Micro Power, Ultra-Sensitive, Hall Effect Switch

DESCRIPTION

STH8103 is a three-terminal Hall Effect sensor device with a output driver, mainly designed for battery–operation, hand-held equipment (such as Cellular and Cordless Phone, PDA). For STH8103, either north or South Pole of sufficient strength will turn the output on. The output will be turned off under no magnetic field. While the magnetic flux density (B) is larger than operate point (Bop), the output will be turned on (low), the output is latched until B is lower than release point (Brp), then turned off.

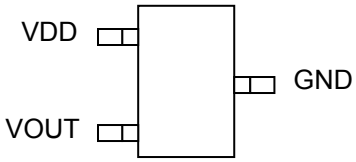
FEATURE

- 2.4V to 5.5V battery operation
- Micro Power Operation for Battery Applications
- Chopper Stabilized Technology
- Operation with North or South Pole
- High sensitivity and high stability of the magnetic switching points
- This is a RoHS compliance
- TSOT-23 package design

APPLICATIONS

- Note book
- PDA
- Mobile Phone
- Digital Camera
- Electric Equipment

PIN CONFIGURATION



TOP VIEW
TSOT-23L

PART NUMBER INFORMATION

STH8103XX- XX X

- Lead Plating Code
- Handling Code
- Package Code

Lead Plating Code

G : Lead-free product.
This product is RoHS compliant

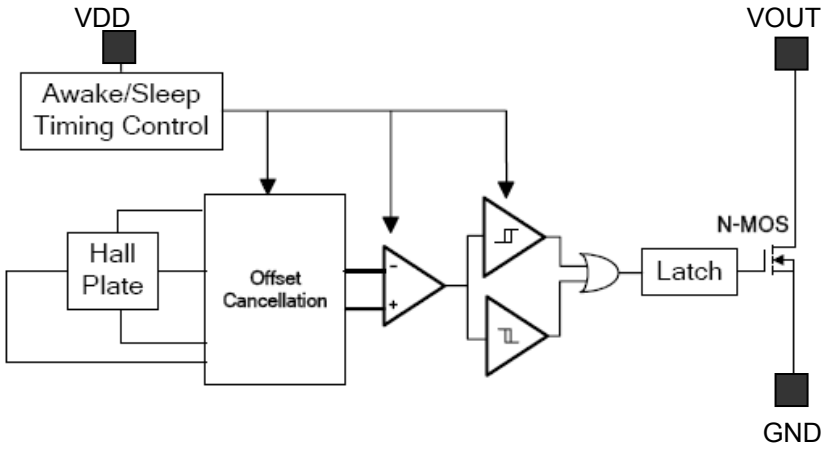
Handling Code

TR : Tape&Reel

Package Code

SS : TSOT-23L

BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Package Code	Package	Shipping
STH8103SS-TRG	SS	TSOT-23L	3000 / Tape&Reel

※ Year Code : 0 ~ 9
※ Week Code : A ~ Z(1~26) ; a ~ z(27~52)
※ G : Lead-free product. This product is RoHS compliant.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C Unless otherwise noted)

Symbol	Parameter	Typical	Unit
V_{DD}	VDD Pin Voltage	-0.3~+6	V
Vout	Output Pin Voltage	-0.3~+6	V
I_{OUT}	Output Current	2	mA
θ_{JA}	Thermal Resistance from Junction to ambient	550	°C/W
P_D	Power Dissipation	230	mW
T_{OP}	Operating Temperature Range	-40~+85	°C
T_J	Junction Temperature	125	°C
T_{STG}	Storage Temperature Range	-65/+150	°C

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

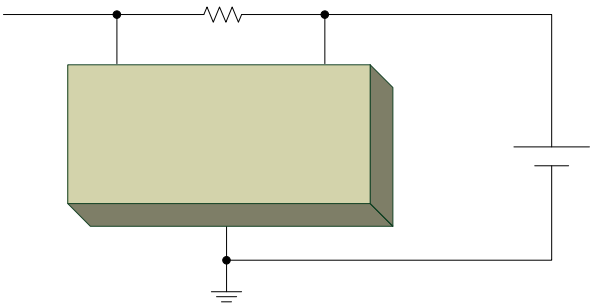
■ELECTRICAL CHARACTERISTICS(VDD=2.75V, T_A = 25°C Unless otherwise noted)

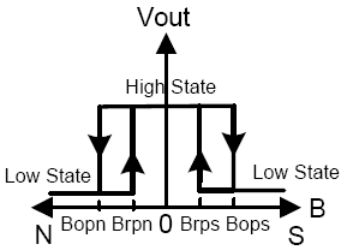
Symbol	Parameter	Condition	Min	Typ	Max	Unit
V_{DD}	Supply Voltage	-	2.4	-	5.5	V
I_{DD}	Supply current	Awake State	-	2	4	mA
		Sleep State	-	7	12	μA
		Average	-	9	16	μA
V_{OSV}	Output Saturation Voltage	I_O=1mA	-	0.1	0.3	V
I_{OLC}	Output Leakage Current	V_{OUT}=5.5V, B<Brp	-	0.01	1	μA
T_{OWT}	Output Weak-Up Time	-	-	70	120	μS
T_P	Period	-	-	70	120	mS
D.C	Duty Cycle	-	-	0.1	-	%

■MAGNETIC CHARACTERISTICS (VDD=2.75V, T_A = 25°C Unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
B_{OPS}	Operating Points	-	-	35	55	Gauss
B_{OPN}		-	-55	-35	-	
B_{RPS}	Release Points		10	25		
B_{RPN}			-	-25	-10	
B_{Hys}	Hysteresis		-	10	-	

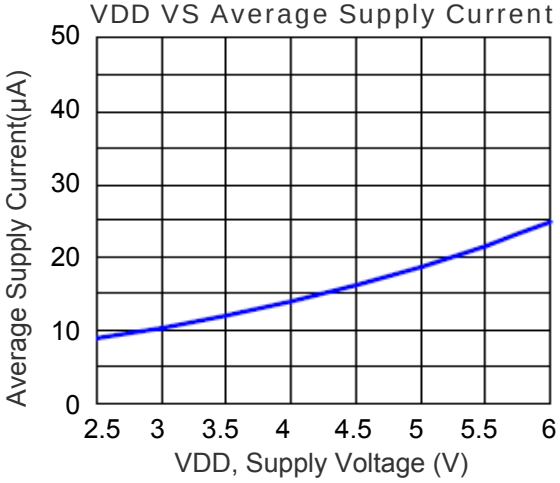
■APPLICATION CIRCUIT



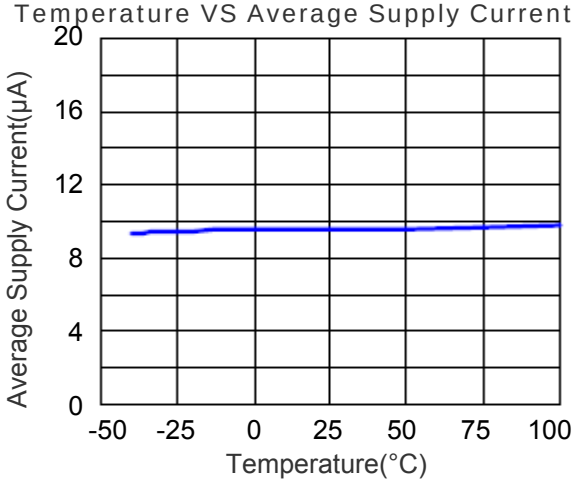


TYPICAL CHARACTERISTICS (25℃ Unless Note)

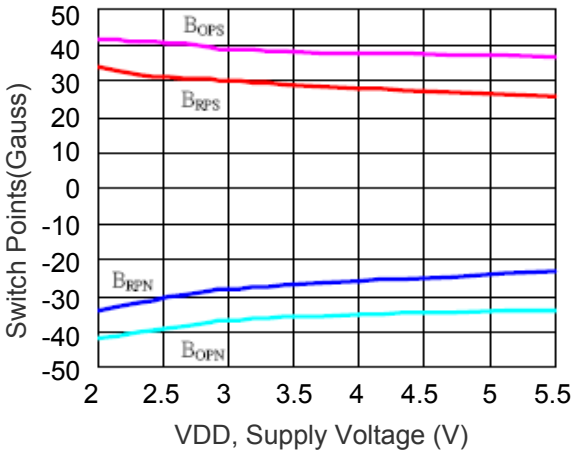
VDD VS Average Supply Current



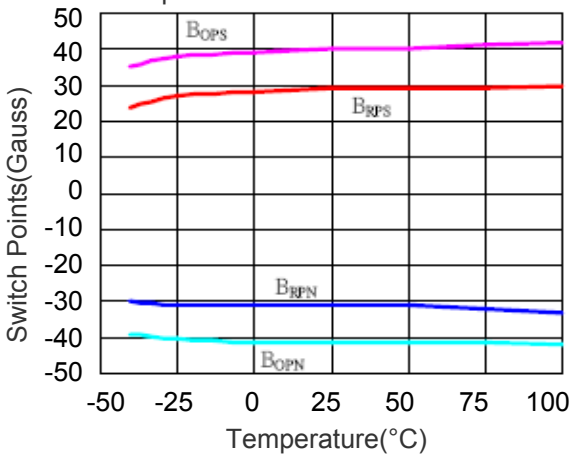
Temperature VS Average Supply Current



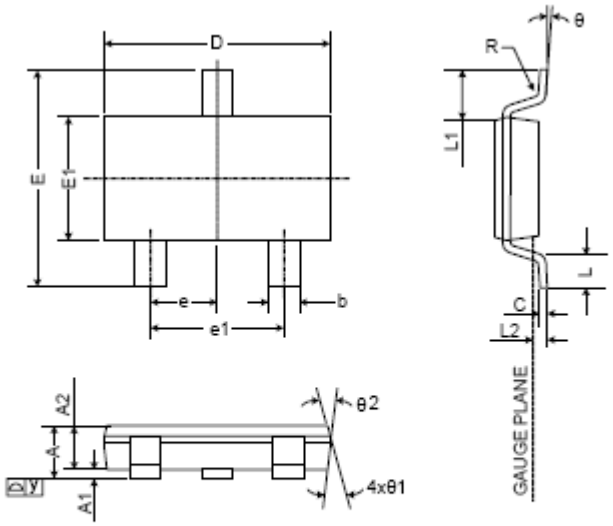
VDD VS Switch Points



Temperature VS Switch Points



TSOT-23L PACKAGE DIMENSIONS



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.75	-	0.90	0.030	-	0.035
A1	0.00	-	0.10	0.000	-	0.004
A2	0.70	0.75	0.80	0.028	0.030	0.031
b	0.35	-	0.51	0.014	-	0.020
C	0.10	-	0.25	0.004	-	0.010
D	2.80	2.90	3.00	0.110	0.114	0.118
E	2.60	2.80	3.00	0.102	0.110	0.118
E1	1.50	1.60	1.70	0.059	0.063	0.067
e	0.95 BSC.			0.037		
e1	1.90 BSC.			0.075		
L	0.37	-	-	0.015	-	-
L1	0.60 REF.			0.024		
L2	0.25 BSC.			0.010		
y	-	-	0.10	-	-	0.004
R	0.10	-	-	0.004	-	-
θ	0°	-	8°	0°	-	8°
θ1	7° NOM.			7° NOM.		
θ2	5° NOM.			5° NOM.		