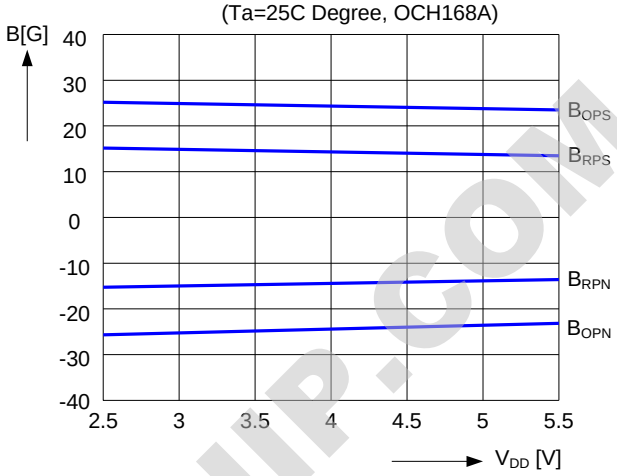


■ Typical Performance Characteristics(Continued)

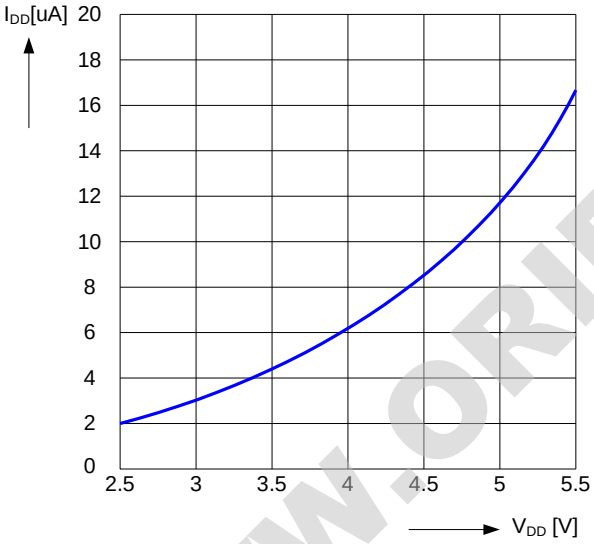
Magnetic switching points versus temperature
(VDD=2.7V,OCH168A)



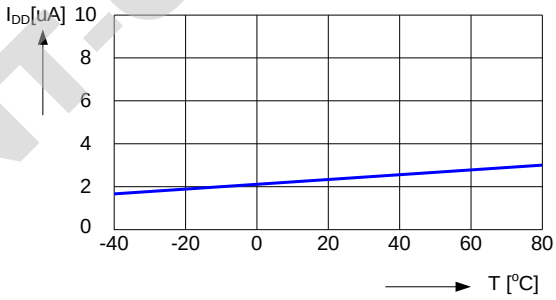
Magnetic switching points versus supply voltage
(Ta=25C Degree, OCH168A)



Average current versus supply voltage



Average current versus temperature (V_{DD}=2.7V)



■ Ordering Information

OCH168/OCH168AXXX

Package:	Packing:	Temperature Grade:
W: SOT23-3L TW: TSOT23-3L M:SIP3	Blank: Tube or Bulk or Box A: Tape & Reel	D: -40~85℃

注：想进一步了解产品咨询，请直接点击申请样品。我们会第一时间联系您！谢谢！