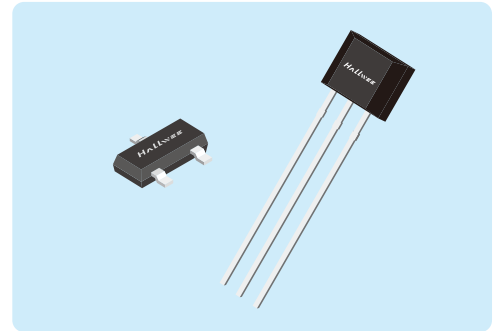


## HAL1501 High Sensitivity Unipolar Hall Effect Switch

### General Description

HAL1501 Hall-effect switch integrated circuits for high temperature operating based on Hall-effect principle, apply the semiconductor monolithic technology, which includes a voltage regulator, Hall voltage generator, differential amplifier, Schmitt trigger and an open-collector output on a single silicon chip. ICs can convert the input magnetic field signal into digital voltage output.



### Features

- ◆ Small size
- ◆ High Sensitivity
- ◆ Quick Response
- ◆ Good Temperature Performance
- ◆ High Accuracy
- ◆ Excellent Reliability

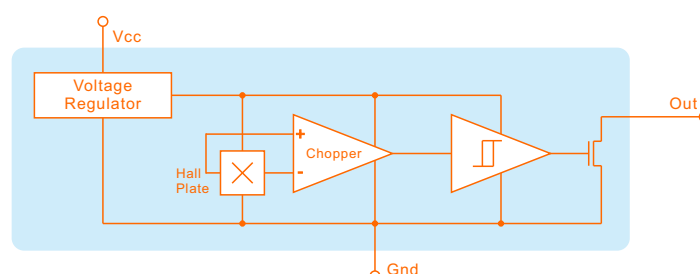
### Typical applications

- ◆ Non-contact Switch
- ◆ Automotive Ignition
- ◆ Position control
- ◆ Revolution detection
- ◆ Safe alarm device
- ◆ Textile control system

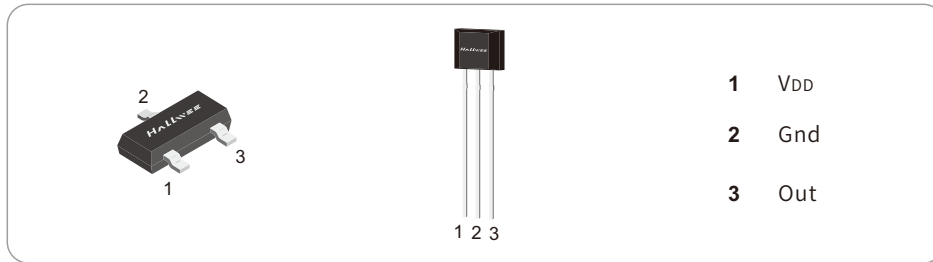
### Absolute Maximum Rating

- ◆ Supply Voltage  $V_{CC}$  ..... 30V
- ◆ Output Current  $I_o$  ..... 50mA
- ◆ Operating Temperature Range  $T_A$  ..... -40~150°C
- ◆ Storage Temperature Range  $T_S$  ..... -65~150°C

### Functional Block Diagram



## Pinning



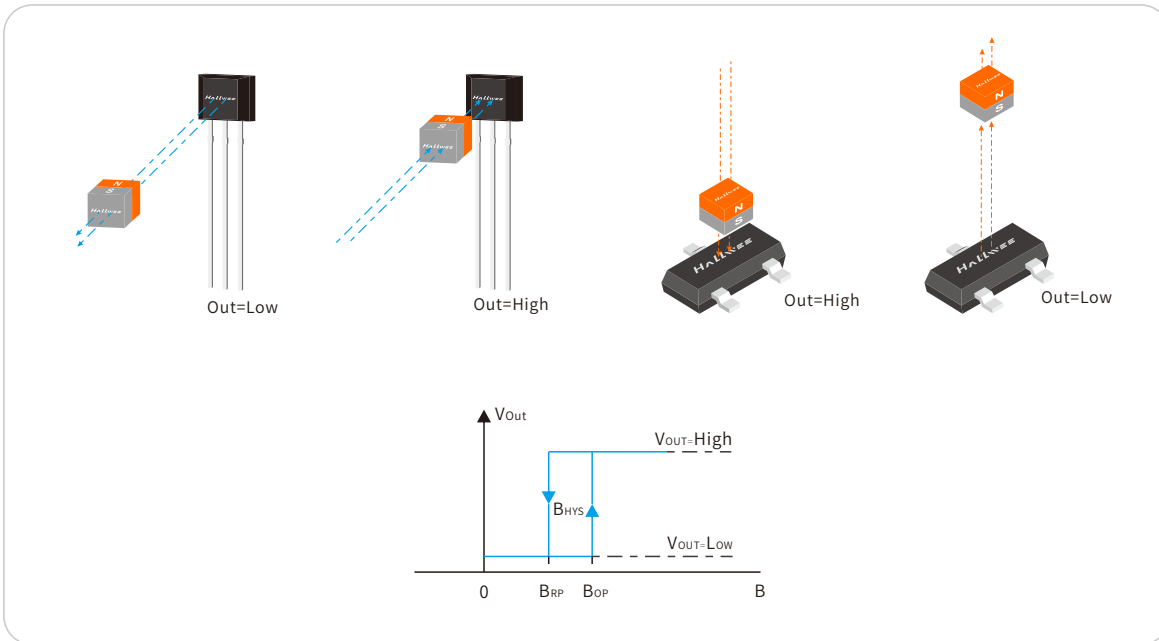
## Electrical Characteristics $T_A=25^\circ\text{C}$

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
SupplyVoltage	$V_{CC}=4.5V \sim 24V$	$V_{CC}$	3.8	-	30	V
OutputLow Voltage	$V_{CC}=4.5V, V_o=24V$ $I_o=20mA,$ $B \geq B_{OP}$	$V_{OL}$	-	175	400	mV
OutputLeakage Current	$V_o=24V, B < B_{RP}$	$I_{OH}$	-	<1.0	10	$\mu A$
SupplyCurrent	$V_{CC}=24V$ $V_o$ open-collectoutput	$I_{CC}$	-	6	10	mA
OutputRise time	$V_{CC}=12V$	$t_r$	-	0.2	1.5	$\mu S$
OutputFall time	$R_L = 820 \Omega$ $C_L = 20pF$	$t_f$	-	0.18	1.5	$\mu S$
Frequency		$F$		100		KHz

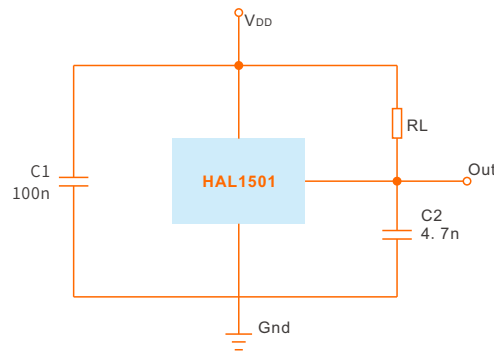
## Magnetic Characteristics (Unit:mT)

Parameter	symbol	Value			Unit
		Min	Typ	Max	
Operate Point	$B_{OP}$	60	120	160	Gs
Release Point	$B_{RP}$	20	70	110	Gs
Hysteresis	$B_{hys}$		50		Gs

### Magnetic-electrical transfer characteristics



### Typical Application Circuit

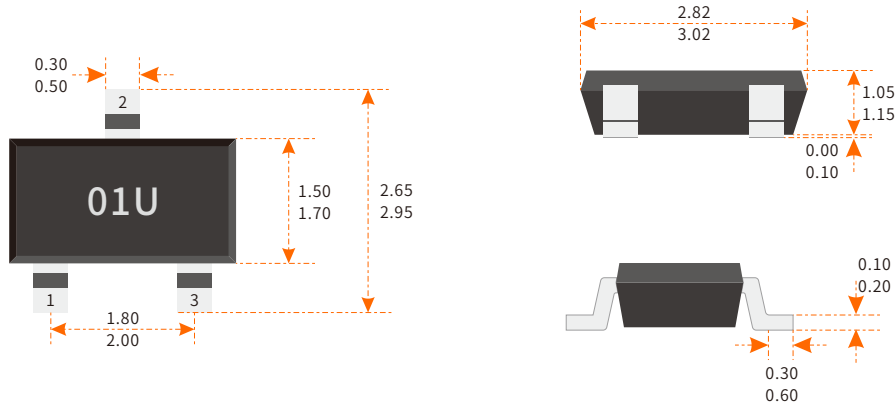


### Ordering Information

Part No.	Package Code	MPQ
HAL1501 SO	SO (SOT-23-3L)	3000PCS
HAL1501 UA	UA (TO-92S)	1000PCS

## Sensor Location, Package Dimension and Marking

### SO Package



### UA Package

