

Features

- Hall effect Latch Sensor
- Wide operating voltage range :3.5V~38V
- Open Collector Pre-Driver
- Chip power Reverse-Connection Protection
- Maximum output sink current: 50mA
- Operating Temperature:-40°C~+125°C
- Package: SOT23 TO92S

Applications

- Rotor Position Sensing
- Current Switch
- Brush-less DC Motor
- Revolution counting
- Encoder
- RPM Detection
- Brush-less DC Fan
- Speed measurement

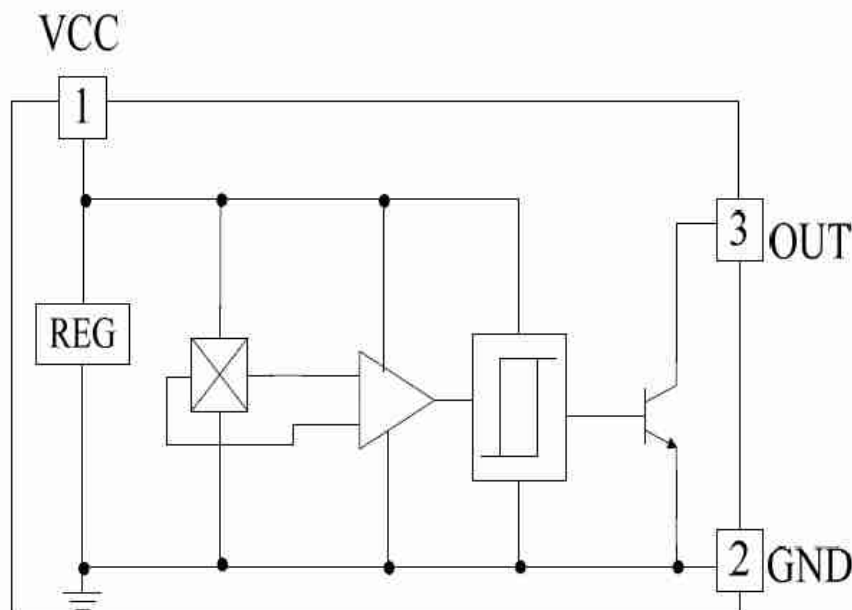
General Description

The TX3141 series is an integrated Hall Effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt to provide switching hysteresis for noise rejection, and open-collector output. An internal band gap regulator is used to provide temperature

compensated supply voltage for internal circuits and allows a wide operating supply range.

In the absence of a magnetic field, the output pin is "OFF" (High). A north pole of sufficient strength will turn the output "ON"(Low). While the magnetic flux density (B) is larger than threshold Bop, the output is "ON". If B removed toward Brp, the output pin is latched "ON"state prior to B<Brp. When B<Brp, the output pin goes into "OFF"state.

Block Diagram



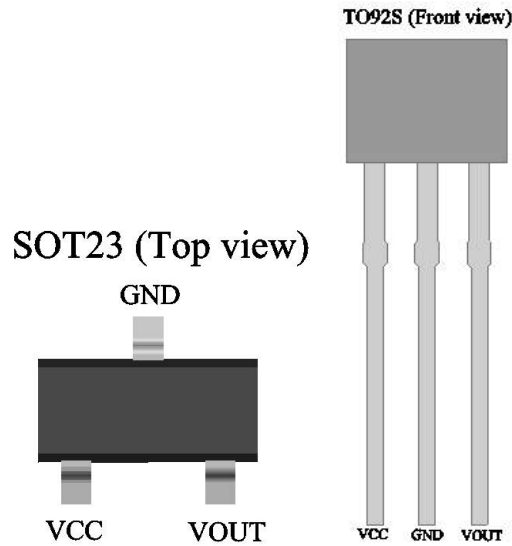
Pin Assignment

Web: [Http://www.ChipSourceTek.com](http://www.ChipSourceTek.com)

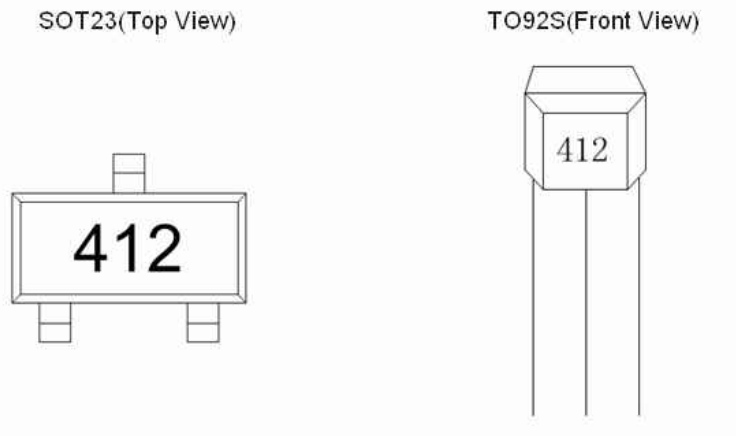
FAX: 0755-27594792

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Marking Rule



Absolute Maximum Ratings

Symbol	Parameter	Parameter Values	Unit
V _{CC}	Supply Voltage	3.5~38	V
B	Magnetic Induction	不限	Gauss
I _{OL}	Low Level Output Current	50	m A
PD	Maximum Power Dissipation	450	m W
TA	Operating Temperature	-40~+125	°C
TS	Storage Temperature	-65~+150	°C

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Magnetic Figures (VCC=4.5V)

AA Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	95	115	Gauss
Release Point	Brp	45	75	Gauss

A- Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	95	115	Gauss
Release Point	Brp	35	100	Gauss

A Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	115	135	Gauss
Release Point	Brp	55	120	Gauss

B Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	135	165	Gauss
Release Point	Brp	75	150	Gauss

C Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	85	95	Gauss
Release Point	Brp	25	80	Gauss

D Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	60	85	Gauss
Release Point	Brp	0	70	Gauss

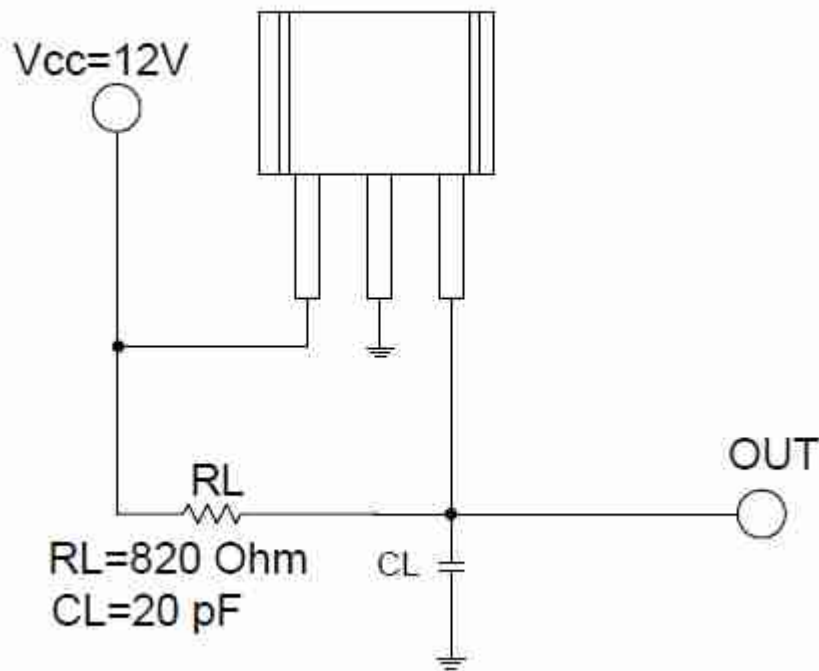
E Grade

Characteristics	Symbol	Low Limit	Upper Limit	Unit
Working Point	Bop	165	185	Gauss
Release Point	Brp	105	170	Gauss

Electrical Characteristics (VCC=4.5V Ta=25°C)

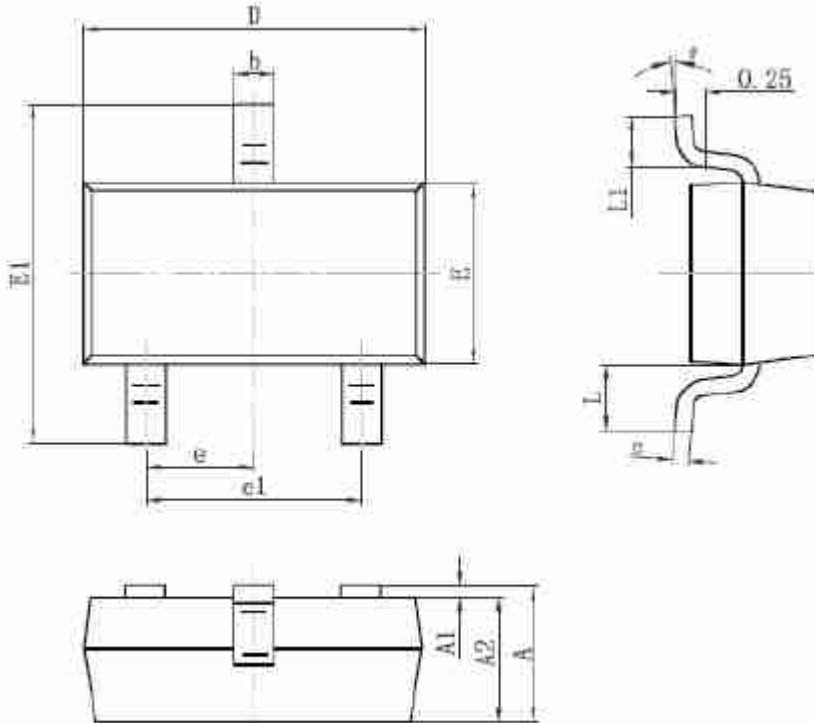
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V _{CC}	Supply Voltage		-	3.5	38	V
V _{OL}	Low Level Output Voltage	I _{OUT} =25mA B>Bop	100	-	250	m V
		I _{OUT} =40mA B>Bop	250	-	600	m V
I _{OH}	High Level Output Current	V _{OUT} =30V B<B _{rp}		0.1	10	u A
I _{CC}	Source Current	The Output Circuit	-	3.5	9.0	m A
Tr	Output Rise Time	R _L =820 Ω C _L =20PF	-	0.2	-	u S
Tf	Output Fall Time	R _L =820 Ω C _L =20PF	-	0.5	-	u S

Application Circuits



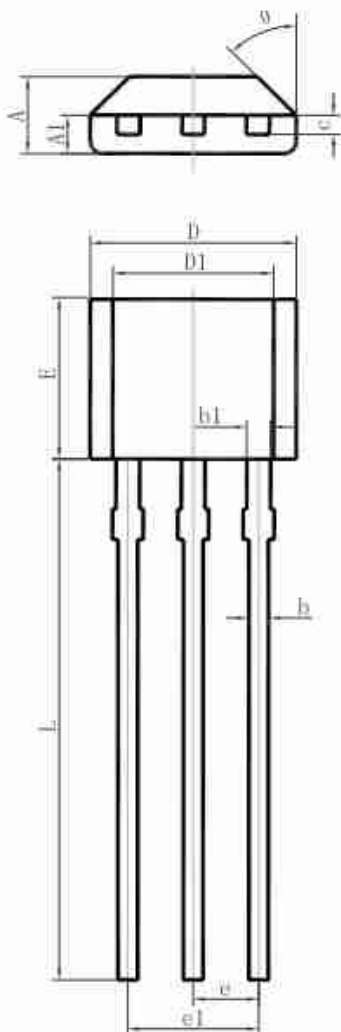
Package Information

3-pin SOT23 Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	6°

TO-92S PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.420	1.620	0.056	0.064
A1	0.660	0.860	0.026	0.034
b	0.350	0.480	0.014	0.019
b1	0.400	0.550	0.016	0.022
c	0.360	0.510	0.014	0.020
D	3.900	4.100	0.154	0.161
D1	2.970	3.270	0.117	0.129
E	3.050	3.250	0.120	0.128
e	1.270 TYP.		0.050 TYP.	
e1	2.440	2.640	0.096	0.104
L	15.100	15.500	0.594	0.610
θ	45° TYP.		45° TYP.	