

Single Phase Hall Effect Switch

■ Features

- 4.2V to 28V DC operation voltage
- Temperature compensation
- Wide operating voltage range
- Open drain pre-driver
- 25mA maximum sinking output current.
- Package: SIP3, SOT23

■ Applications

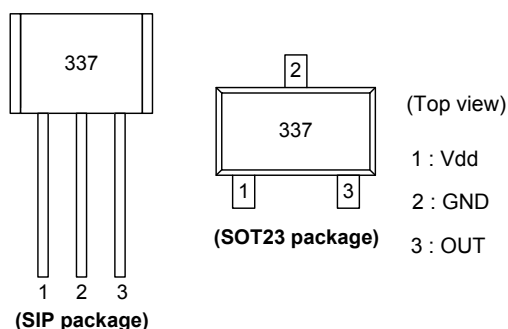
- VCD/DVD loader, CD/DVD ROM
- Cover detector
- Speed measurement
- Home appliances
- Home safety

■ General Description

AH337 is an switched Hall-Effect IC which is for contactless switching applications. The device includes an on-chip Hall voltage generator for magnetic sensing, an amplifier that amplifies the Hall voltage, a schmitt trigger to provide switching hysteresis for noise rejection, and an open-collector output. The bandgap regulator allows a wide operating voltage range.

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

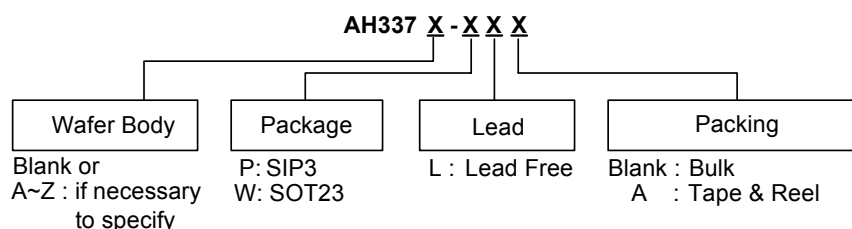
■ Pin Assignment



■ Pin Descriptions

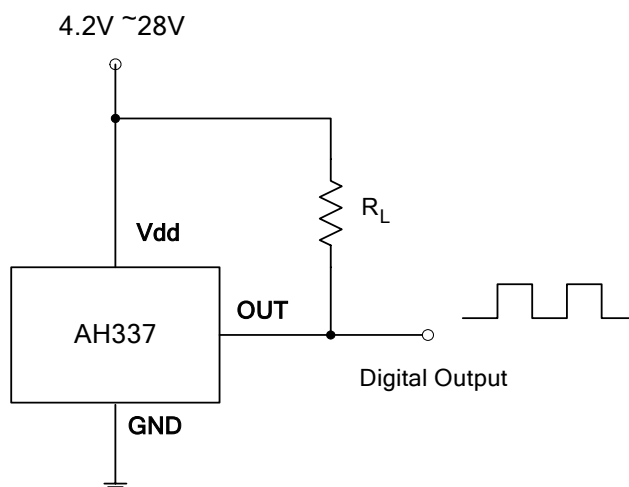
Name	P/I/O	Pin #	Description
Vdd	P	1	Positive Power Supply
GND	P	2	Ground
OUT	O	3	Output Pin

■ Ordering Information

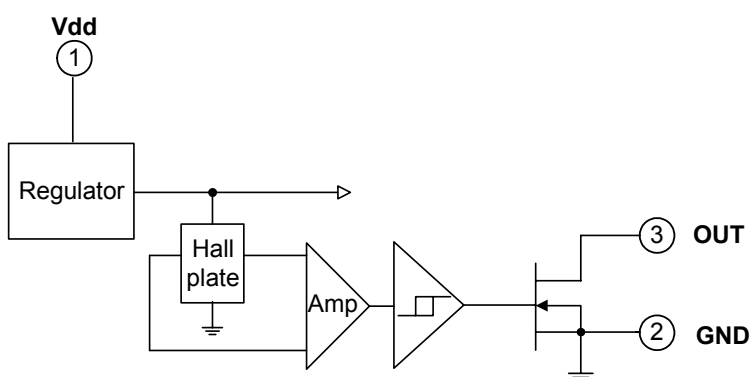


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■ Typical Application Circuit



■ Functional Block Diagrams



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■ Absolute Maximum Ratings (at Ta=25°C)

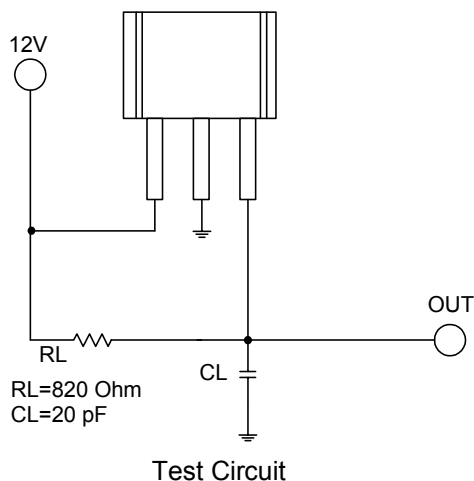
Characteristics	Symbol	Values	Unit
Supply Voltage	Vdd	30	V
Magnetic Flux Density	B	Unlimited	
Output OFF Voltage	V _{DS}	30	V
Output "ON" Current	I _d	25	mA
Operating Temperature Range	Ta	-40~+125	°C
Storage Temperature Range	Ts	-65~+150	°C
Maximum Junction Temp.	Tj	150	°C
Package Power Dissipation	SIP-3L	550	mW
	SOT23-3L	230	mW

■ Electrical Characteristics (Ta=+ 25°C, Vdd=12V)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	Vdd		4.2*	-	28	V
Output Saturation Voltage	V _{DS(sat)}	I _{out} =10mA, B > B _{op}	-	300	400	mV
Output Leakage Current	I _{off}	B < B _{rp}	-	<0.1	10	uA
Supply Current	I _{dd}	Output Open	-	2	4	mA
Output Rise Time	t _r	R _L =820Ω, C _L =20pF	-	0.1	1	us
Output Falling Time	t _f	R _L =820Ω, C _L =20pF	-	0.1	1	us

*Note: The output of IC will be switched after the supply voltage is over 4.2V, but the magnetic characteristics won't be normal until the supply is over 4.5V.

■ Test Circuit

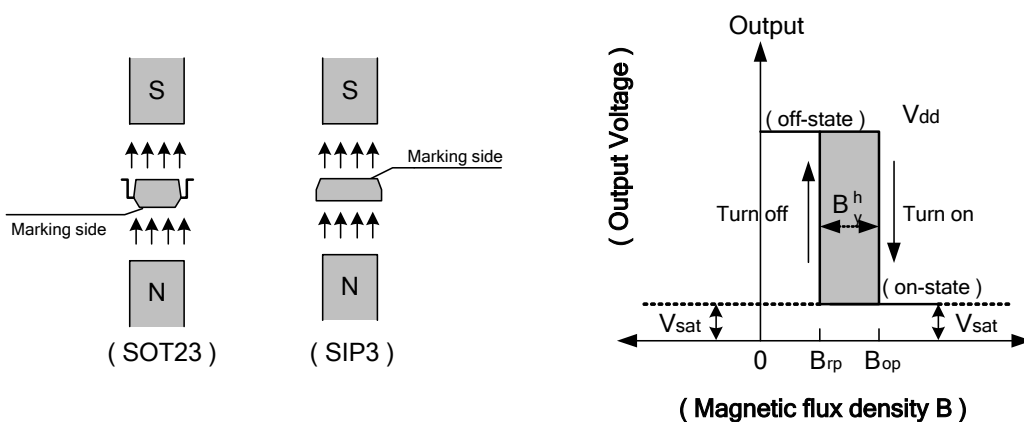


■ Magnetic Characteristics (Ta=25°C, Vdd=4.5V to 28V)

(1mT=10Gauss)

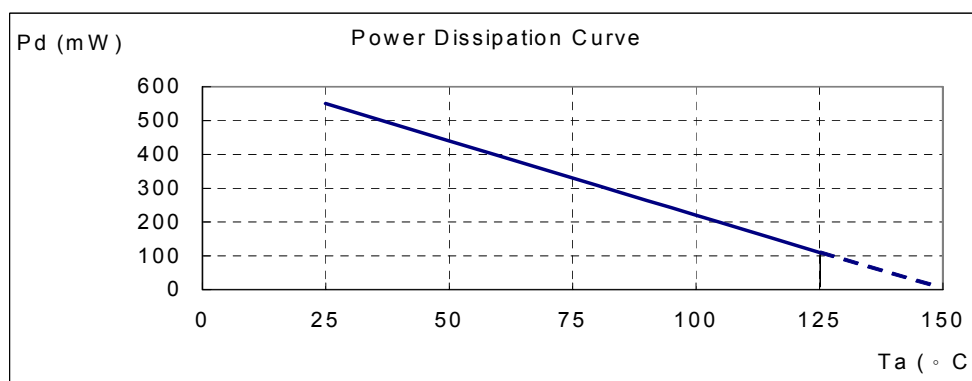
Parameter	Symbol	Min.	Typ.	Max.	Unit
Operate Point	B _{op}	90	120	150	Gauss
Release Point	B _{rp}	30	60	90	Gauss
Hysteresis	B _{hys}	-	60	-	Gauss

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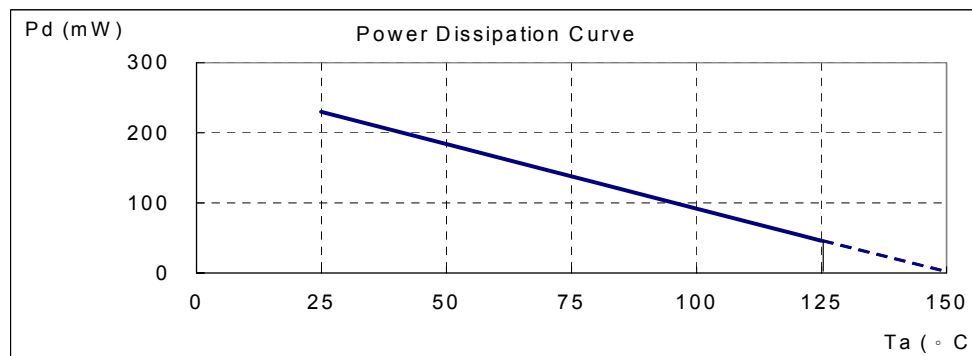
■ Performance Characteristics (SIP3)

Ta (°C)	25	50	60	70	80	85	90	95	100
Pd (mW)	550	440	396	352	308	286	264	242	220
Ta (°C)	105	110	115	120	125	130	135	140	150
Pd (mW)	198	176	154	132	110	88	66	44	0



■ Performance Characteristics (SOT23-3)

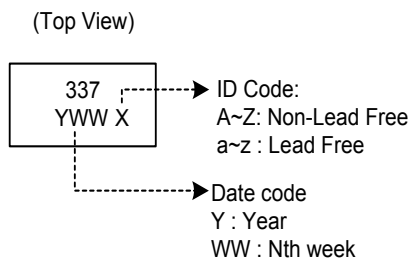
Ta (°C)	25	50	60	70	80	90	100	110	120	125	130	140	150
Pd (mW)	230	184	166	147	129	110	92	74	55	46	37	18	0



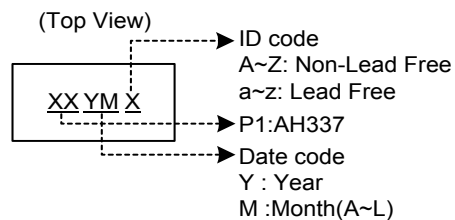
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■ Marking Information

(1) SIP3

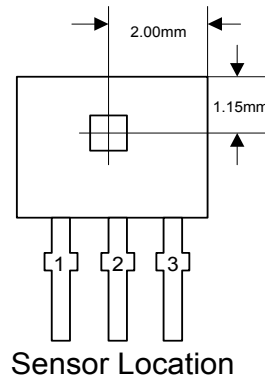
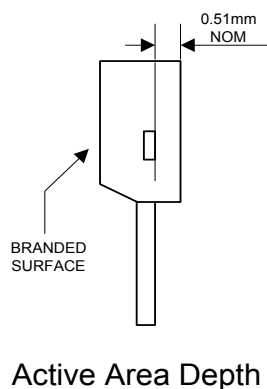


(2) SOT23

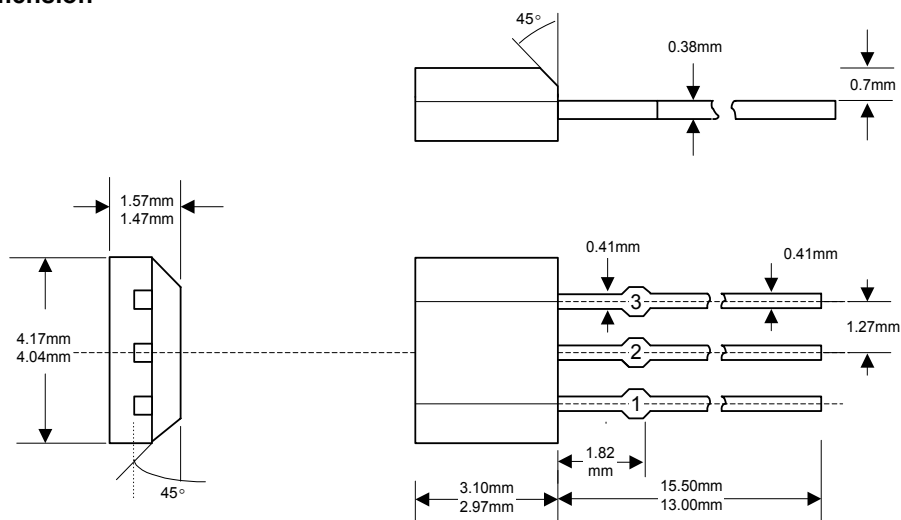


■ Package Information (unit: mm)

(1) Package Type: SIP-3L



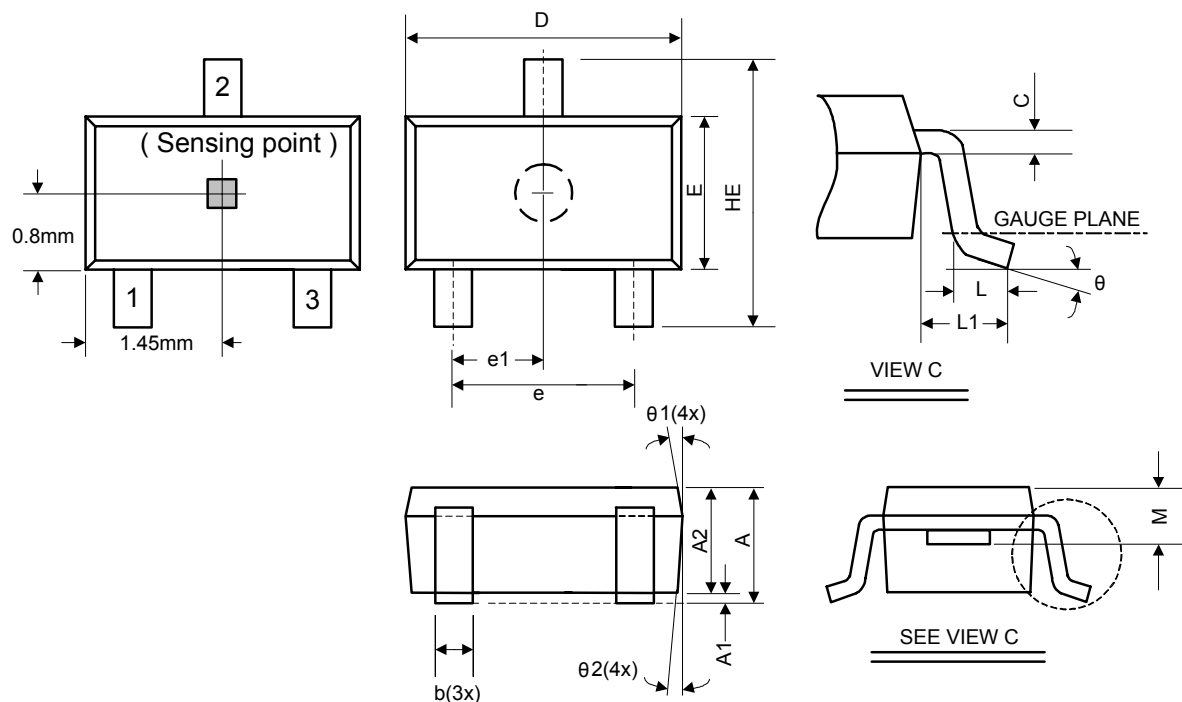
Package Dimension



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■ Package Information (Continued)

(2) Package Type: SOT23-3L



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.05	-	1.35	0.041	-	0.053
A1	0.05	-	0.15	0.002	-	0.006
A2	1.00	1.10	1.20	0.039	0.043	0.047
b	0.25	-	0.50	0.010	-	0.020
C	0.08	-	0.20	0.003	-	0.008
D	2.70	2.90	3.00	0.106	0.114	0.118
E	1.50	1.60	1.70	0.059	0.063	0.067
HE	2.60	2.80	3.00	0.102	0.110	0.118
L	0.30	-	0.60	0.012	-	0.024
L1	0.50	0.60	0.70	0.020	0.024	0.028
M	0.73	0.78	0.83	0.029	0.031	0.033
e	1.80	1.90	2.00	0.071	0.075	0.079
e1	0.85	0.95	1.05	0.033	0.037	0.041
θ	0°	5°	10°	0°	5°	10°
θ1	3°	5°	7°	3°	5°	7°
θ2	6°	8°	10°	6°	8°	10°