

**SH 248 High Sensitivity CMOS Micropower Hall Switch**

SH248 includes the following on a single silicon chip: voltage regulator, Hall voltage generator, small-signal amplifier, chopper stabilization, Schmitt trigger, and a short circuit protected open-drain output. Advanced CMOS wafer fabrication processing is used to take advantage of low-voltage requirements, component matching, very low input-offset errors, and small component geometries.

FEATURES

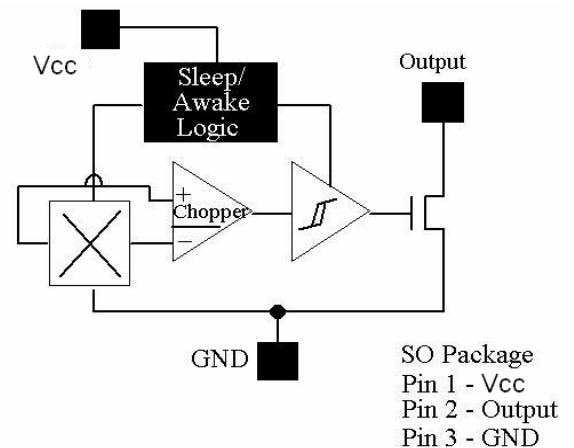
- CMOS Hall IC Technology
- Solid-State Reliability much better than reed switch
- Micro power consumption for battery-powered applications
- Omni polar output switches with absolute value of North or South pole from magnet
- High Sensitivity for reed switch replacement

TYPICAL APPLICATION

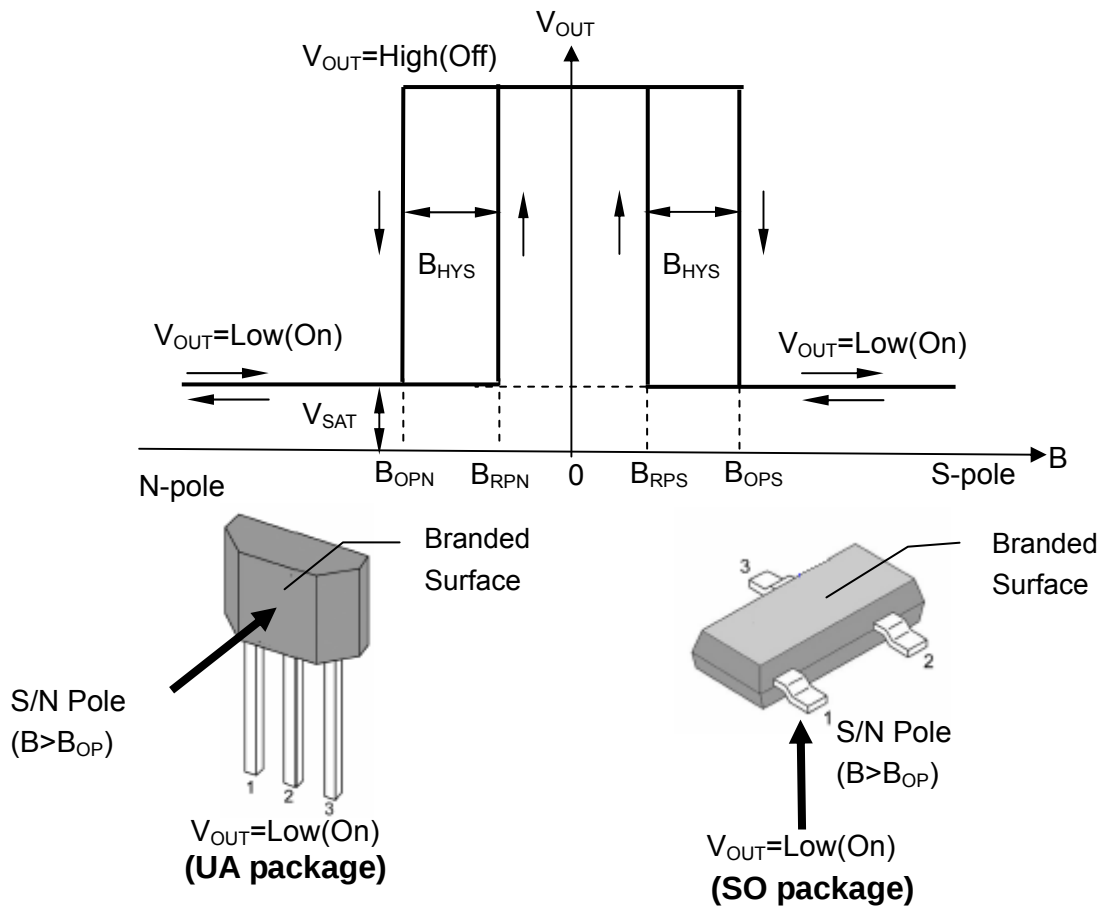
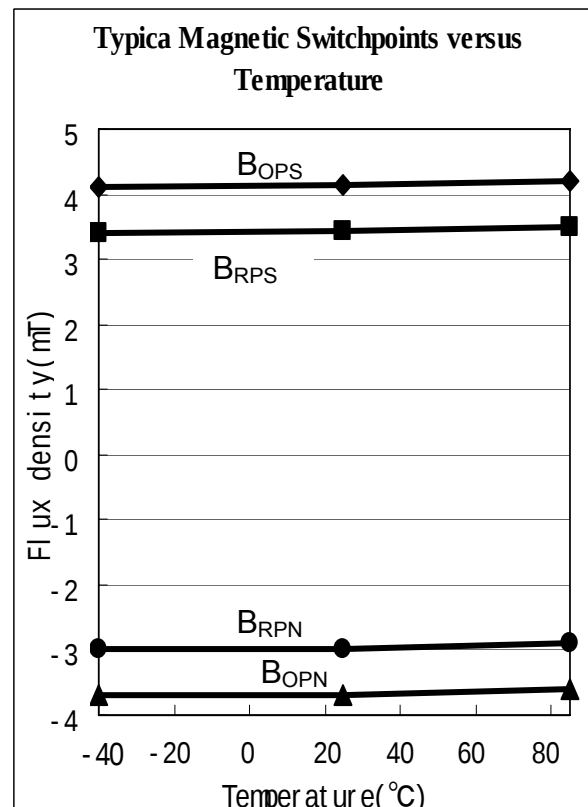
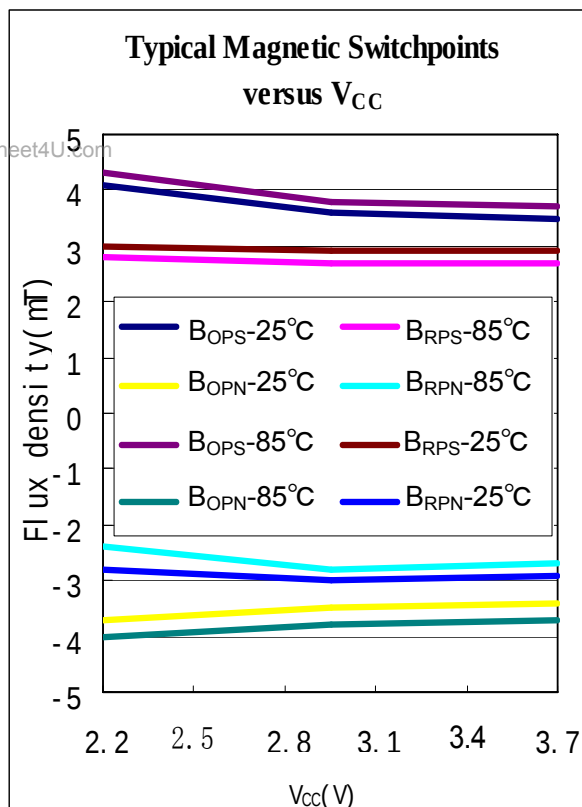
- Solid state switch
- Handheld Wireless Handset Awake Switch (Flip Cell/PHS Phone/Note Book/Flip Video Set)
- Lid close sensor for battery powered devices
- Magnet proximity sensor for reed switch replacement in low duty cycle applications

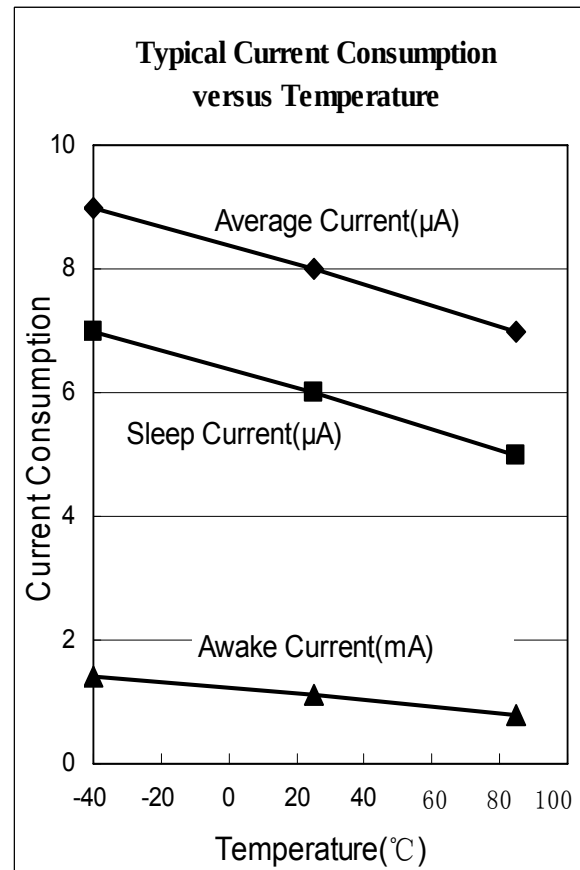
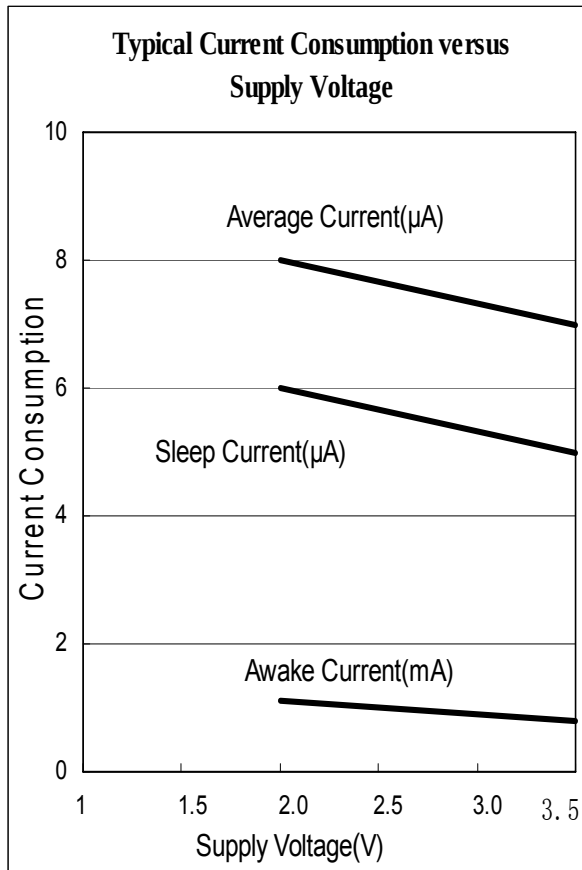
ABSOLUTE MAXIMUM RATINGS At ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value		Unit
		Min	Max	
Supply Voltage	V_{CC}	2.5	3.5	V
Output Current	I_{OUT}	-	1	mA
Output Voltage	V_{OUT}	-0.3	3.5	V
Operating Temperature Range (E)	T_A	-40	85	$^{\circ}\text{C}$
Storage Temperature Range	T_S	-55	150	$^{\circ}\text{C}$

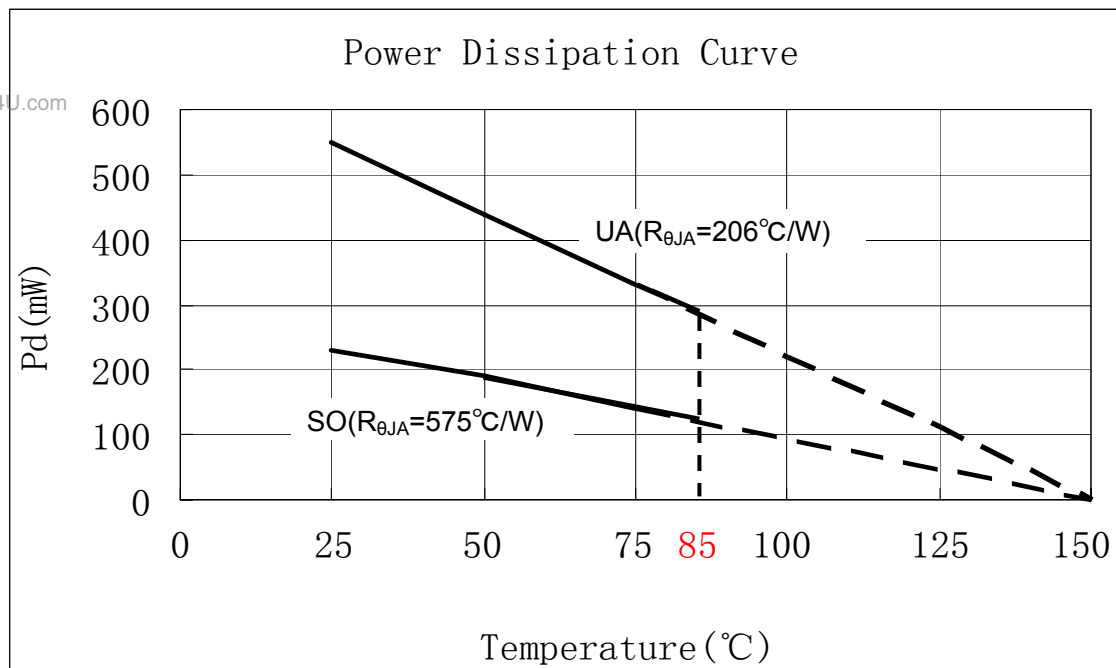
FUNCTIONAL BLOCK DIAGRAM**SH248 ELECTRICAL & MAGNETIC CHARACTERISTICS** (At $T_A=25^{\circ}\text{C}$, $V_{CC}=3\text{V}$)

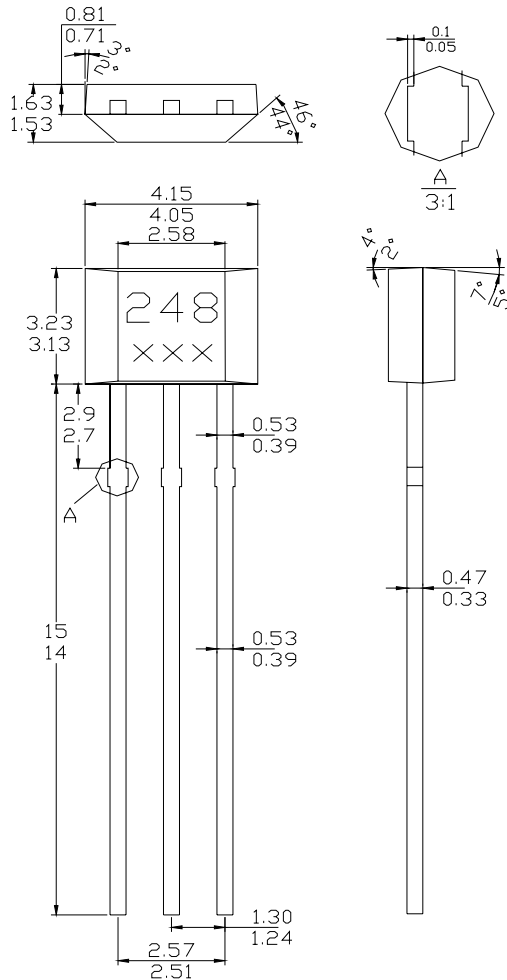
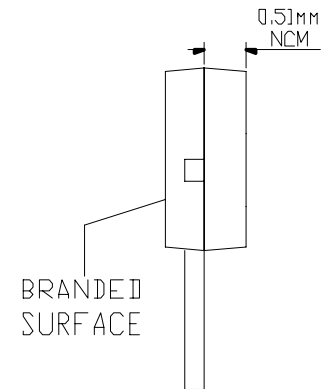
Parameter	Test Condition	Symbol	Min	Value Typ	Max	Unit
Supply Voltage		V_{CC}	2.5	-	3.5	V
Output Saturation Voltage	$I_{OUT}=1\text{mA}$, $B > B_{OP}$	V_{SAT}	-	-	0.4	V
Output Leakage Current	$V_{OUT}=3\text{V}$, $B < B_{RP}$	I_{OFF}		< 0.1	10	μA
Supply Current	$B < B_{RP}$	I_{CC}	-	8	-	μA
Operate Point		B_{OPS}	-	-	6	mT
		B_{OPN}	-6			mT
Release Point		B_{RPS}	0.5	-	-	mT
		B_{RPN}			-0.5	mT
Hysteresis		B_{HYS}	-	0.7	-	mT
Awake mode time		t_{aw}	-	175	-	μs
Sleep mode time		t_{sl}	-		70	mS

MAGNETIC-ELECTRICAL TRANSFER CHARACTERISTICS

PERFORMANCE GRAPHS


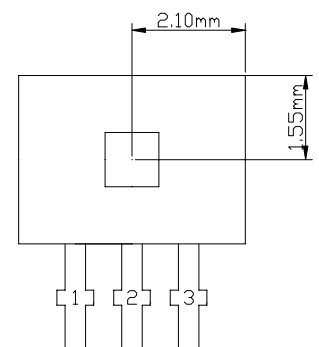
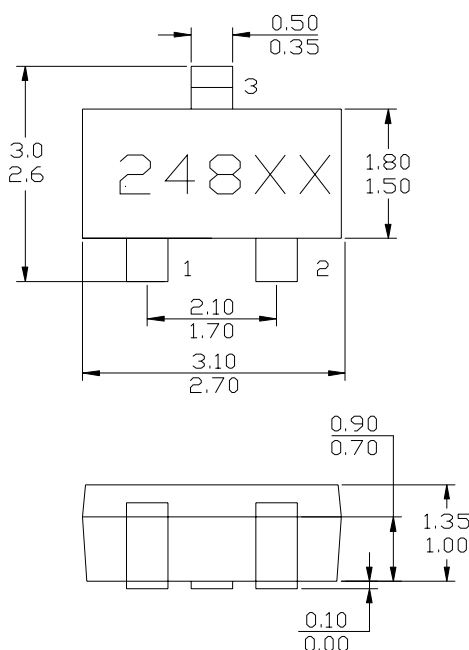


POWER DISSIPATION VERSUS TEMPERATURE



**SENSOR LOCATION, PACKAGE DIMENSION AND MARKING****UA package: TO92S****TO92S Hall plate/ Chip location****NOTES:**

1. Controlling dimension: mm
2. Leads must be free of flash and plating voids
3. Do not bend leads within 1 mm of lead to package interface
4. PINOUT:
Pin 1 Vcc
Pin 2 GND
Pin 3 Output

Active Area Depth**Sensor Location****SO package: SOT23****(Top view)****SOT-23 Hall plate/ Chip location****(Bottom view)****NOTES:**

1. PINOUT (See Top View at left :)
Pin 1 Vcc
Pin 2 Output
Pin 3 GND
2. Controlling dimension: mm
3. Lead thickness after solder plating will be 0.254mm maximum

