CA7026A
Data Sheet

Version: 1.0

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1. GENERAL DESCRIPTION

CA7026 is an integrated Hall effect latched sensor designed for electronic commutation of brush-less DC motor applications. The device is using HV BCD process includes an on-chip Hall voltage generator for magnetic sensing, a comparator that amplifies the Hall voltage, and a Schmitt trigger 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.

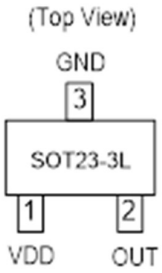
If a magnetic flux density larger than threshold Bop, OUT is turned on(low). The output state is held until a magnetic flux density reversal falls below Brp causing OUT to be turned off (high).

2. Features

- 2.5V to 26V DC Operation Voltage
- Temperature Compensation
- Wide Operating Voltage Range
- Pre-drive with Internal Pull-up Resistor
- 25mA Maximum Sinking Output Current
- Packages: SOT23-3L

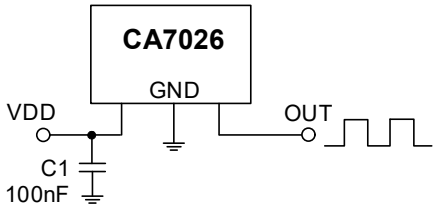
3. PIN ASSIGNMENT

The packages of CA7026 are shown as below, the pin assignment is given by:



Name	Description
VDD	Supply Voltage
OUT	Output
GND	Ground

4. TEST CIRCUIT



Note: C1 is for power stabilization and to strengthen the noise immunity.

5. ORDER / MARKING INFORMATION

Order Information
CA7026XXXXX Package Type A: SOT23-3L Packing Blank: Bag A: Taping
Top Marking (SOT23-3L)
HqYWX X: Internal W: 01~26(A~Z) 27~52(a~z) Y: 9 = 2019

6. ABSOLUTE MAXIMUM RATINGS (at TA=25°C)

Characteristics		Symbol	Rating	Unit
Supply Voltage		V_{DD}	28	V
Reverse VDD Polarity Voltage		V_{RDD}	-30	V
OUT Pin Voltage		V_{OUT}	28	V
Magnetic Flux Density		B	Unlimited	Gauss
Output Current	Continuous	I_O	25	mA
Magnetic Signal Input Frequency (Note1)		Fsw	0~10	KHz
Junction Temperature		T_J	150	°C
Operating Temperature		T_O	-40 to 125	°C
Storage Temperature Range		T_{STG}	-65 to +150	°C
Thermal Resistance from Junction to Ambient	SOT23-3L	θ_{JA}	313	°C/W
Power Dissipation	SOT23-3L	P_D	400	mW

Note1: Not subject to production test, verified by design/characterization.

7. ELECTRICAL CHARACTERISTICS

(VDD = 12V, TA = 25°C, unless otherwise noted.)

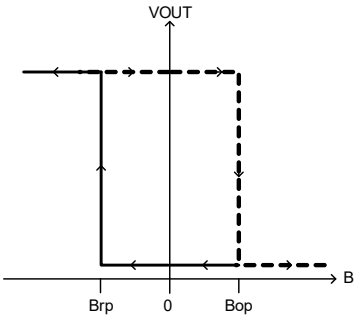
Characteristics	Symbol	Conditions	Min	Typ	Max	Units
Supply Voltage	VDD	Operating	2.5	-	26	V
Supply Current	IDD	Operating	-	2.0	4.0	mA
Output Leakage Current	IOFF	VOUT=12V	-	< 0.1	10	μA
Output Saturation Voltage	Vds(sat)	IOUT=20mA	-	0.3	-	V
Pull-up Resistor	RPU		-	10	-	KΩ
Power On Settling Time	tSET		-	12	24	μs
Chopper Frequency (Note2)	fosc		-	50	-	KHz
Magnetic		(1mT=10 Gauss)				
Operate Point	BOP		5	20	40	Gauss
Release Point	BRP		-40	-20	-5	Gauss
Hysteresis	BHYS		-	40	-	Gauss

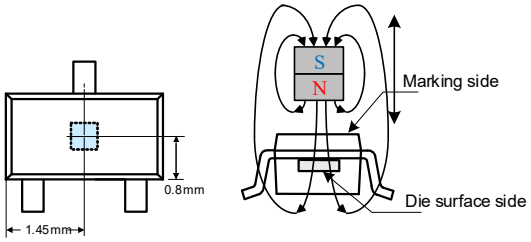
Note2: Not subject to production test, verified by design/characterization.

Driver output vs. magnetic pole

Characteristics	Test Conditions	OUT
North Pole	B < Brp	High
South Pole	B > Bop	Low

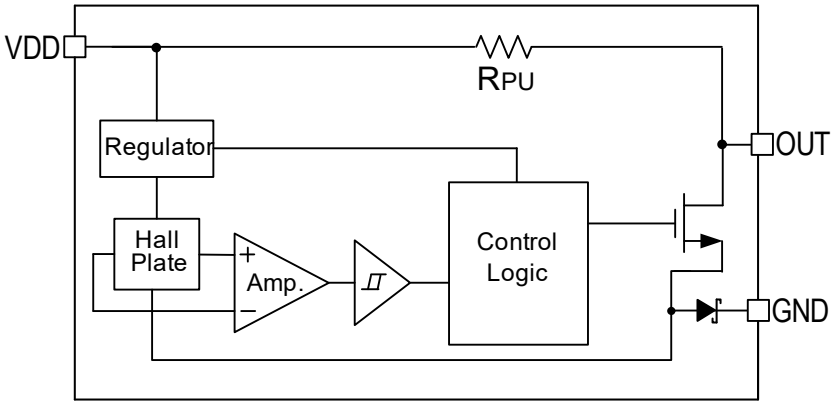
Note3: The magnetic pole is applied facing to the die surface side.
Note4: For the SOT23-3L package, the marking surface and the die surface are in the opposite direction.





SOT23-3L

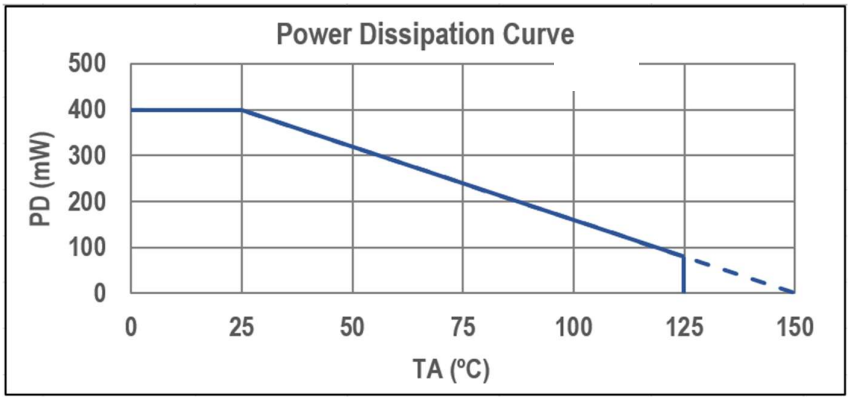
8. BLOCK DIAGRAM



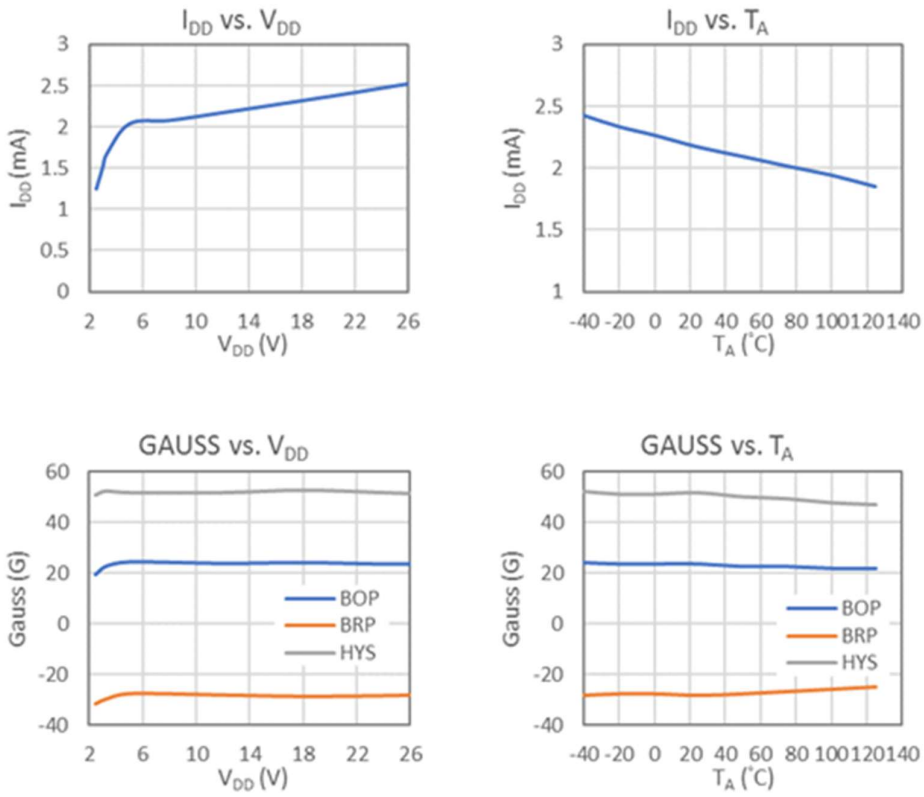
9. PERFORMANCE CHARACTERISTICS

SOT23-3L

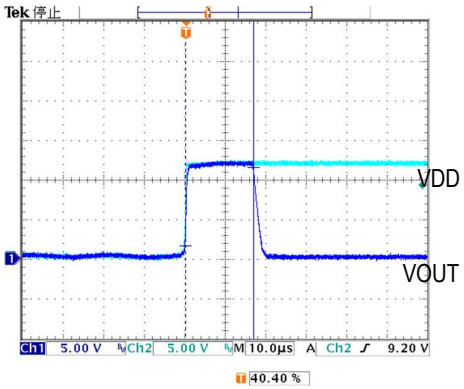
T_A (°C)	25	50	60	70	80	85	90	95	100
Pd (mW)	399	319	288	256	224	208	192	176	160
T_A (°C)	105	110	115	120	125	130	135	140	150
Pd (mW)	144	128	112	96	80	64	48	32	0



10. TYPICAL CHARACTERISTICS



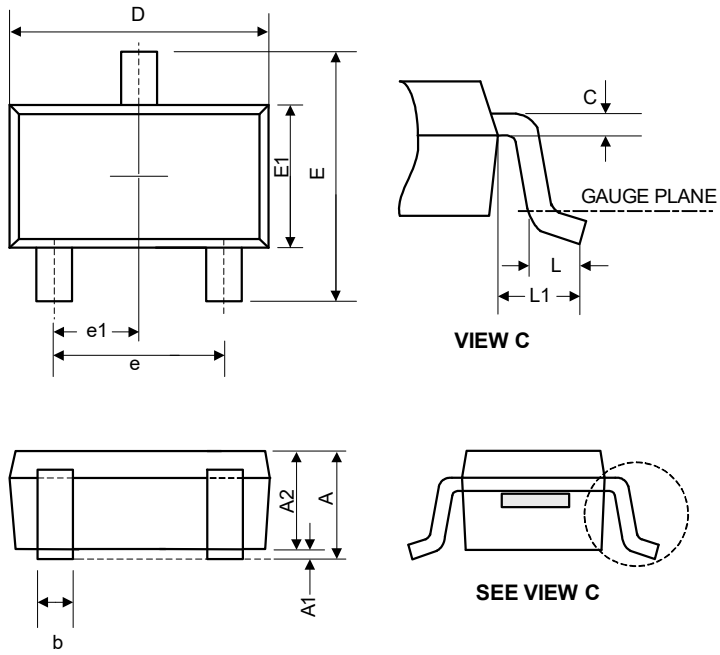
11. TYPICAL CHARACTERISTICS



Power On Settling Time

12. PACKAGE OUTLINES

SOT-23-3L



Symbol	Dimensions in Millimeters			Dimensions in Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	-	-	1.3	-	-	0.051
A1	0	0.08	0.15	0	0.003	0.006
A2	0.9	1.1	1.2	0.035	0.043	0.047
b	0.3	0.4	0.5	0.012	0.016	0.02
C	0.08	0.15	0.22	0.003	0.006	0.009
D	2.7	2.9	3.1	0.106	0.114	0.122
E	2.6	2.8	3	0.102	0.11	0.118
E1	1.4	1.6	1.8	0.055	0.063	0.071
L	0.3	0.45	0.6	0.012	0.018	0.024
L1	0.5	0.6	0.7	0.02	0.024	0.028
e	1.9 BSC			0.075 BSC		
e1	0.95 BSC			0.037 BSC		

JEDEC outline: NA