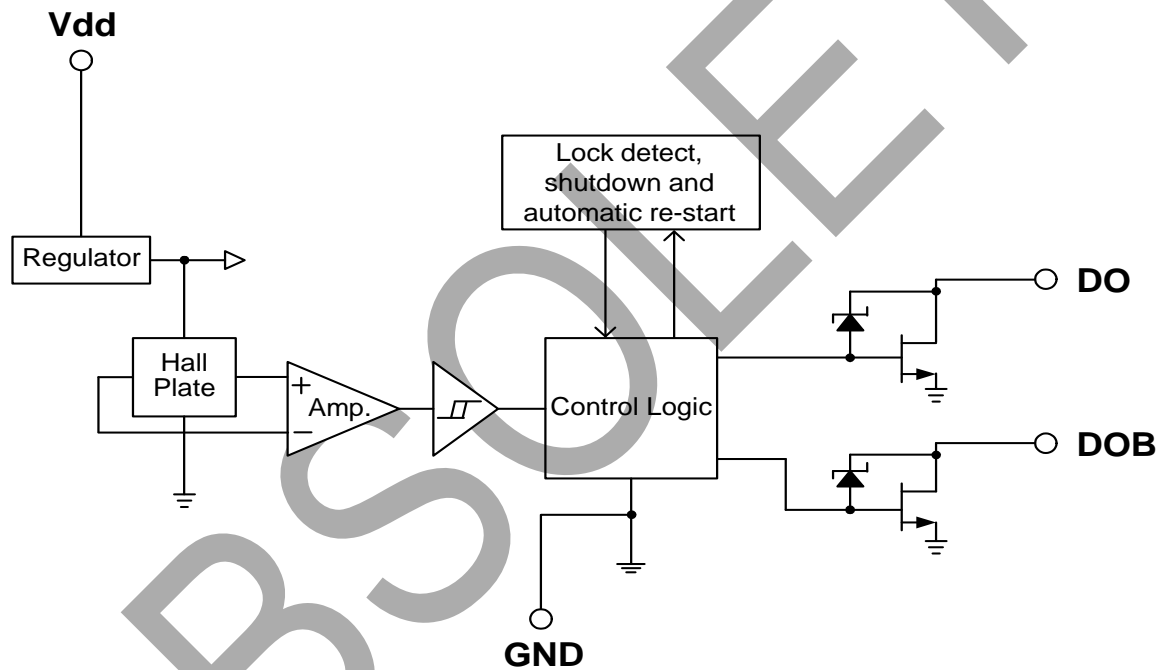




**Pin Descriptions**

Pin Name	Description
Vdd	Input Power
DO	Output Pin
DOB	Output Pin
GND	Ground
NC	Not Connected

**Functional Block Diagram**


## LOW VOLTAGE HALL-EFFECT SMART FAN MOTOR CONTROLLER

### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ )

Symbol	Characteristics		Rating	Unit	
V <sub>dd</sub>	Operating Supply Voltage		8	V	
I <sub>O</sub>	Output Current	I <sub>O(AVE)</sub>	SIP-4L	400	mA
			SOT89-5L	400	mA
		I <sub>O(PEAK)</sub>		700	mA
P <sub>D</sub>	Power Dissipation	SIP-4L	550	mW	
		SOT89-5L	800	mW	
T <sub>ST</sub>	Storage Temperature		-55 ~ 150	°C	
T <sub>J</sub>	Maximum Junction Temperature		150	°C	

### Recommended Operating Conditions

Symbol	Characteristic	Conditions	Min	Max	Unit
V <sub>dd</sub>	Supply Voltage (Note 2)	Operating	1.8	5.75	V
T <sub>A</sub>	Operating Ambient Temperature	Operating	-20	100	°C

Notes: 2. The output of IC will be switched after the supply voltage is over 1.8V, but the magnetic characteristics won't be normal until the supply is over 2.0V.

### Electrical Characteristics ( $T_A = 25^\circ\text{C}$ , V<sub>dd</sub> = 5V, unless otherwise specified)

Symbol	Characteristics	Conditions	Min	Typ.	Max	Unit
I <sub>dd</sub>	Supply Current	Operating	-	2.6	4.0	mA
T <sub>RLP-ON</sub>	Rotor Lock Protection On Time		-	0.4	-	Sec
T <sub>RLP-OFF</sub>	Rotor Lock Protection Off Time		2.4	3	3.6	Sec
V <sub>OUT(SAT)</sub>	Output Saturation Voltage	I <sub>O</sub> = 180mA	-	300	-	mV
		I <sub>O</sub> = 350mA	-	600	-	mV
R <sub>DS(ON)</sub>	Output On Resistance		-	1.75	-	ohm
V <sub>Z</sub>	Output Zener-Breakdown Voltage		-	15	-	V

### Truth Table

IN-	IN+	CT	OUT1	OUT2	Mode
H	L	L	H	L	Rotating
L	H	L	L	H	Rotating
-	-	H	off	off	Lockup protection activated

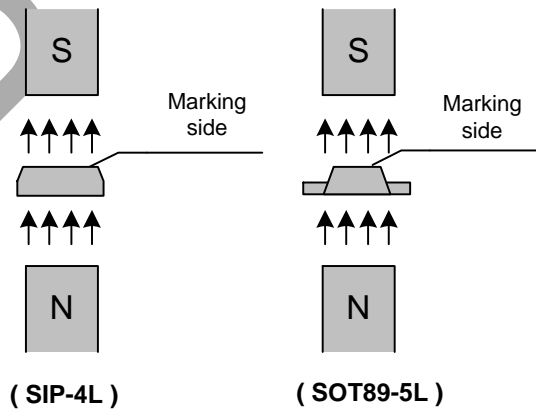
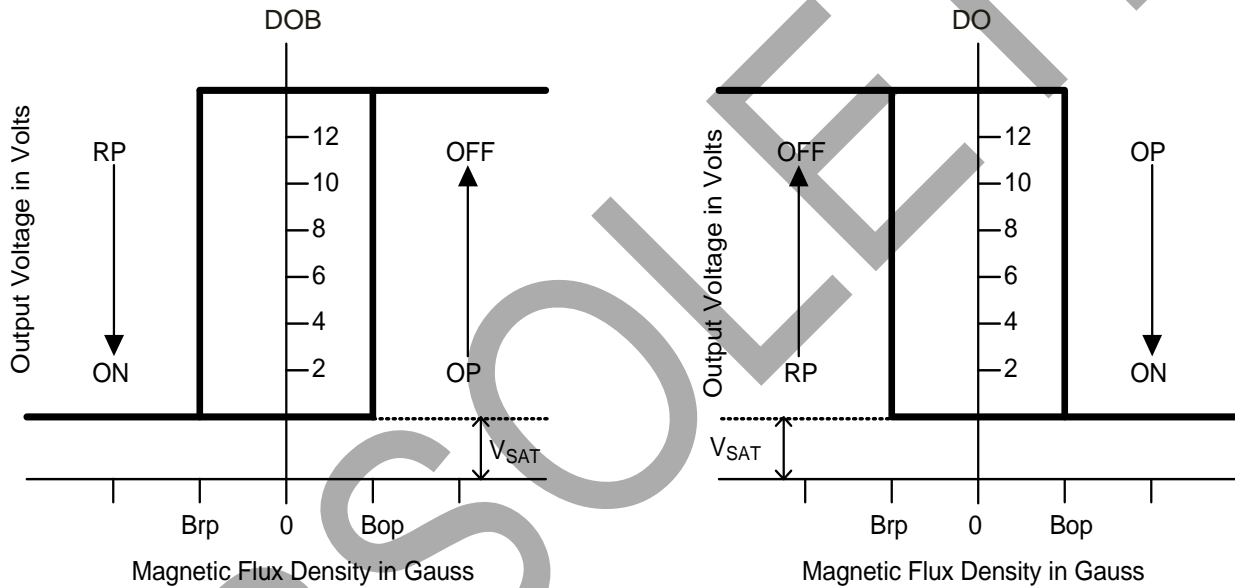
**Magnetic Characteristics** ( $T_A = 25\text{ }^\circ\text{C}$ ,  $V_{CC} = 24\text{V}$ , unless otherwise specified, Note 3)

(1mT = 10 Gauss)

Symbol	Characteristics	Min	Typ.	Max	Unit
Bop	Operation Point	-	30	60	Gauss
Brp	Release Point	-60	-30	-	Gauss
Bhy	Hysteresis	-	60	-	Gauss

Notes: 3. The magnetic characteristics may vary with supply voltage, operating temperature and after soldering.

**Operating Characteristics**

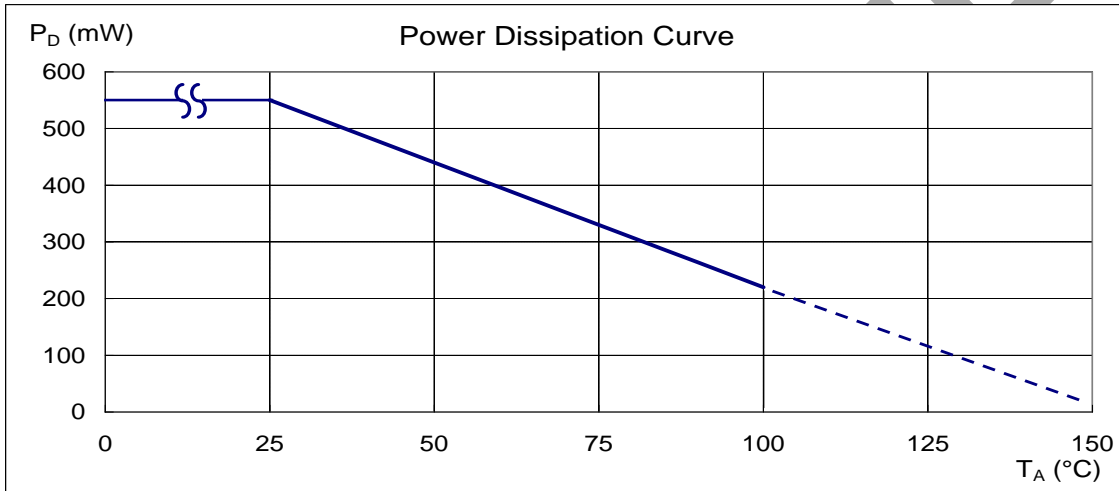


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**Performance Characteristics**

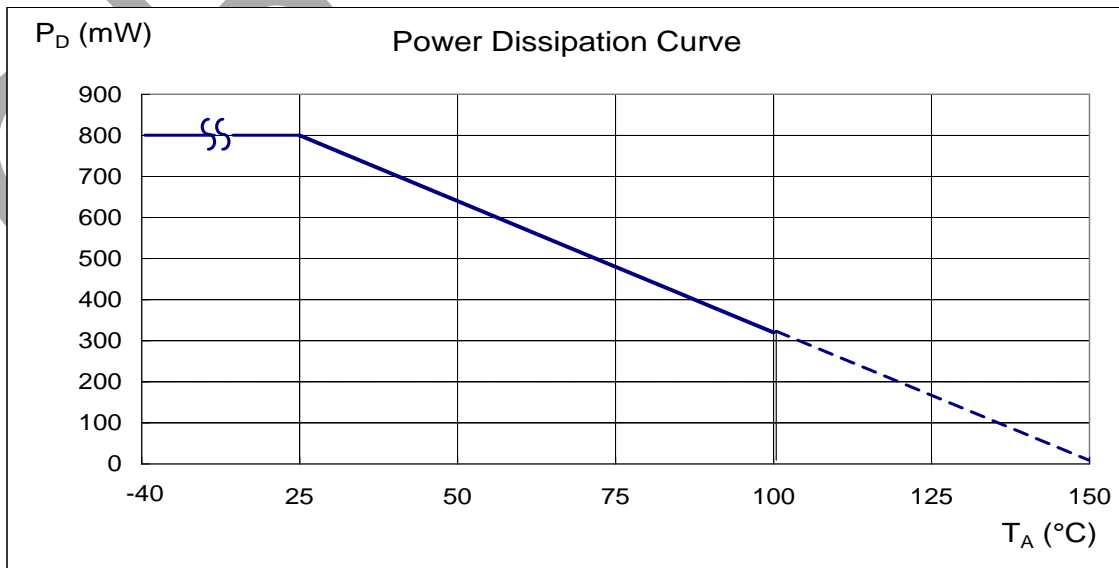
**(1) SIP-4L**

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

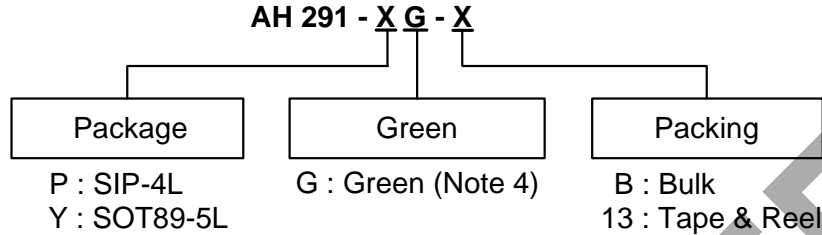


**(2) SOT89-5L**

$T_A$ (°C)	25	50	60	70	75	80	85	90	95	100
$P_D$ (mW)	800	640	576	512	480	448	416	384	352	320
$T_A$ (°C)	105	110	115	120	125	130	135	140	145	150
$P_D$ (mW)	288	256	224	192	160	128	96	64	32	0



**Ordering Information**

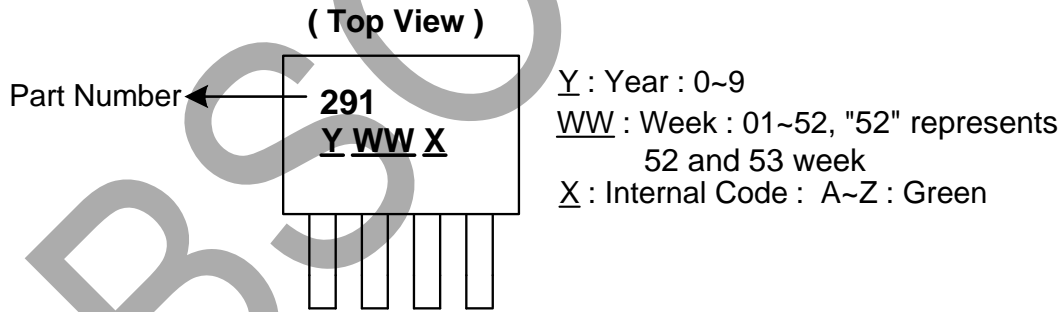


Device	Package Code	Packaging (Note 5, 6)	Bulk		13" Tape and Reel	
			Quantity	Part Number Suffix	Quantity	Part Number Suffix
AH291-YG-13	Y	SOT89-5L	NA	NA	2500/Tape & Reel	-13

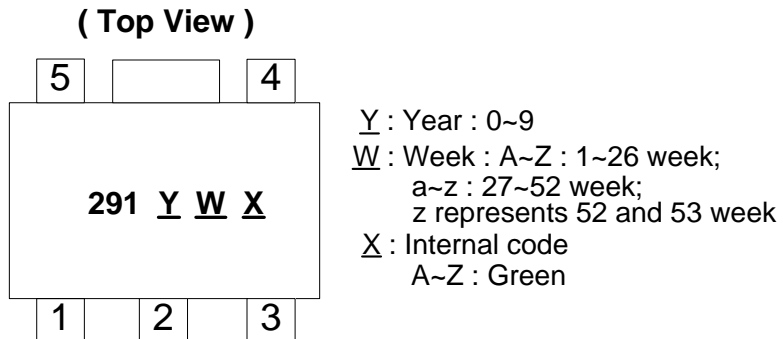
Notes: 4. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied. Please visit our website at [http://www.diodes.com/products/lead\\_free.html](http://www.diodes.com/products/lead_free.html).  
 5. Pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.  
 6. Reverse taping as shown on Diodes Inc. Surface Mount (SMD) Packaging document AP02007, which can be found on our website <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**

(1) SIP-4L

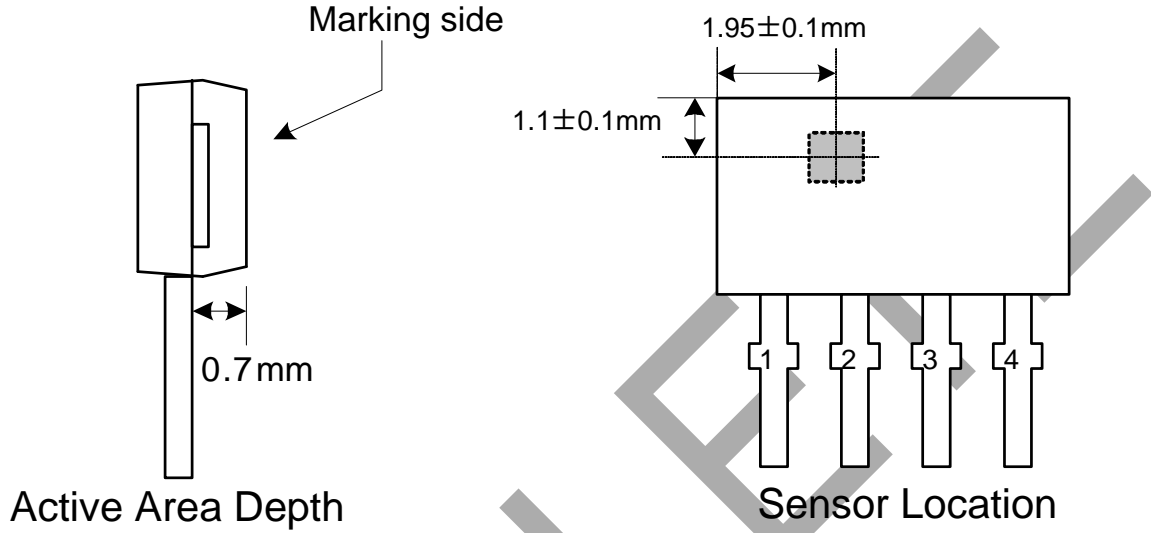


(2) SOT89-5L

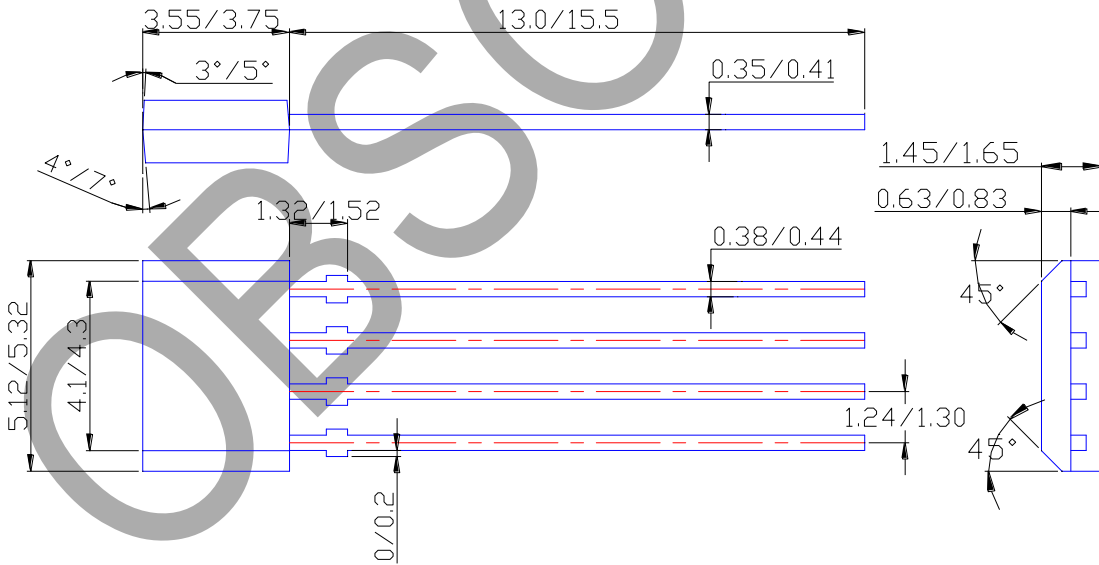


**Package Outline Dimensions (All Dimensions in mm)**

(1) Package type: SIP-4L



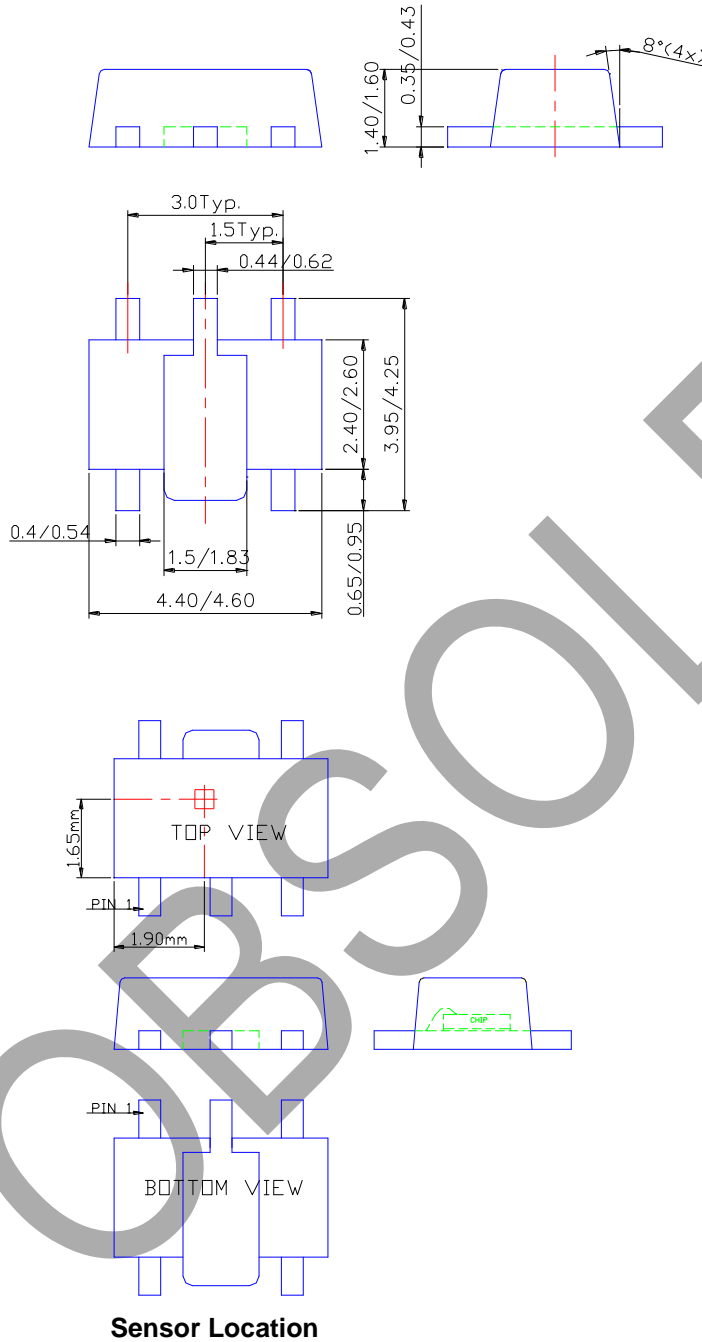
**Package Dimension**



OBSOLETE – PART DISCONTINUED

**Package Outline Dimensions (Continued)**

(2) Package type: SOT89-5L



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OBSOLETE



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