SYMMETRY ELECTRONICS CORPORATION

MICRONAS Linear Hall Sensor Product Selection Guide

Part Type		Magnetic Range		Output												Diagnostics		Electrical Characteristics				Config.			Pkg.	Temp. Range				Typical Applications					
		Programmable	mT	mT	Setpoints	Analog	PWM	Serial	Differential	LIN	Overvoltage	Undervoltage	Open V_{DD} Detect	Open GND Detect	Overcurrent	V_{DD} - V	I_{OUT} (Max) - mA	2-Wire	3-Wire	4-Wire	TO92	SOT89	A: -40 °C to +170 °C	K: -40 °C to +140 °C	E: -40 °C to +100 °C	Potentiometers	Rotary Position (Angle)	Linear Position	Magnetic Field Measurement	Fluid Level	Current Measurement
HAL 4x1	HAL 401		-50	+50	0	•			•		•					4.8 to 12	1			•		•	•	•		•	•	•			•
	HAL 411		-50	+50	0	•			•		•					4.8 to 12	1			•		•			•	•	•				•
HAL 8xy	HAL 810	•	+/- 30	+/- 150	2		▲					•	•			5	1		•		•		•	•		•	•	•	•			•
	HAL 815	•	+/- 30	+/- 150	2	•					•	•	•	•		5	1		•		•		•	•		•	•	•	•			•
	HAL 824	•	+/- 30	+/- 100	2	•					•	•	•	•		5	1		•		•		•	•		•	•		•			•
	HAL 825	•	+/- 30	+/- 100	2	•					•	•	•	•		5	1		•		•		•	•		•	•	•	•	•		•
	HAL 855	•	+/- 30	+/- 150	32		■	•				•	•	•		4.5 to 14	20		•		•		•	•		•	•	•	•	•		•
	HAL 856	•	+/- 30	+/- 15	32		■	•				•	•	•		4.5 to 14	◆	•			•		•	•		•	•	•	•	•		•
HAL 28xy	HAL 2810	•	+/- 20	+/- 160	2					•					•	7.0 to 18	40		•		•			•		•	•	•	•	•		•

▲ Fixed PWM frequency ■ Programmable PWM frequency ◆ Programmable: See datasheet

MICRONAS Hall Switch Product Selection Guide

Part Type		Magnetic Characteristics Typical @ 25 °C		Type										Configuration		Pkg.	Temp. Range			Typical Applications														
		B_{ON} - mT	B_{OFF} - mT	Unipolar	Unipolar Inverted	Bipolar	Latching	Differential	2-Wire	3-Wire	4-Wire	TO92	SOT89	A: -40 °C to +170 °C	K: -40 °C to +140 °C	E: -40 °C to +100 °C	Position and End-Point Detection	Solid State Switch	Direction Detection	RPM Measurement	Brushless DC Motors	Rotating Speed	Multipole Magnets	Ignition Timing	ABS	Window Lifter
HAL 2xy	HAL 201	34.5	24.0	L						•		•	•		•		•	•		•	•												
	HAL 202	2.6	-2.6			H				•		•	•		•		•	•		•	•												
	HAL 203	7.6	-7.6			M				•		•	•		•		•	•		•	•												
	HAL 204	14.0	-14.0			L				•		•	•		•		•	•		•	•												•
	HAL 206	12.0	6.50	H						•		•	•		•		•	•		•	•												
	HAL 207	26.5	22.50	L						•		•	•		•		•	•		•	•												
	HAL 220[1]	2.6	-2.6			H				•		•	•		•		•	•		•	•												
	HAL 221[1]	18.5	12.00	L						•		•	•		•		•	•		•	•												

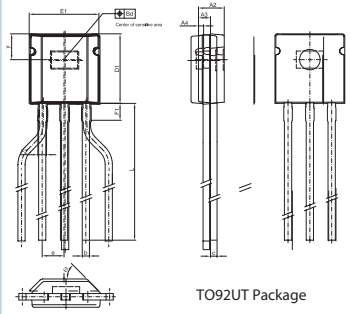
1 Power-on reset and undervoltage reset

L = Low Sensitivity M = Medium Sensitivity H = High Sensitivity

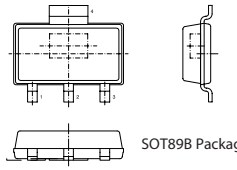
Hall Sensor Ordering Codes

Hall Sensor	HAL
Sensor Type	502
Package UA/JQ = TO92 UT = TO92 SF/TQ = SOT89B	PA
Temperature A = -40°C to +170°C K = -40°C to +140°C E = -40°C to +100°C	T
Configuration 1 = TO92 - Inline (Spread) 2 = TO92 - Inline (Not spread) 4 = SOT89, blister pack	C
Packaging B = Bulk A = Ammo Pak R = Reel (SOT89 only)	P
Quantity 1 = 2000 per box 2 = 2000 per box 4 = 15000 per box	Q
Special Procedure	SP

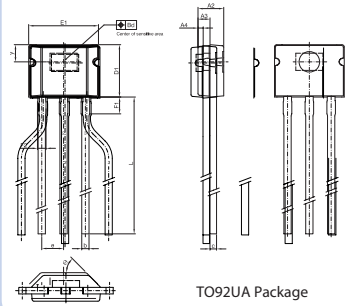
Package Information



TO92UT Package



SOT89B Package



TO92UA Package

MICRONAS Hall Switch Product Selection Guide (Continued)

SYMMETRY ELECTRONICS CORPORATION

		Part Type		Magnetic Characteristics Typical @ 25 °C					Type					Configuration			Pkg.	Temp. Range			Typical Applications								
		B_{ON} – mT	B_{OFF} – mT	Unipolar	Unipolar Inverted	Bipolar	Latching	Differential	2-Wire	3-Wire	4-Wire	TO92	SOT89	A: -40 °C to +170 °C	K: -40 °C to +140 °C	E: -40 °C to +100 °C	Position and End-Point Detection	Solid State Switch	Direction Detection	RPM Measurement	Brushless DC Motors	Rotating Speed	Multipole Magnets	Ignition Timing	ABS	Window Lifter
HAL 3xy	HAL 300	3.0	-3.0					H		•		•	•	•	•					•			•					
	HAL 320	3.5	-3.5					H		•		•	•	•	•					•				•				
HAL 5xy	HAL 501	0.5	-0.7			H				•		•	•	•	•		•			•	•							
	HAL 502	2.6	-2.6				H			•		•	•	•	•		•			•	•							
	HAL 503	8.0	-8.0				M			•		•	•	•	•		•			•	•							
	HAL 504	12.0	7.0	M						•		•	•	•	•		•	•		•	•							
	HAL 505	13.5	-13.5				L			•		•	•	•	•		•			•	•		•					•
	HAL 5065.5	5.5	3.5	H						•		•	•	•	•		•	•		•	•							
	HAL 508	18.0	16.0	M						•		•	•	•	•		•	•		•	•							
	HAL 509	26.8	23.2	L						•		•	•	•	•		•	•		•	•							
	HAL 516	3.5	5.5		H					•		•	•	•	•		•	•		•	•							
	HAL 517	16.2	18.3		M					•		•	•	•	•		•	•		•	•							
	HAL 518	16.0	18.0		M					•		•	•	•	•		•	•		•	•							
	HAL 519[3]	-3.6	-5.5		H					•		•	•	•	•		•	•		•	•							
	HAL 523	34.5	24.0	L						•		•	•	•	•		•	•		•	•							
	HAL 526	14.0	-14.0				L			•		•	•		•	•				•	•		•					•
	HAL 542	2.6	-2.6				H			•		•	•		•	•	•	•		•								
	HAL 543	27.0	21.0	L						•		•	•		•	•	•	•		•								
	HAL 546	5.5	3.5	H						•		•	•		•	•	•	•		•								
	HAL 548	18.0	12.0	M						•		•	•		•	•	•	•		•								
	HAL 549[2,3]	-5.5	-3.6	H						•		•	•		•	•	•	•		•								
	HAL 556	6.0	3.8	H				•				•	•		•	•	•			•								
	HAL 560	46.6	52.5		L			•				•	•		•	•	•			•								
	HAL 566	2.9	5.9		H			•				•	•		•	•	•			•								
	HAL 573	43.5	41.5	L				•				•	•		•	•	•	•		•								
	HAL 574	9.2	7.2	M				•				•	•		•	•	•	•		•								
	HAL 575	4.0	-4.0				M	•				•	•		•	•	•	•		•								
	HAL 576	5.7	4.2	M				•				•	•		•	•	•	•		•								
	HAL 581	10.0	12.0		M			•				•	•		•	•	•	•		•								
	HAL 584	7.2	9.2		M			•				•	•		•	•	•	•		•								
HAL 7xy	HAL 700	14.9	-14.9				M				•		•		•	•						•	•					•
	HAL 710	14.9	-14.9				M				•		•		•	•			•			•	•					•
	HAL 730	14.9	-14.9				M				•		•		•	•			•			•	•					•
	HAL 740	11.5	12.5	M							•		•		•	•						•	•					
HAL 10xy	HAL 1000	Programmable		•	•		•			•		•		•	•		•											

2 Undervoltage reset
3 North pole sensitive

L = Low Sensitivity M = Medium Sensitivity H = High Sensitivity

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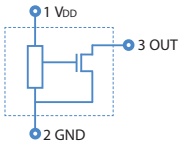
Unipolar: Output turns low with magnetic south pole and turns high when the magnetic field is removed. Sensor does not respond to magnetic north pole of magnet.

Latching: Output turns low with the magnetic south pole and turns high with the magnetic north pole of the magnet. The output does not change if the magnetic field is removed.

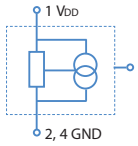
Bipolar: Output turns low with the magnetic south pole and turns high with the magnetic north pole. The output state is not defined if the magnetic field is removed.

Unipolar Inverted: Output turns high with magnetic south pole and turns low if the magnetic field is removed.



3-Wire Switch:

The voltage is monitored and the switch operates as indicated according to the type of switch.



2-Wire Switch:

The current is monitored and the switch operates as indicated by the type of switch. Current level is as specified within the data sheet.