AHS

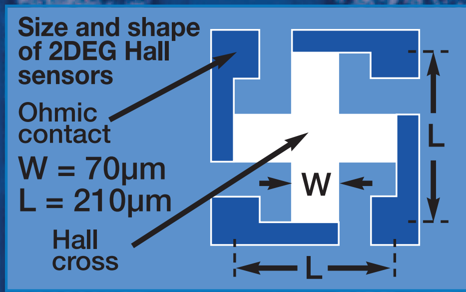
P3A Hall Sensor (350V/AT)

The P3A Hall Sensor is outstanding for its high sensitivity and its low temperature coefficients.

The P3A Hall Sensor is fabricated from an AlGaAs/InGaAs/GaAs 2DEG (two dimensional electron gas) heterostructure.

Absolute Maximum Ratings

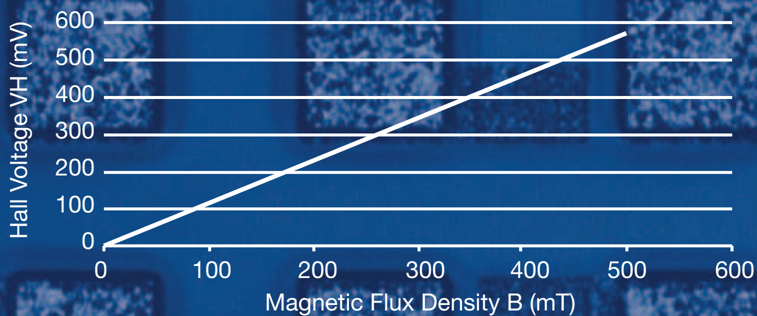
Parameter	Symbol	Rating	Unit
Control Voltage	Vc	6	V
Control Current	Ic	4.5	mA
Power Dissipation	PD	26	mW
Operating Temperature	Top	-100 to +180	°C
Storage Temperature	Ts	-100 to +180	°C
Soldering Temperature	Tsol	260	°C



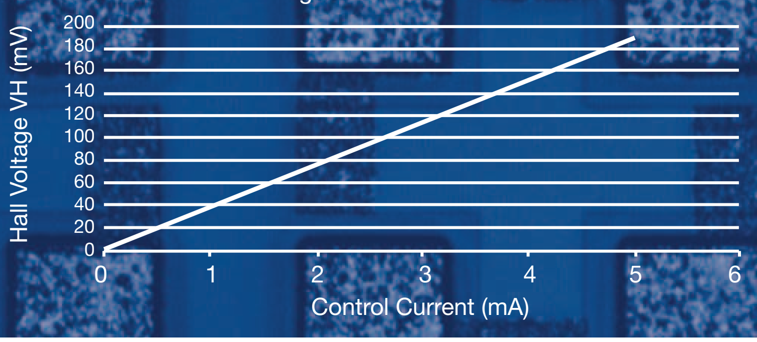
Electrical Characteristics

Parameter	Symbol	Test Condition	MIN	TYP	MAX	Unit
Output Hall Voltage	V_H	Ic=1mA, B=100mT	-	38	-	mV
Residual Ratio[*1]	$V_{Ho}/_H$	Ic=1mA	-10	-	+10	%
Residual Ratio[*1]	$V_{Ho}/_H$	Ic=0.5mA	-4	-	+4	%
Input Resistance	R_{IN}	Ic=0.1mA, B=0 mT	1.28	1.3	1.35	KΩ
Output Resistance	R_{OUT}	Ic=0.1mA, B=0 mT	1.28	1.3	1.35	KΩ
Temperature Coefficient of Hall Voltage[*2]	α	Ic=1mA, B=100mT (T1= -100°C,T2=180°C)	-0.05	-0.08	-0.1	%/ °C
Temperature Coefficient of Input Resistance[*3]	ß	Ic=1mA, B=0 mT (T1= -100°C, T2=180°C)	-	0.3	0.4	%/ °C
Linearity of Hall Voltage[*4]	Y	Ic= 1mA, B1=60mT, B2=500mT	-	1	1.5	%

Hall Voltage V Magnetic Flux Density I = 3 mA



Hall Voltage V Control Current B = 100mT



*1. Residual Ratio = $\frac{V_{Ho}(B = 0mT)}{V_H(B = 100mT)}$

*2. $\alpha = \frac{1}{V_H(T_1)} \times \frac{V_H(T_2) - V_H(T_1)}{T_2 - T_1} \times 100$

*3. $\beta = \frac{1}{R_{IN}(T_1)} \times \frac{R_{IN}(T_2) - R_{IN}(T_1)}{T_2 - T_1} \times 100$

*4. $Y = \frac{K_H(B_2) - K_H(B_1)}{\frac{1}{2}[K_H(B_1) + K_H(B_2)]} \times 100$

$$K_H = \frac{V_H}{IB}$$

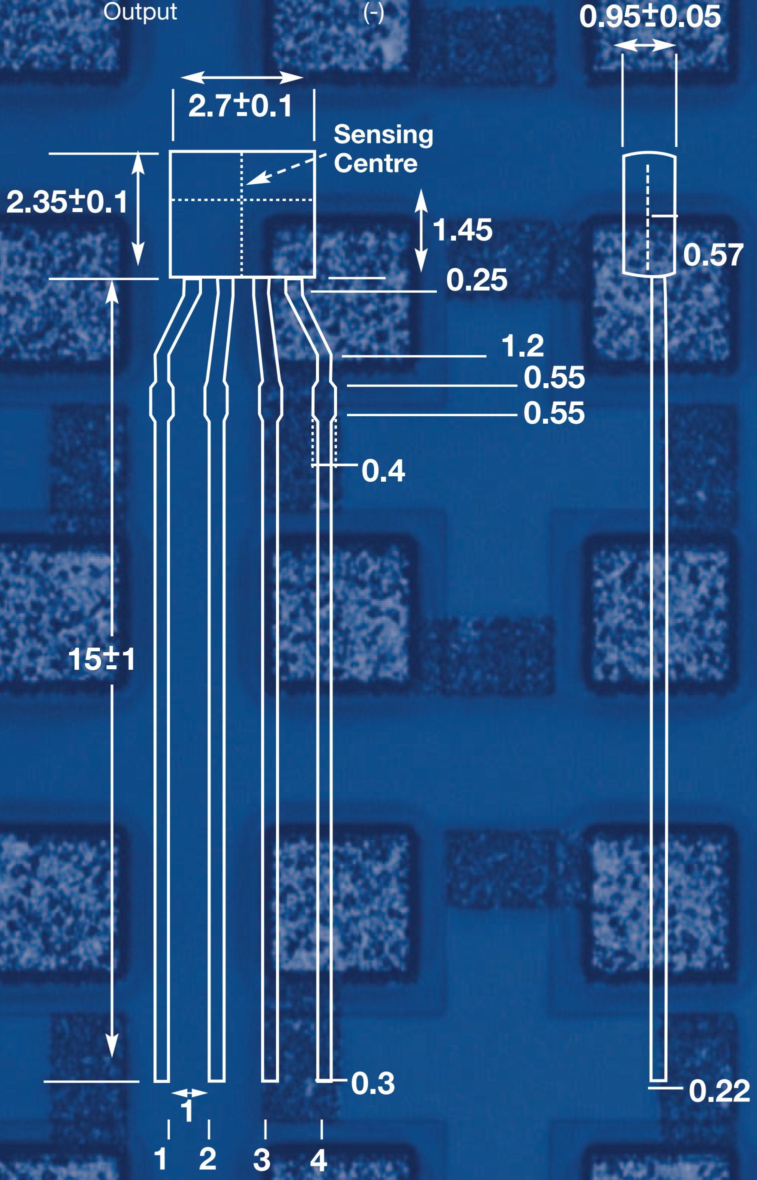
V_{HO}: Offset Voltage B: Magnetic Flux Density

T_1, T_2: Ambient Temperature K_H: Current Sensitivity

Through Slot Leaded Package (dimensions in mm)

Terminal Connection

Terminal Number		Polarity
1	Input	(+)
2	Output	(+)
3	Input	(-)
4	Output	(-)



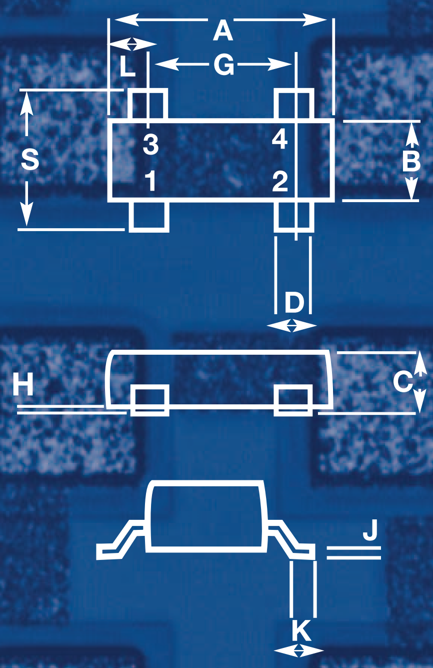
SOT 143 Package (dimensions in mm)

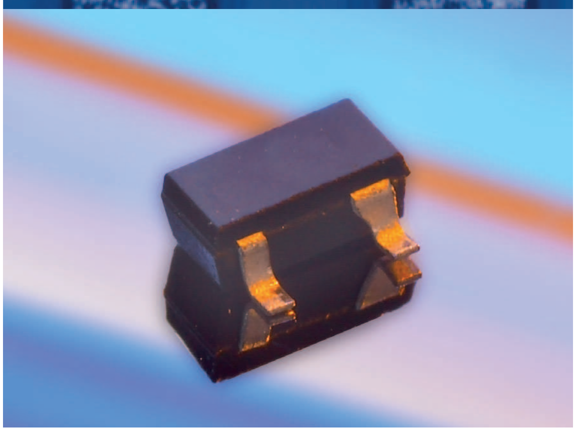
Terminal Connection

Terminal Number		Polarity
1	Input	(+)
2	Output	(-)
3	Output	(+)
4	Input	(-)

Package Dimensions

	Min	Max
A	2.8	3.0
B	1.4	1.6
C	1.0	1.3
D	0.42	0.42
G	1.9	1.9
H	0	0.1
J	0.15	0.15
K	0.35	0.35
L	0.5	0.5
S	2.7	3.1





Advanced Hall Sensors Ltd.

Il Palazzo, 7 Water Street, Liverpool L2 ORD **Tel:** +44(0)1513 303 630 **Web:**www.ahsltd.com