Micropower Ultra-Sensitive Hall Effect Switch

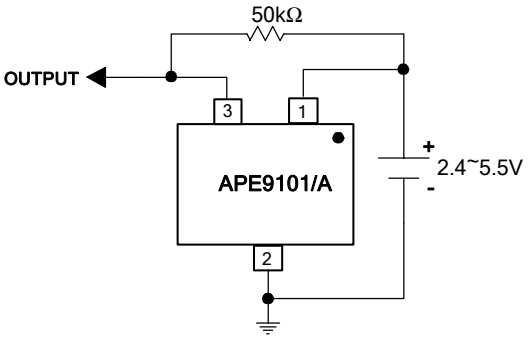
FEATURES

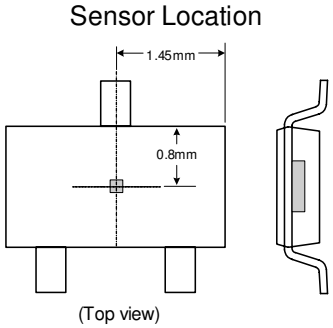
- Battery Operation from 2.4V to 5.5V
- Chopper Stabilized Technology
- Micro Power Operation for Battery Applications
- Operation with North or South Pole
- High Sensitivity and High Stability of the Magnetic Switching Points
- Small RoHS-compliant, halogen-free SOT-23 or TSOT-23 packages

DESCRIPTION

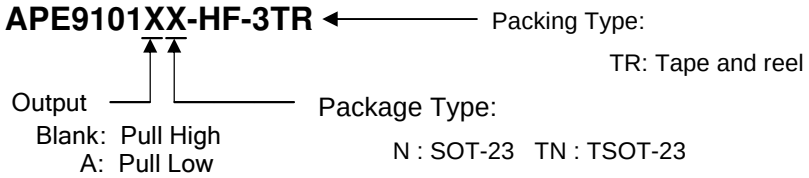
The APE9101/A-HF-3 is a three-terminal Hall Effect sensor device with an output driver, mainly designed for battery operated hand-held equipment (such as cellular and cordless phones, PDAs). After power-on, the APE9101/A-HF-3 will detect and setup the operating pole (North or South) to avoid another side magnetic noise. (Patent pending). For the APE9101-HF-3, the output will be turned off in the absence of a magnetic field. While the magnetic flux density B is larger than the operating point, Bop, the output will be turned on. The output remains latched on until the flux density B drops below the release point, Brp.

Typical Application





Ordering information



Example:

APE9101ATN-HF-3TR : output pull low, in RoHS-compliant, halogen-free TSOT-23, shipped on tape and reel (3000 pcs/reel).

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Absolute Maximum Ratings (at T_A = 25°C)

Supply Voltage Pin (V_{DD}) ---------- -0.3 to 6V
Output Voltage Pin(V_{OUT}) ---------- -0.3 to 6V
Output Current Pin (I_{OUT}) ---------- 2mA
Power Dissipation(P_D) ---------- 230mW
Storage Temperature Range(T_{ST}) ---------- -65°C To 150°C
Operating Temperature Range(T_{OP}) ---------- -40°C To 85°C
Junction Temperature(T_J) ---------- 125°C
Thermal Resistance from Junction to Ambient(Rth_{JA}) 550°C/W

Note. Rth_{JA} is measured with the PCB copper area of approximately 1 in^2(Multi-layer).

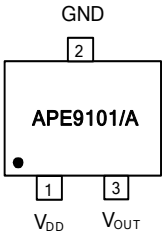
Electrical Specifications

(V_{DD}=2.75V, T_A=25°C, unless otherwise specified)

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Supply Voltage	V_{DD}		2.4	-	5.5	V
Input Current		Awake State	-	2	4	mA
		Sleep State	-	7	12	uA
		Average	-	9	16	uA
Output Saturation Voltage	V_{OSAT}	I_O=1mA	-	0.1	0.3	V
Output Leakage Current	I_{O-LEAK}	VOUT=5.5V, B<Brp	-	0.01	1	uA
Output Wake-Up Time	$T_{wake-up}$		-	70	120	us
Period	T_{Period}		-	70	120	ms
Duty Cycle			-	0.1	-	%
North or South Pole Detection and Setup Time	T_{Set}	Continuous >B_{OPS} or <B_{OPN}	-	210	400	ms

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.
USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.
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Pin Assignment



(SOT-23/TSOT-23)
(TOP VIEW)

Pin Functional Descriptions

PIN SYMBOL	PIN DESCRIPTION
VDD	Power Input Pin
GND	Ground
OUTPUT	APE9101 B>Bops or B<Bopn, Output is Low. B<Brps or B> Brpn, Output is High. APE9101A B>Bops or B<Bopn, Output is High. B<Brps or B> Brpn, Output is Low.

Magnetic Characteristics

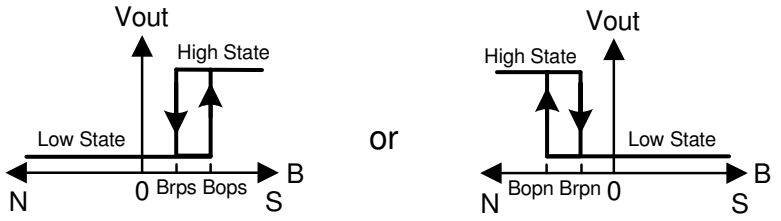
(V_{DD} = 2.75V, T_A=25°C, unless otherwise specified)

Parameter	SYM	TEST CONDITION	MIN	TYP	MAX	UNITS
Operating Points	B_{OPS}		-	35	55	Gauss
	B_{OPN}		-55	-35	-	
Release Points	B_{RPS}		10	25	-	
	B_{RPN}		-	-25	-10	
Hysteresis	B_{hys}		-	10	-	

1.APE9101



2.APE9101A



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