Overview

SDC1181 is a latching Hall switch integrated circuit.

Contains Hall sensor block, chopper amplifier, hysteresis comparator, and open collector

The chopper amplifier effectively reduces the

The imbalance caused by technology, mechanical stress, etc. increases the sensitivity of the magnetic field.

The chip is manufactured using high-voltage CMOS technology and has a wide operating voltage range.

3.0V~24V.

SDC1181 has stable temperature characteristics and low operating voltage characteristics, making

It is suitable for automotive electronics, industrial and consumer applications.

Features

ÿ**Working** voltage range: 3.0V~24V

ÿ**Built** -in temperature compensation circuit

ÿ**Built** -in power reverse polarity protection circuit

ÿ**Operating** temperature range is optional

ÿ**Open** drain output

ÿ**Maximum** output sink current: 50mA

ÿ**Working** frequency: 0~10KHz

ÿ TO-92S, SOT-23-3 package

application

ÿ**Contactless** switch

ÿ**Brushless** DC motor

ÿ**Flow** meter

ÿ**Speed** detection

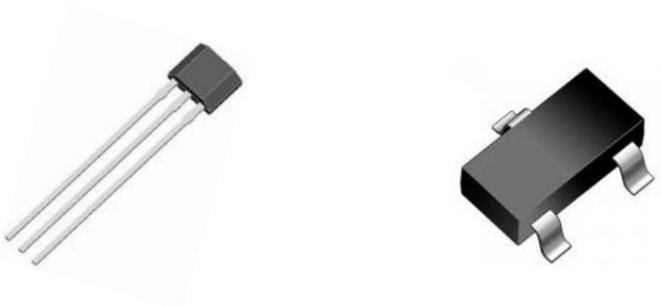


Figure 1. Package

Pin Description

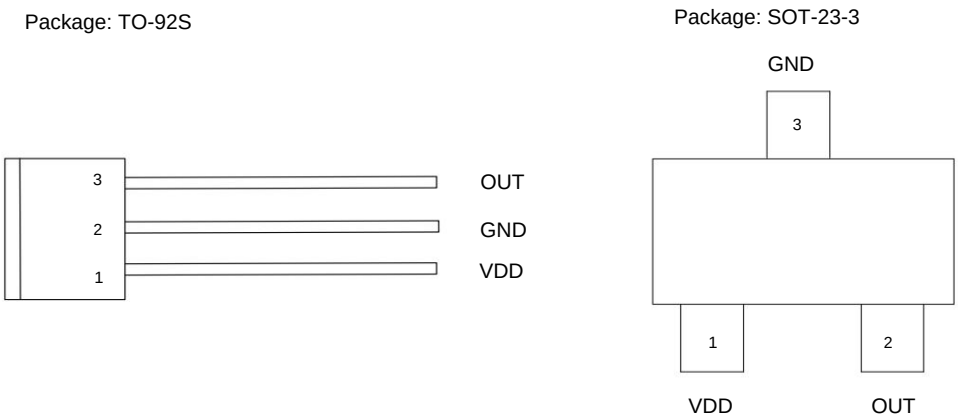


Figure 2. Pin layout

serial number		name	Function
TODAY-23-3	TO-92S		
1	1	VDD	power supply
3	2	GND	land
2	3	OUT	Output

Table 1. Pin Description

Functional Block Diagram

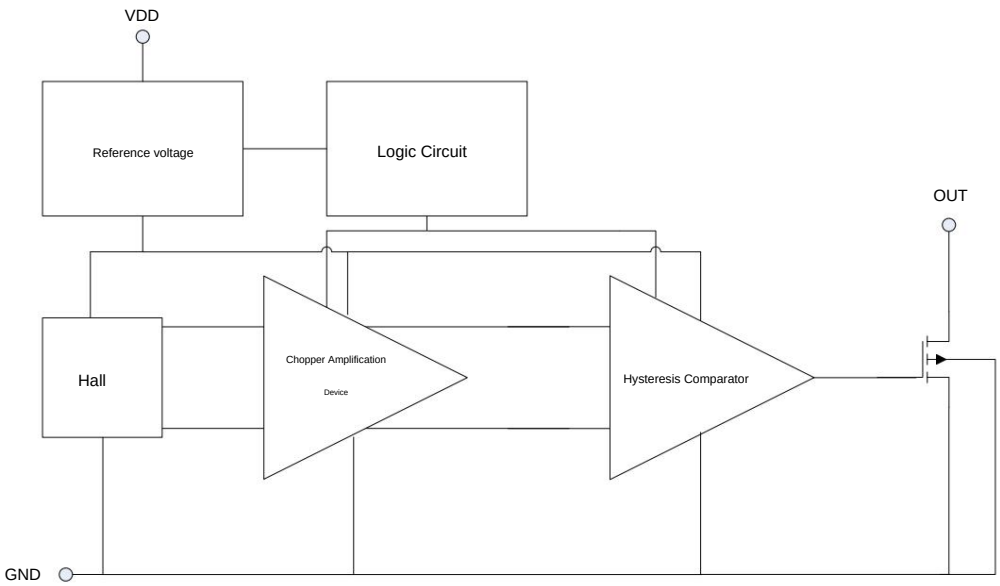
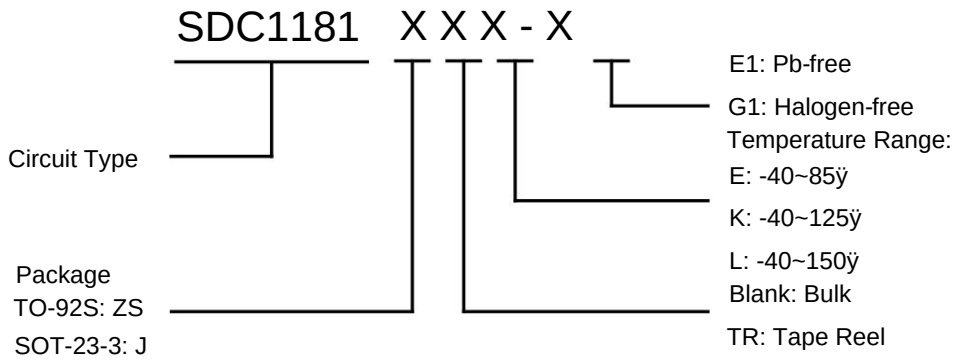


Figure 3. Functional block diagram

Ordering Information



Package temperature range		Product Number		Identification number		Packaging
		Lead Free	Halogen Free	Lead Free	Halogen Free	
TO-92S	-40ÿ~85ÿ	SDC1181ZSE-E1	SDC1181ZSE-G1	1181	1181G	Bags
TODAY-23-3		SDC1181JTRE-E1	SDC1181JTRE-G1	1181	1181G	Taping
TO-92S	-40ÿ~125ÿ	SDC1181ZSK-E1	SDC1181ZSK-G1	1181	1181G	Bags
TODAY-23-3		SDC1181JTRK-E1	SDC1181JTRK-G1	1181	1181G	Taping
TO-92S	-40ÿ~150ÿ	SDC1181ZSL-E1	SDC1181ZSL-G1	1181	1181G	Bags
TODAY-23-3		SDC1181JTRL-E1	SDC1181JTRL-G1	1181	1181G	Taping

Limit parameters (Note: Do not exceed the maximum value in application to prevent damage. Long-term operation at the maximum value may affect the reliability of the device)

parameter	symbol	Parameter Value	unit
Supply voltage	VDD	28	V
Maximum output current	IOUT	50	mA
Output breakdown voltage	VCE	28	V
Magnetic induction	B	No restrictions	ÿ
intensity Maximum	TJ	170	ÿ
junction temperature Storage temperature range	TS	-40~150	ÿ
ESD,HBM model per Mil-Std-883H,Method 3015	HBM	4000	V
ESD,MM model per JEDEC EIA/JESD22-A115	MM	300	V
Latch-up test per JEDEC 78		200	mA

Table 2. Extreme operating conditions

Recommended operating conditions

parameters	symbol	Minimum	Maximum	unit
Supply Voltage	VDD	3.0	24	V
Operating Temperature (Grade E)	Facing	-40	85	ÿ
Working temperature (class K)		-40	125	ÿ
Working temperature (class L)		-40	150	ÿ

Table 3. Recommended operating conditions

Electrical Characteristics (Ta=25ÿ, VDD=12V, unless otherwise specified.)

Parameter Symbols		condition	Min	Typ	Max	Unit
Supply voltage	VDD		3.0		24	V
Output saturation voltage	VOUT	IOUT=20mA, B>BOP			400	mV
drop Output leakage current	IOFF	VCE=24V, B<BRP		0.01	10	uA
Supply Current	IDD1	VDD=3V, output open circuit		1	3	mA
	IDD2	VDD=24V, output open circuit		2	3	
Maximum switching frequency	FSW			10		KHz
Output rise time	tr	RL connects to VDD, CL connects to GND RL=820ÿ, CL=20 pF		0.25	1.5	us
Output Fall Time	tf	RL connects to VDD, CL connects to GND RL=820ÿ, CL=20 pF		0.25	1.5	us

Table 4. Electrical characteristics

Magnetic field characteristics (VDD=12V, unless otherwise specified.)

Parameter	Temperature Grade	Symbol	Conditions	Min	Typ	Max	Unit
Working point	AND	BOP	Ta=85ÿ	10	30	35	GS
			Ta=25ÿ	10	30	35	GS
Release Point		BRP	Ta=85ÿ	-35	-30	-10	GS
			Ta=25ÿ	-35	-30	-10	GS
Hysteresis		BH	Ta=85ÿ		60		GS
			Ta=25ÿ		60		GS
Working point	K	BOP	Ta=125ÿ	10	30	35	GS
			Ta=25ÿ	10	30	35	GS
Release Point		BRP	Ta=125ÿ	-35	-30	-10	GS
			Ta=25ÿ	-35	-30	-10	GS
Hysteresis		BH	Ta=125ÿ		60		GS
			Ta=25ÿ		60		GS
Working point	L	BOP	Ta=150ÿ	10	30	35	GS
			Ta=25ÿ	10	30	35	GS
Release Point		BRP	Ta=150ÿ	-35	-30	-10	GS
			Ta=25ÿ	-35	-30	-10	GS
Hysteresis		BH	Ta=150ÿ		60		GS
			Ta=25ÿ		60		GS

Table 5. Magnetic field characteristics

Note: When the magnetic field S pole faces the printing surface, B is "positive".

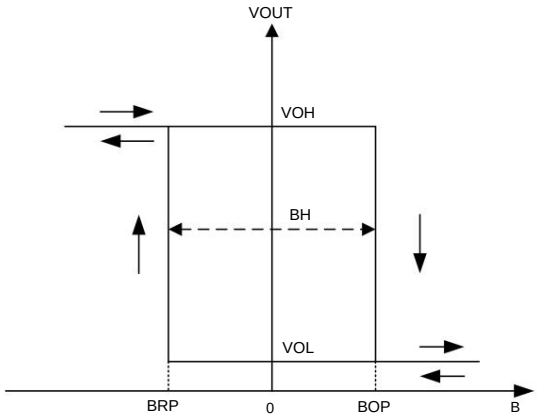


Figure 4. Magnetic field characteristics

Typical Applications

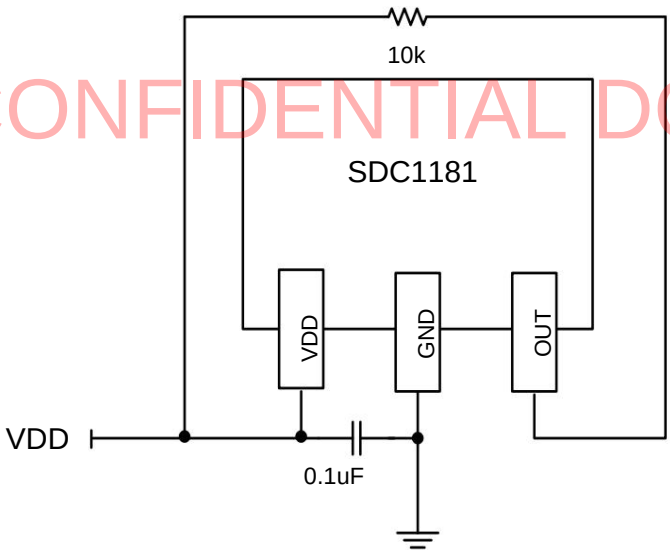


Figure 5. Typical application

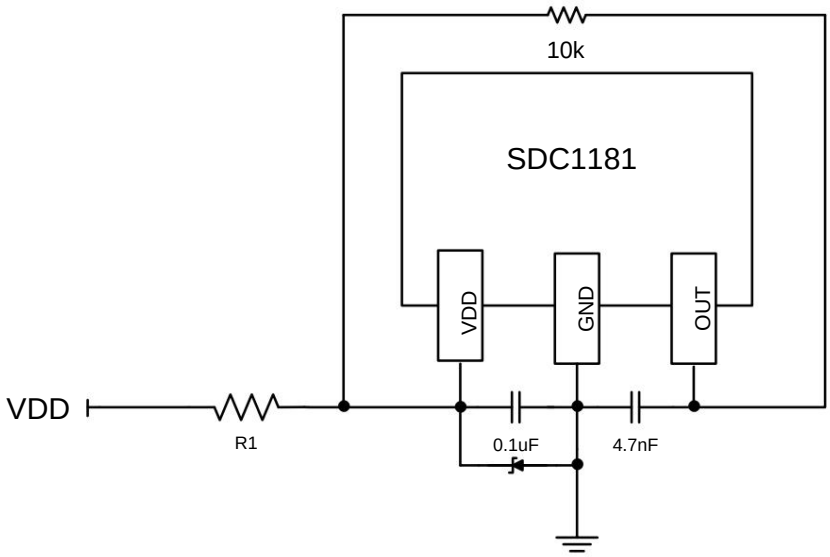
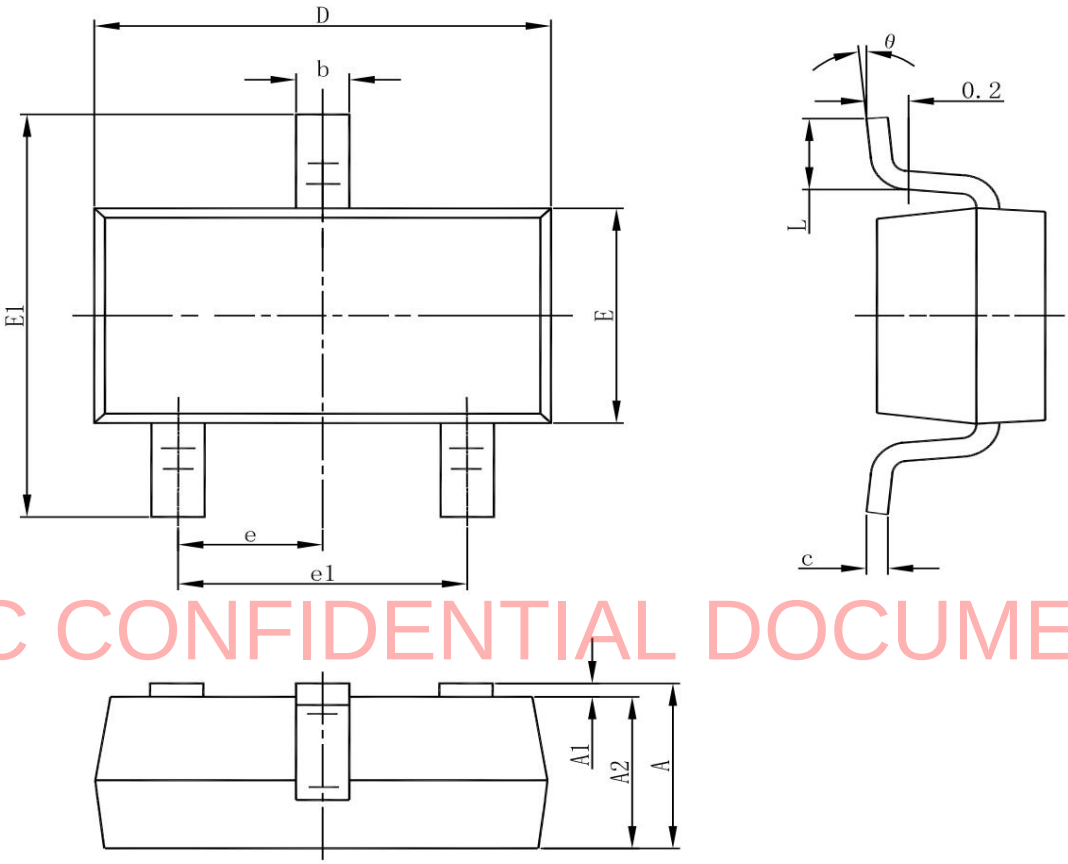


Figure 6. Applications in automotive electronics, harsh conditions or strong noise environments

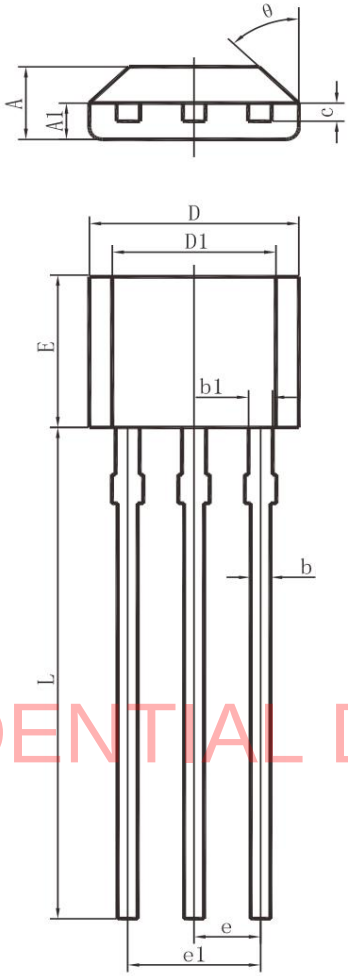
Package size

TODAY-23-3



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.150	0.000	0.004
A2	1.000	1.200	0.039	0.047
b	0.360	0.500	0.014	0.020
c	0.140	0.200	0.006	0.008
D	2.820	3.020	0.111	0.119
AND	1.500	1.700	0.059	0.067
E1	2.600	3.000	0.102	0.118
and	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.350	0.600	0.014	0.024
i	0°	8°	0°	8°

TO-92S



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
AND	3.050	3.250	0.120	0.128
and	1.270 TYPE.		1.270 TYPE.	
e1	2.440	2.640	0.096	0.104
L	15.100	15.500	0.594	0.610
i	45° TYPE.		45° TYPE.	

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