

CYD3141E SERIES HALL-EFFECT SWITCH IC_S

CYD3141E series Hall-effect switch integrated circuits for high temperature operating based on Hall-effect principle, apply the semiconductor monolithic technology, which includes a voltage regulator, Hall voltage generator, differential amplifier, Schmitt trigger and an open-collector output on a single silicon chip. ICs can convert the input magnetic field signal into digital voltage output.

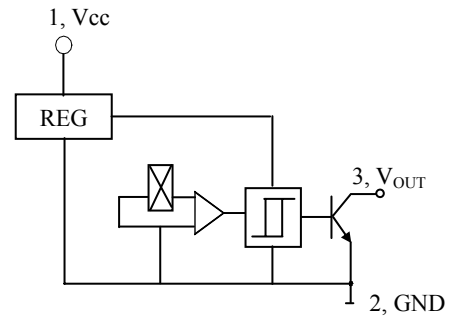
FEATURES

- ◆ Small size
- ◆ High Sensitivity
- ◆ Quick Response
- ◆ Good Temperature Performance
- ◆ High Accuracy
- ◆ Excellent Reliability

TYPICAL APPLICATION

- ◆ Non-contact Switch
- ◆ Automotive Ignition
- ◆ Brake ICs
- ◆ Position control
- ◆ Revolution detection
- ◆ Safe alarm device
- ◆ Textile control system

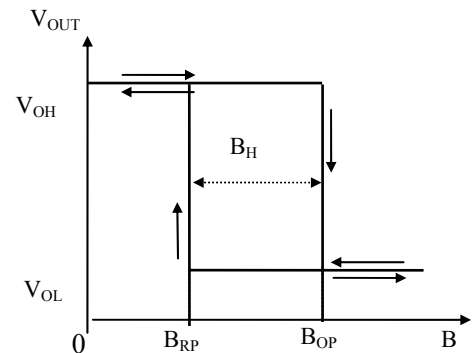
FUNCTIONAL BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

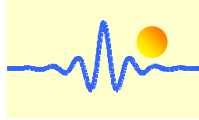
Parameter	Symbol	Value	Unit
Supply Voltage	V _{CC}	28	V
Quiescent Output Voltage	V _O	28	V
Output Current	I _O	25	mA
Operating Temperature Range	T _A	-40~85	°C
Storage Temperature Range	T _S	-65~150	°C

Magnetic-Electrical Transfer Characteristics



ELECTRICAL CHARACTERISTICS

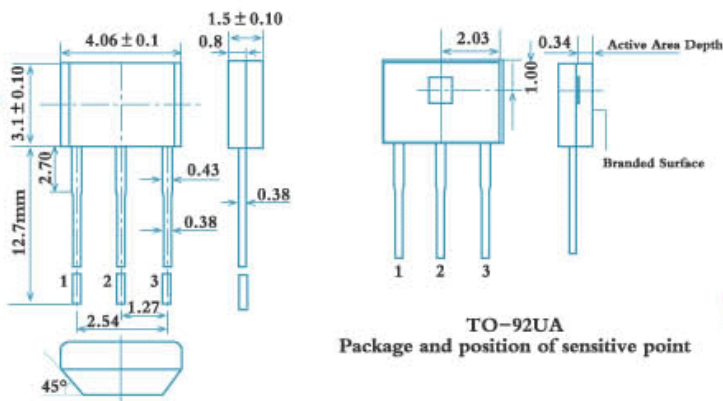
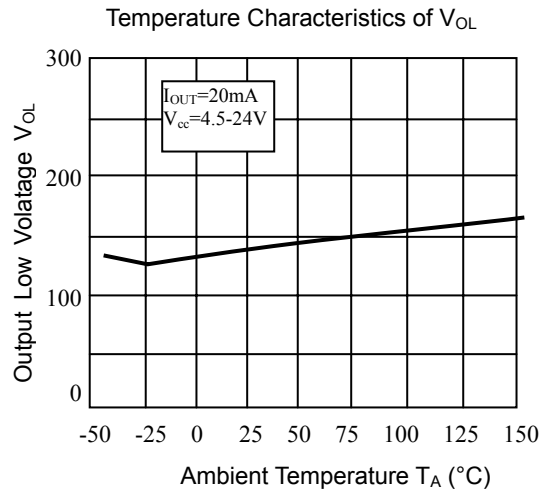
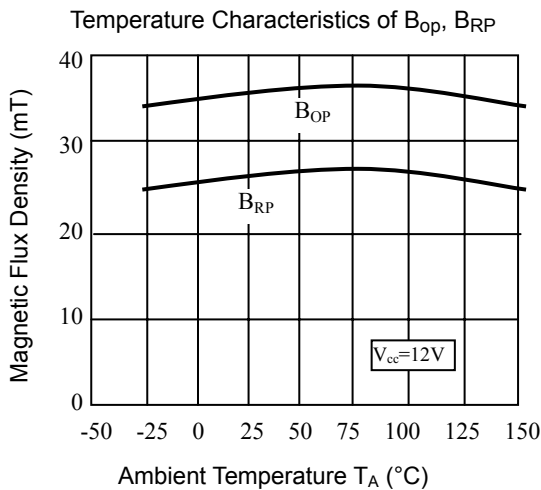
Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Supply Voltage	V _{CC} =4.5V~24V	V _{CC}	4.5	-	24	V
Output Low Voltage	V _{CC} =4.5V, V _O =24V I _O =20mA, B≥B _{OP}	V _{OL}	-	175	400	mV
Output Leakage Current	V _O =24V, B<B _{RP}	I _{OH}	-	<1.0	10	μA
Supply Current	V _{CC} =24V, V _O open-collector output	I _{CC}	-	3.0	9.0	mA
Output Rise time	V _{CC} =12V, R _L =820Ω C _L =20pF	tr	-	0.2	2.0	μS
Output Fall time		tf	-	0.18	2.0	μS



Magnetic Characteristics (Unit: mT)

Parameter		Min	Typ	Max
Operate Point (B _{OP})	T _A =25°C	5.0	10.0	16.0
	Full Operating Temperature Range	3.0	10.0	17.5
Release Point (B _{RP})	T _A =25°C	1.0	4.5	13.0
	Full Operating Temperature Range	1.0	4.5	14.5
Hysteresis (B _H)	T _A =25°C	2.0	5.5	8.0
	Full Operating Temperature Range	2.0	5.5	8.0

Characteristics Curves



PIN NOTES

1. Power Supply
2. Ground
3. Output

CAUTIONS

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