

C1024 HALL-EFFECT SWITCH ICs

C1024 Hall-effect switches are monolithic integrated circuits, which are composed of a reverse protector, voltage regulator, Hall voltage generator, differential amplifier, Schmitt trigger and an open-collector output on a single silicon chip. ICs can convert the changeable magnetic field signal into digital voltage output.



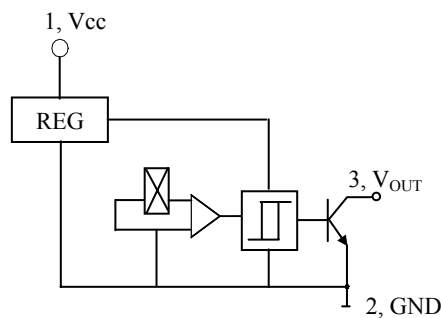
FEATURES

- High Sensitivity
- Resistant to Physical Stress
- Wide Supply Voltage Range
- Interfacing with All Kinds of Logic Circuits

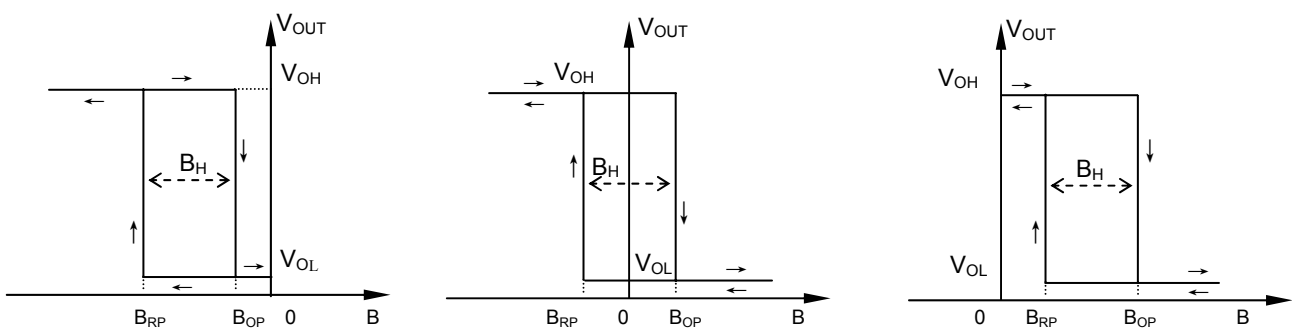
TYPICAL APPLICATION

- High Sensitive Non-contact Switch
- DC Brushless Motor
- DC Brushless Fan

FUNCTIONAL BLOCK DIAGRAM



Magnetic-Electrical Transfer Characteristics



ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value		Unit
		Min	Max	
Supply Voltage	V _{CC}	4.5	20	V
Magnetic Flux Density	B	unlimited		mT
Output Current	I _O	-	25	mA
Operating Temperature Range	T _A	-20	+100	°C
Storage Temperature Range	T _S	-55	+150	°C

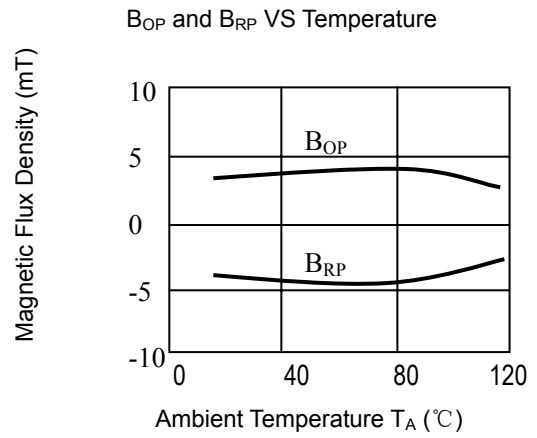
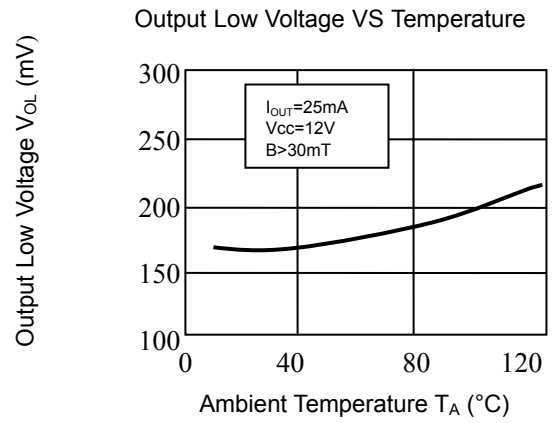
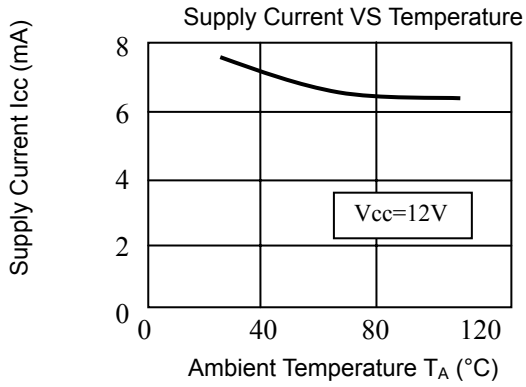
ELECTRICAL CHARACTERISTICS

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Supply Voltage		V _{CC}	4.5	-	20.0	V
Output Low Voltage	V _{CC} =4.5V V _O =V _{CC} max B=20mT I _O =25mA	V _{OL}	-	0.2	0.4	V
Output Leakage Current	V _O =V _{CC} max, V _{CC} open-collector output	I _{OH}	-	0.1	10.0	μA
Supply Current	V _{CC} =V _{CC} max V _O open-collector output	I _{CC}	-	8.0	12.0	mA
Output Rise time	V _{CC} =12V C _L =20pF R _L =480KΩ	t _r	-	0.3	1.5	μS
Output Fall time		t _f	-	0.3	1.5	μS

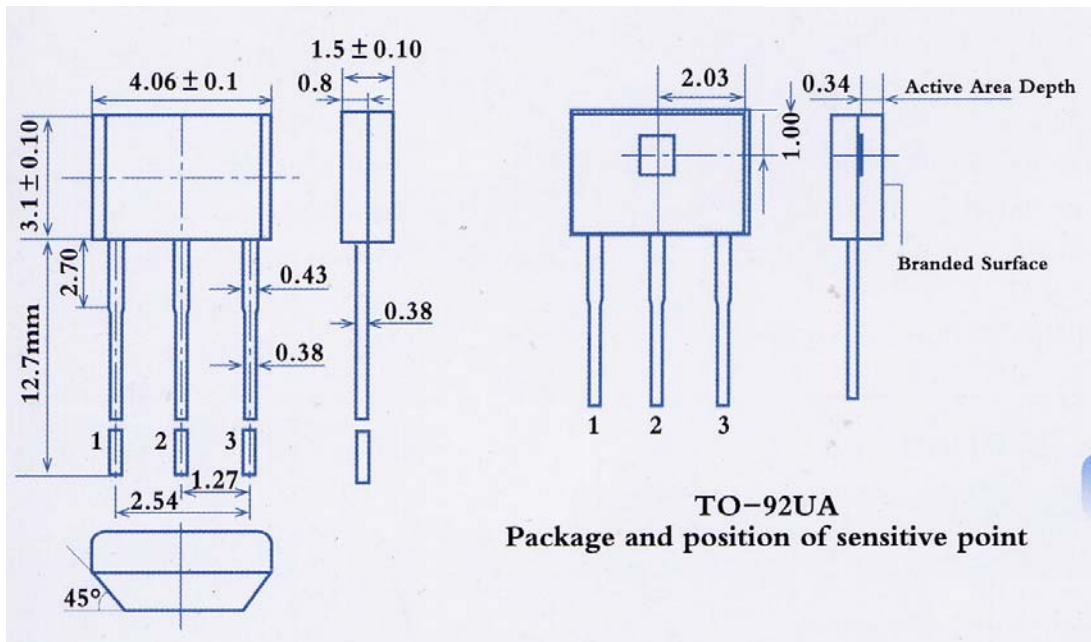
Magnetic Characteristics (Unit: mT)

Parameter	Rank	Value			Unit
		Min	Typ	Max	
Operate Point (B _{OP})	A ₁₁	-	-	8	mT
	A ₁₂	-	-	10	
	A ₂	-	-	15	
	B	-	-	20	
Release Point (B _{RP})	A ₁₁	-8	-	-	mT
	A ₁₂	-10	-	-	
	A ₂	-15	-	-	
	B	-20	-	-	
Hysteresis (B _H)		2	6	-	

Characteristics Curves



Package Outline Drawing (Unit: mm)



Pin Notes: 1. Power Supply 2. Ground, 3. Output

Cautions:

- 1) It is possible that outside mechanical stress affects the operating point and the release point of Hall-effect circuit, therefore, mechanical stress should be lessened as far as possible in the process of assembly;
- 2) Pay attention to the soldering temperature at the leads; keep it lower in a short time to guarantee good soldering quality.