



SS561AT



SS500 Series Latching Hall-Effect Sensor; SOT-89B surface mount package; available in 1,000/tape and reel

Actual product appearance may vary.

Features

- Quad Hall design virtually eliminates mechanical stress effects
- Temperature compensated magnetics
- Super high sensitivity available
- Symmetry of operate/release points about zero gauss (bipolar/latching)
- Low current consumption
- High output current capability

Potential Applications

- Speed and RPM sensor
- Brushless DC motor commutation
- Motor and fan control
- Magnetic encoding
- Tachometer, counter pickup
- Disc speed, tape rotation sensing
- Flow-rate sensing

Description

The temperature compensated Hall effect sensor consists of a quad Hall sensing element in a square integrated circuit chip, which is then encapsulated in a glass-filled thermoset molding material. The small SOT89 style package surface mounts on PC boards and flexible circuits.

The integrated circuit is thermally balanced for predictable performance over specified temperature range. Built-in temperature compensation has a negative slope (operate and release points decrease as temperature increases). This slope is optimized to match the negative temperature coefficient of low cost magnets, to track their performance over temperature. Bipolar, unipolar and latching magnetics are available.

Band gap regulation provides extremely stable operation over the full supply voltage range. SS500 series sensors can use existing power supply sources in most applications, and can be directly interfaced with many electronic components without buffering or compensation circuitry.

NOTE: Do not wave solder this product. This process may negatively affect sensor performance and reliability, and will void Honeywell's warranty. Honeywell recommends a convection infrared reflow process with peak temperatures not to exceed 250 °C [482 °F] for 3 seconds maximum.

NOTE: Interruption of power to a latching device may cause the output to change state when power is restored. If a magnetic field of sufficient strength is present, the sensor output will be in the condition dictated by the magnetic field.

Product Specifications	
Product Type	Hall-Effect Digital Position Sensor IC
Package Quantity/Type	Available in 1,000/Tape and Reel
Package Style	SOT-89B
Supply Voltage	3.8 Vdc to 30.0 Vdc
Output Type	Sink
Termination Type	Surface Mount
Magnetic Actuation Type	Bipolar Latch
Operating Temperature Range	-40 °C to 150 °C [-40 °F to 302 °F]
Storage Temperature	-65 °C to 160 °C [-85 °F to 320 °F]
Output Voltage	0.4 Vdc max.
Switching Time Rise (10 % to 90 %)	1.5 µs max.
Switching Time Fall (90 % to 10 %)	1.5 µs max.
Availability	Global
Supply Current (max. @ 25 °C)	8.7 mA @ 5 Vdc
Output Current (max.)	20 mA
Operate Point @ 25 °C	8.5 mT [85 G] max.
Release Point @ 25 °C	-8.5 mT [-85 G] min.
Leakage Current max.	10 µA
Differential	5.0 mT [50 G] min.
Series Name	SS500

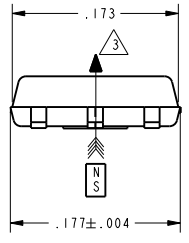
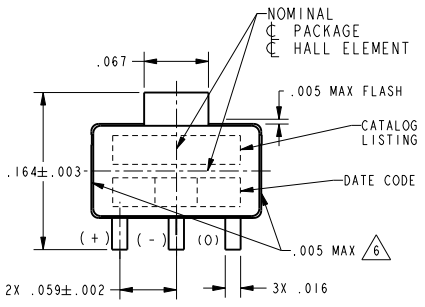
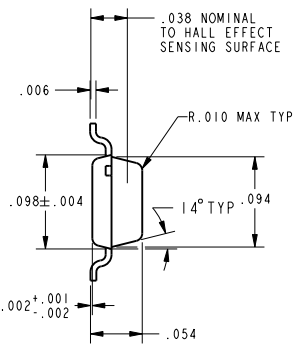
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 12 OF 5
 RELEASE NO. DR-4996
 REPLACES
 ISSUE 12
 M
 CATALOG LISTING S55 SERIES CHART 1

MICRO SWITCH
 a Honeywell Division
 FED. MFG. CODE 91929

SOLID STATE SENSOR

CATALOG LISTING
S55 SERIES CHART 1

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CAUTION
 ELECTROSTATIC SENSITIVE DEVICE
 DO NOT OPEN OR HANDLE UNLESS IN A STATIC FREE ENVIRONMENT

ESD SENSITIVITY:
 CLASS 3

- NOTES
- 1 - SOLDERING INSTRUCTIONS: EXPOSURE TO HIGH TEMPERATURES SHOULD BE KEPT AT A MINIMUM MICRO SWITCH RECOMMENDS AN INFRARED REFLOW PROCESS WITH PEAK TEMPERATURES NOT EXCEEDING 230°C (446°F) FOR 10 SECONDS MAXIMUM. DO NOT WAVE SOLDER THIS PRODUCT, AS THIS PROCESS MAY NEGATIVELY AFFECT THE SENSOR'S PERFORMANCE AND RELIABILITY. SUBJECTING THESE PRODUCTS TO WAVE SOLDERING WILL VOID MICRO SWITCH'S WARRANTY.
 - 2 - ABSOLUTE MAXIMUM RATINGS ARE THE EXTREME LIMITS THE DEVICE WILL MOMENTARILY WITHSTAND WITHOUT DAMAGE TO THE DEVICE. ELECTRICAL AND MAGNETIC CHARACTERISTICS ARE NOT GUARANTEED IF THE SPECIFIED VOLTAGE AND/OR CURRENTS ARE EXCEEDED NOR WILL THE DEVICE NECESSARILY OPERATE AT ABSOLUTE MAXIMUM RATING.
 - 3 - THE MAGNETIC FLUX USED TO OPERATE THE SWITCH MUST BE IN THE DIRECTION AND LOCATION SHOWN. (THIS ASSUMES THE CONVENTION THAT THE DIRECTION OF THE EXTERNAL FLUX OF A MAGNET IS FROM THE NORTH TO THE SOUTH POLE OF THE MAGNET.)
 - 4 - THE MAGNETIC FIELD STRENGTH (GAUSS) REQUIRED TO CAUSE THE SWITCH TO CHANGE STATE (OPERATE AND RELEASE) WILL BE AS SPECIFIED IN THE MAGNETIC CHARACTERISTICS. TO TEST THE SWITCH AGAINST THE SPECIFIED MAGNETIC CHARACTERISTICS, THE SWITCH MUST BE PLACED IN A UNIFORM MAGNETIC FIELD.
 - 5 - A "T" SUFFIX ON ANY CATALOG LISTING DESIGNATES THE PRODUCT WILL BE SUPPLIED IN TAPE AND REEL FORM PER EIA STD 481. S55 SERIES SOLD IN TAPE AND REEL ONLY. SOME BASIC LISTINGS MAY NOT BE AVAILABLE.
 - 6 - GATE VESAGE PERMITTED IN THESE AREAS. UNDERFLUSH BREAKOUT LIMITED TO .007.
 - 7 - THESE HALL EFFECT SENSORS MAY HAVE AN INITIAL OUTPUT IN EITHER THE ON OR OFF STATE IF POWERED UP WITH AN APPLIED MAGNETIC FIELD IN THE DIFFERENTIAL ZONE (APPLIED MAGNETIC FIELD > Brp AND < Bop). MICRO SWITCH RECOMMENDS THAT THE APPLICATION CIRCUIT DESIGNER ALLOW 10 MICROSECONDS AFTER SUPPLY VOLTAGE HAS REACHED 5 VOLTS FOR THE OUTPUT VOLTAGE TO STABILIZE.

CONVERSION TO METRIC DIMENSIONS			
DIMENSION IN INCHES	METRIC REFERENCE EQUIVALENT, MM	DIMENSION IN INCHES	METRIC REFERENCE EQUIVALENT, MM
.001	0,025	.095	2,413
.002	0,051	.098	2,489
.003	0,076	.157	3,988
.004	0,102	.164	4,166
.005	0,127	.173	4,394
.006	0,152	.177	4,496
.007	0,178	.181	4,597
.008	0,203	.197	5,004
.015	0,381	.217	5,512
.016	0,406	.230	5,842
.030	0,762	.314	7,976
.031	0,787	.315	8,001
.038	0,965	.472	11,989
.050	1,270	.480	12,192
.059	1,499	.512	13,005
.067	1,702	.724	18,390
.069	1,753	1,300	33,020
.078	1,981	1,970	50,038
.079	2,007	7,010	178,054
.094	2,388	10,000	254,000

THIRD ANGLE PROJECTION

SCALE NONE

DO NOT SCALE PRINT

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:
 ONE PLACE (.01) ±.030
 TWO PLACE (.00) ±.015
 THREE PLACE (.000) ±.005
 ANGLES °

WEIGHT

ANSI Y14.5M-1982 APPLIES

MICRO SWITCH
a Honeywell Division
FED. MFG. CODE 91929

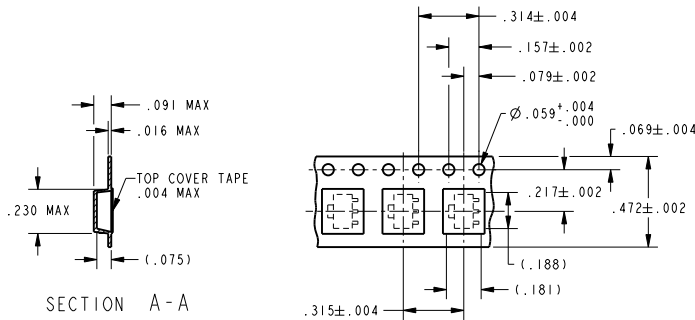
SOLID STATE SENSOR

SS5 SERIES CHART 1

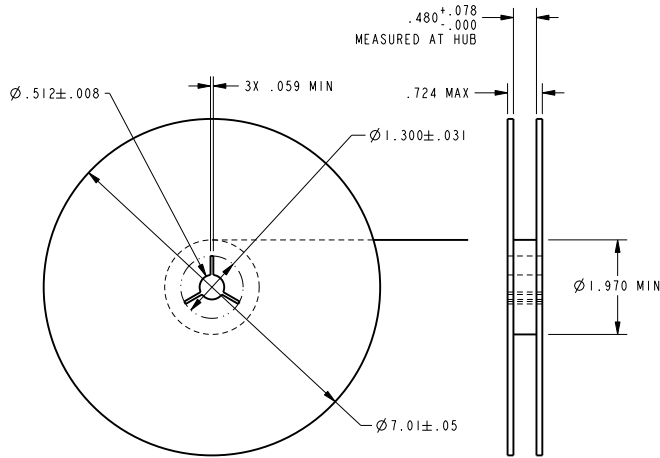
CATALOG LISTING

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CATALOG LISTING
SS5 SERIES CHART 1
ISSUE 12
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REPLACES -
RELEASE NO. DR-4996



TAPE AND REEL DIMENSIONS



DIRECTION OF FEED FROM REEL

SS5 CATALOG SYSTEM

PREFIX
BASIC CATALOG LISTING:
PACKAGE STYLE, MAGNETIC TYPE,
ELECTRICAL/MAGNETIC SPECS

CHARACTERS IN THESE
POSITIONS OF THE LISTING
ARE BRANDED ON THE PRODUCT

S S 5 I - - T

SS5=PACKAGE STYLE
MAGNETIC TYPE
1-BIPOLAR
4-UNIPOLAR
6-LATCH

RELATIVE GAUSS OPERATING RANGE
(BLANK, 0-9, 9=HIGH GAUSS)

ELECTRICAL/MAGNETIC OPTIONS
(BLANK, A-K & U-Z)
A-STANDARD
B-K & U-Z-SPECIALS

REVISIONS	DATE	BY	CHKD	APP'D
B	18 JAN 06			
C	27 JUN 98			
D	08 FEB 98			
E	08 FEB 98			
F	08 FEB 98			
G	200505			
H	201747			
J	206174			
K	207146			
L	20018451			
M	18 JAN 98			



THIRD ANGLE PROJECTION
SCALE NONE
DO NOT SCALE PRINT
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE
ONE PLACE (.0) ±.030
TWO PLACE (.00) ±.015
THREE PLACE (.000) ±.005
ANGLES ±
WEIGHT

ANSI Y14.5M-1982 APPLIES

