

## All-pole high voltage resistant hall switches

### 1.Introduction

- SL2464 is a high-pressure-resistant and highly sensitive full bipolar Hall effect switch chip, designed using bipolar semiconductor technology.
- Internally, the chip includes a voltage regulator unit, Hall voltage generator, differential amplification circuit, temperature compensation circuit, and open collector output circuit.
- It operates by inputting magnetic induction intensity and outputting a digital voltage signal. It is available in TO92S through-hole and SOT23-3L surface-mount packages, both compliant with RoHS standards.

### 2.Features

- Microstructure
- Open collector output
- ESD Performance up to:  $\pm 5\text{kV}$
- High sensitivity:  $\pm 50/\pm 30\text{Gs}$  (typical)
- Wide voltage range: 3.5V to 40V
- Operating temperature range:  $-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$

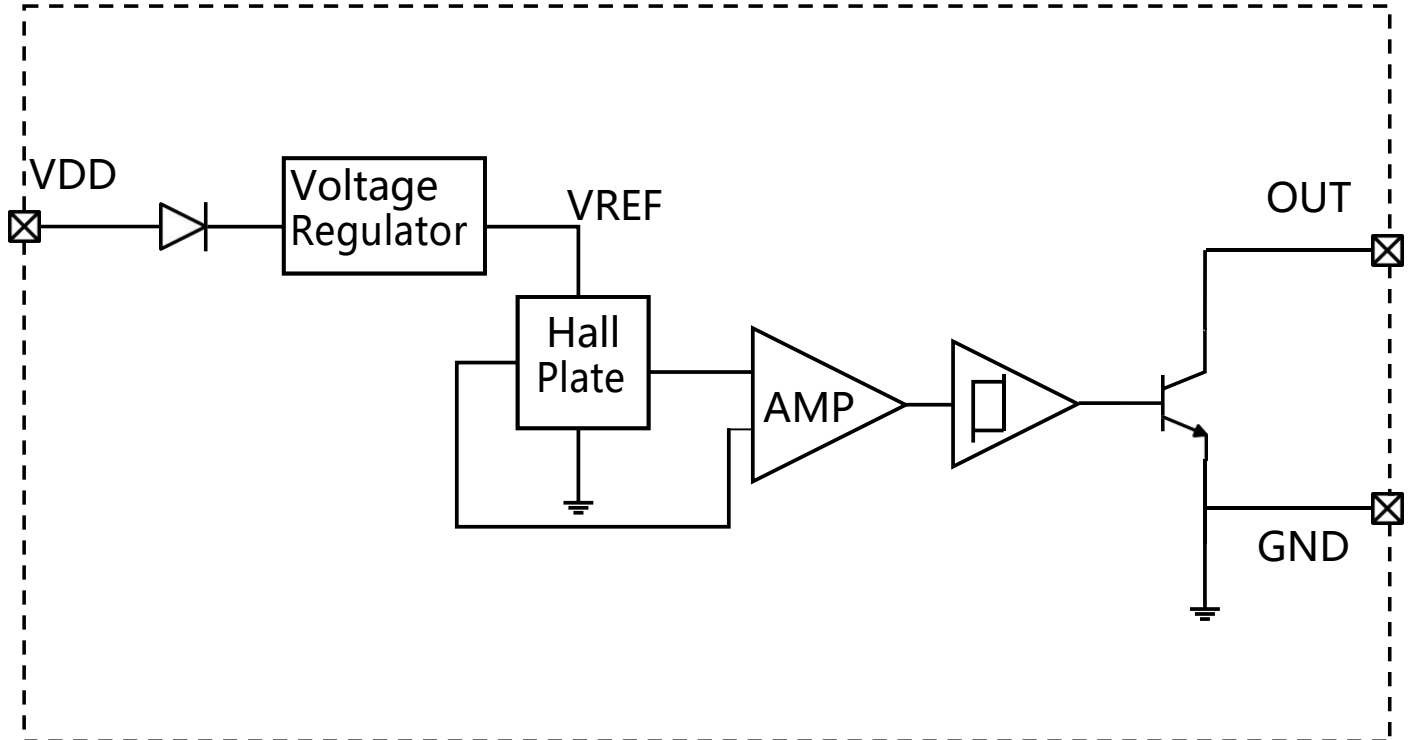
### 3. Field of application

- docking test
- door lock opening and closing detection
- proximity sensing
- valve positioning
- pulse count

### 4.Product packaging

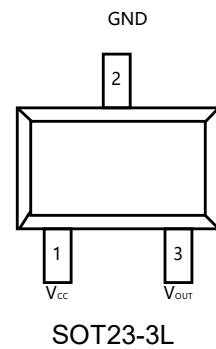
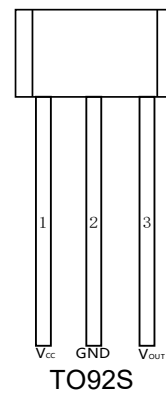
Partnumber	package	Ambient, TA	Packing
SL2464-9	TO92S	$-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$	1000 pieces/bag
SL2464-3	SOT23-3L	$-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$	3000 pieces/reel

**5.Functional Block Diagram**

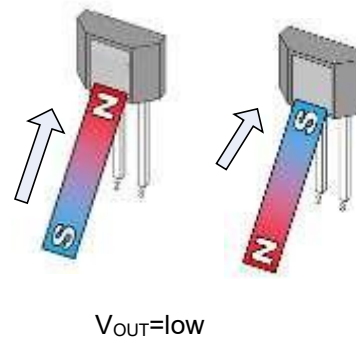
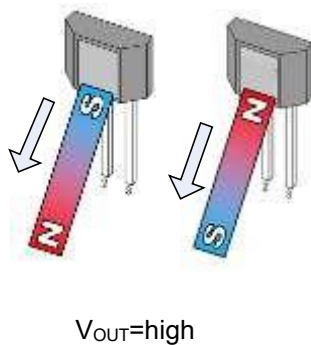


**6.Pin Description**

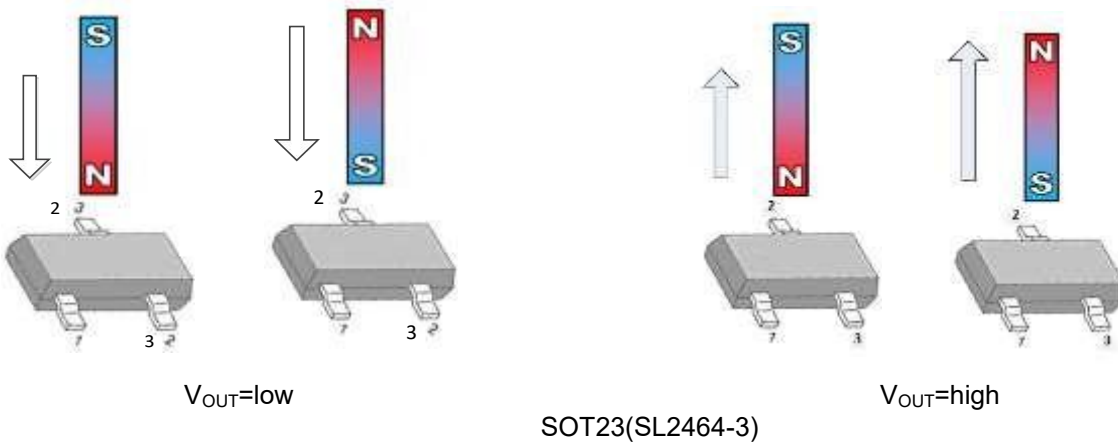
Number	Name	Function
1	V <sub>CC</sub>	power supply
2	GND	ground
3	V <sub>OUT</sub>	export



**7.Magnetolectric conversion characteristics**



TO92S(SL2464-9)



### 8. Absolute maximum rating

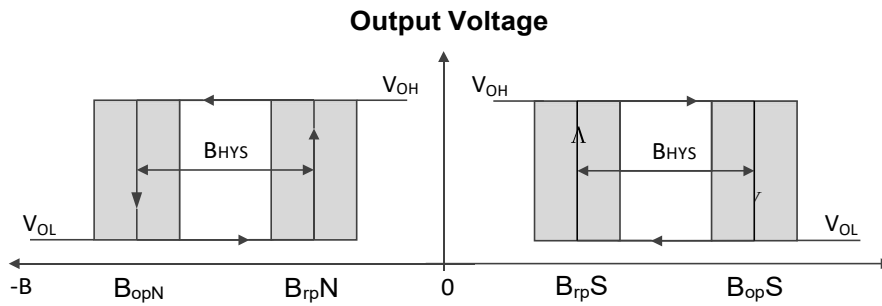
Partnumber	Symbol	Min	Max	Units
power supply voltage	$V_{CC}$	-0.3	60	V
output voltage	$V_{OUT}$	-0.5	60	V
output current	$I_{OUT}$	0	40	mA
operating ambient temperature	$T_J$	-40	125	°C
storage temperature	$T_S$	-50	165	°C

The absolute maximum rating is the limit that the chip can withstand; exceeding this value may result in permanent damage to the chip.

### 9. Electrical and magnetic characteristics ( $T_A=25^\circ\text{C}$ , $V_{SUP}=5\text{V}$ )

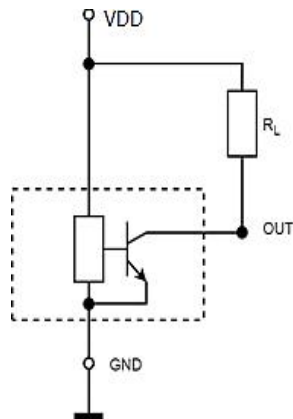
Parameter	Symbol	Test conditions	Min	Typ	Max	Units
<b>Electrical characteristics</b>						
supply voltage	$V_{CC}$		3.5		40	V
operating current	$I_{CC}$	$V_{CC}=5\text{V}$		3.5	7	mA
output leakage	$I_{le}$				10	uA
output voltage	$V_{SAT}$	$I_{OUT}=20\text{mA}$ , conduction state			0.4	V
output rise time	$T_R$	$R_L=1\text{k}\Omega$ , $C_L=20\text{pF}$			1	us
output fall time	$T_F$	$R_L=1\text{k}\Omega$ , $C_L=20\text{pF}$			1.5	us
<b>Magnetic characteristics</b>						
operate point	$B_{op}$	$R_L=1\text{k}\Omega$ , $C_L=20\text{pF}$		$\pm 50$		Gs
release point	$B_{rp}$	$R_L=1\text{k}\Omega$ , $C_L=20\text{pF}$		$\pm 30$		Gs
hysteresis	$B_{HYS}$	$R_L=1\text{k}\Omega$ , $C_L=20\text{pF}$		20		Gs

**10. Output state**

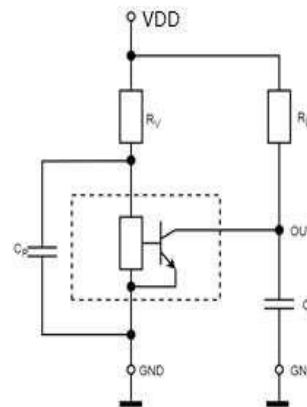


**11. Application circuit**

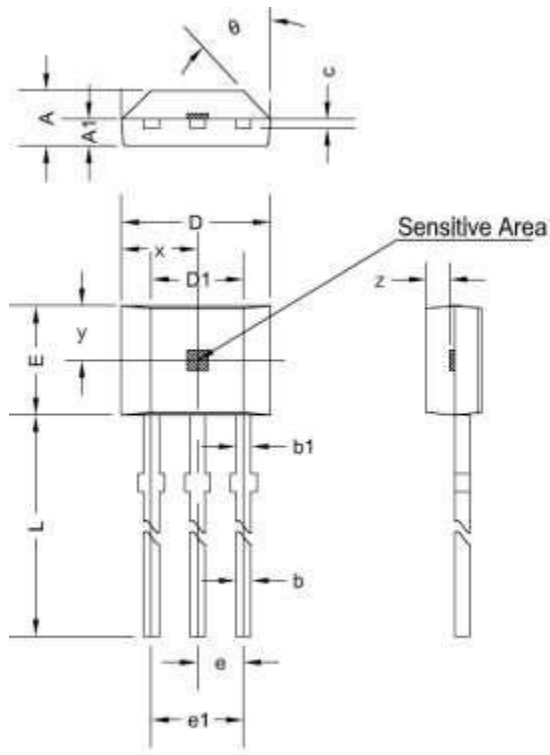
Typical application circuits are shown in the diagram below: Application Circuit 1, where  $R_L=4.7k\Omega$ , suitable for use in most circuits. Application Circuit 2, where  $R_V=100\Omega$ ,  $C_P=4.7nF$ ,  $R_L=4.7k\Omega$ ,  $C_L=1nF$ , used in circuits susceptible to interference or radiated disturbances on power lines. It is recommended to place resistor  $R_V$  and capacitors  $C_P$ ,  $C_L$  in series in the circuit, with these components positioned as close to the chip as possible.



Example Of Application Circuit 1

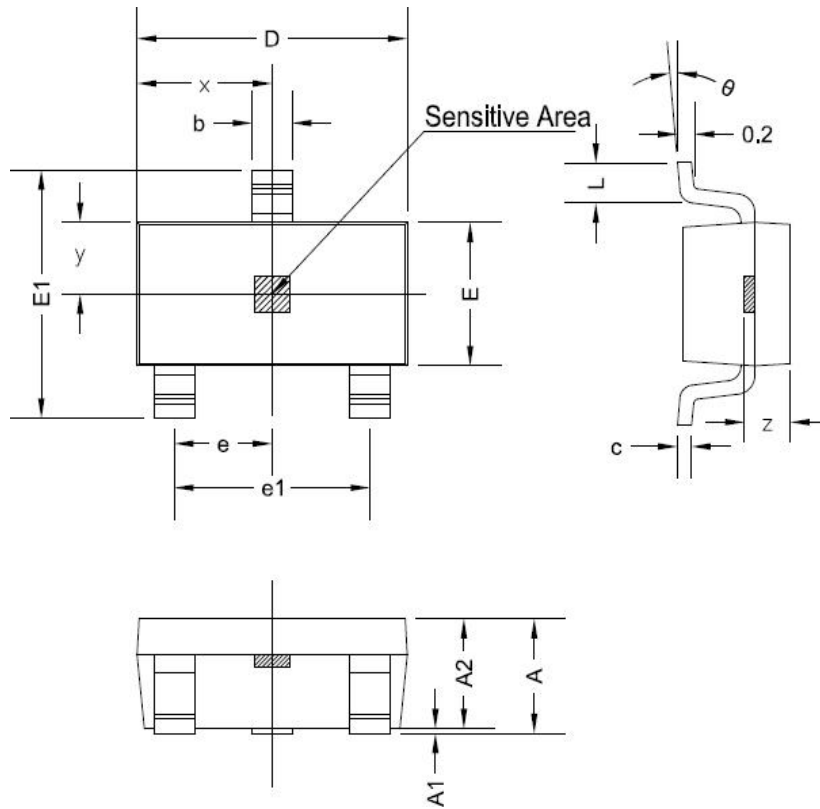


Example Of Application Circuit 2

**12.Outline dimensions**
**TO92S Package Outline**


Symbol	Size (mm)		Size (inches)	
	Min	Max	Min	Max
A	1.42	1.67	0.056	0.066
A1	0.66	0.86	0.026	0.034
b	0.35	0.56	0.014	0.022
b1	0.4	0.55	0.016	0.022
C	0.36	0.51	0.014	0.02
D	3.9	4.2	0.154	0.165
D1	2.97	3.27	0.117	0.129
E	2.9	3.28	0.114	0.129
e	1.270TYP		0.050TYP	
e1	2.44	2.64	0.096	0.104
L	13.5	15.5	0.531	0.61
x	2.025TYP		0.080TYP	
y	1.545TYP		0.061TYP	
z	0.500TYP		0.020TYP	
$\theta$	45°TYP		45°TYP	

**SOT23-3L Package Outline**



Symbol	Size (mm)		Size (inches)	
	Min	Max	Min	Max
A	1.05	1.25	0.041	0.049
A1	0	0.1	0	0.004
A2	1.05	1.15	0.041	0.045
b	0.3	0.5	0.012	0.02
c	0.1	0.2	0.004	0.008
D	2.82	3.02	0.111	0.119
E	1.5	1.7	0.059	0.067
E1	2.65	2.95	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.8	2	0.071	0.079
L	0.3	0.6	0.012	0.024
x	1.460TYP		0.057TYP	
y	0.800TYP		0.032TYP	
z	0.600TYP		0.024TYP	
θ	0°	8°	0°	8°