

MICRO ELECTRONICS

CS1018

HALL-EFFECT
SWITCH

HALL EFFECT IC SWITCH

This Hall-effect switch is stress-resistant sensor best utilized in applications that provide steep magnetic slopes and low residual levels of magnetic flux density.

The device includes a voltage regulator, Hall voltage generator, signal amplifier, Schmitt trigger and open-collector output on a single silicon chip. The on-board regulator permits operation with supply voltages of 3.6 to 24 volts. The switch can be used directly with bipolar or MOS logic circuits.

ELECTRICAL AND MAGNETICAL CHARACTERISTICS

@ ($T_a=25^{\circ}\text{C}$, $V_{cc}=3.6\text{V}$ to 24V)

CHARACTERISTIC	SYMBOL	TEST CONDITIONS	LIMITS			
			MIN	TYP	MAX	UNIT
Supply Voltage	V_{cc}		3.6	-	24	V
Output Saturation Voltage	V_{out}	$I_{out}=5\text{mA}$, $B > B_{op}$	-	-	400	mV
Output Leakage Current	I_{off}	$V_{out}=24\text{V}$, $B < B_{rp}$	-	1	10	μA
Supply Current	I_{cc}	$V_{cc}=3.6\text{V}$, Output Open	-		9	mA
Output Rise Time	t_r	$V_{cc}=12\text{V}$, $R_L=1.1\text{K}$, $C_L=20\mu\text{F}$	-	0.04	-	μS
Output Fall Time	t_f	$V_{cc}=12\text{V}$, $R_L=1.1\text{K}$, $C_L=20\mu\text{F}$	-	0.04	-	μS
Operate Point	B_{op}	$0^{\circ}\text{C} < T_a < +70^{\circ}\text{C}$, $T_a=25^{\circ}\text{C}$	-	-	15	mT
Release Point	B_{rp}	$0^{\circ}\text{C} < T_a < +70^{\circ}\text{C}$, $T_a=25^{\circ}\text{C}$	-15	-	-	mT
Hysteresis	B_{hys}	$0^{\circ}\text{C} < T_a < +70^{\circ}\text{C}$, $T_a=25^{\circ}\text{C}$	2	-	-	mT

Features

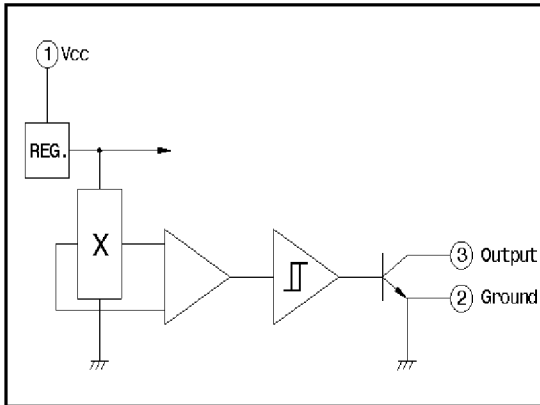
3.6V to 24V Operation

Activate with small, commercially available permanent magnets.

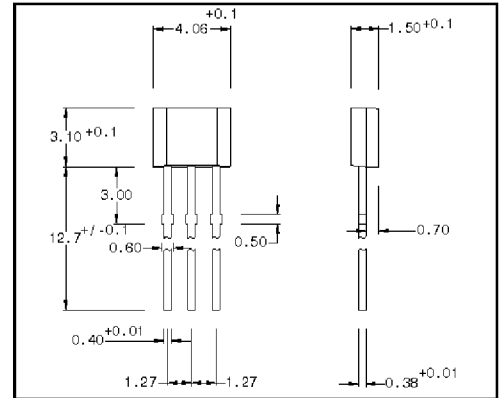
Solid-state reliability ... No moving parts small size

Resistant to physical stress

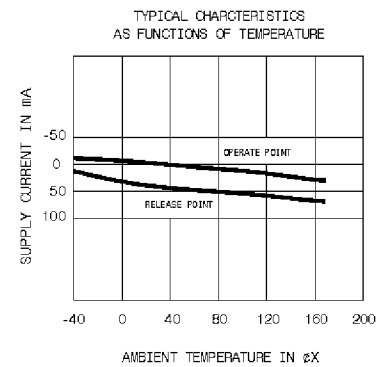
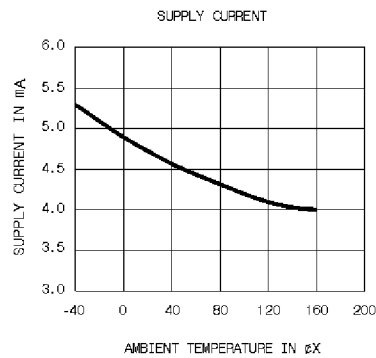
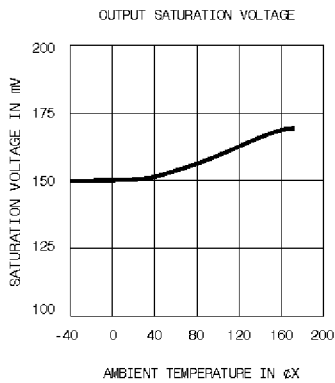
Functional Block Diagram



Case Drawing



Typical characteristics as functions of temperature



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Dec-98