



### SS466A



*Actual product appearance may vary.*

**SS400 Series Latching Hall-Effect  
Digital Position Sensor; radial lead IC  
package**

#### Features

- Digital current sinking output
- Quad-Hall design virtually eliminates mechanical stress effects
- Temperature compensated magnetics
- Operate/release points can be customized
- High output current capability
- Operate/release points symmetrical around zero gauss (bipolar/latch)
- Package material: Plaskon 3300H
- Surface mount version available: SS400-S (with cut and formed leads)

#### 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

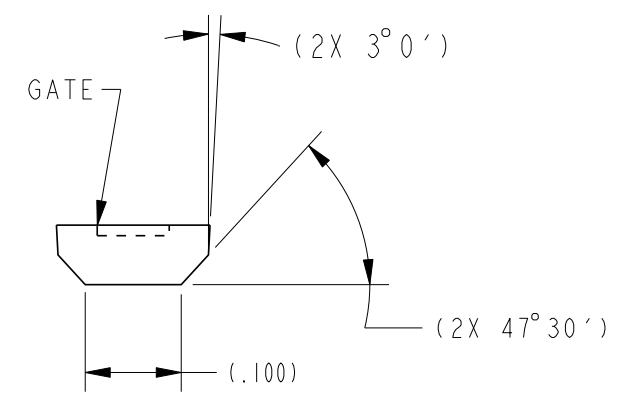
SS400 Series position sensors have a thermally balanced integrated circuit over full temperature range. The negative compensation slope is optimized to match the negative temperature coefficient of lower cost magnets. Bipolar, latching and unipolar magnetics are available.

Band gap regulation provides extremely stable operation over 3.8 Vdc to 30 Vdc supply voltage range.

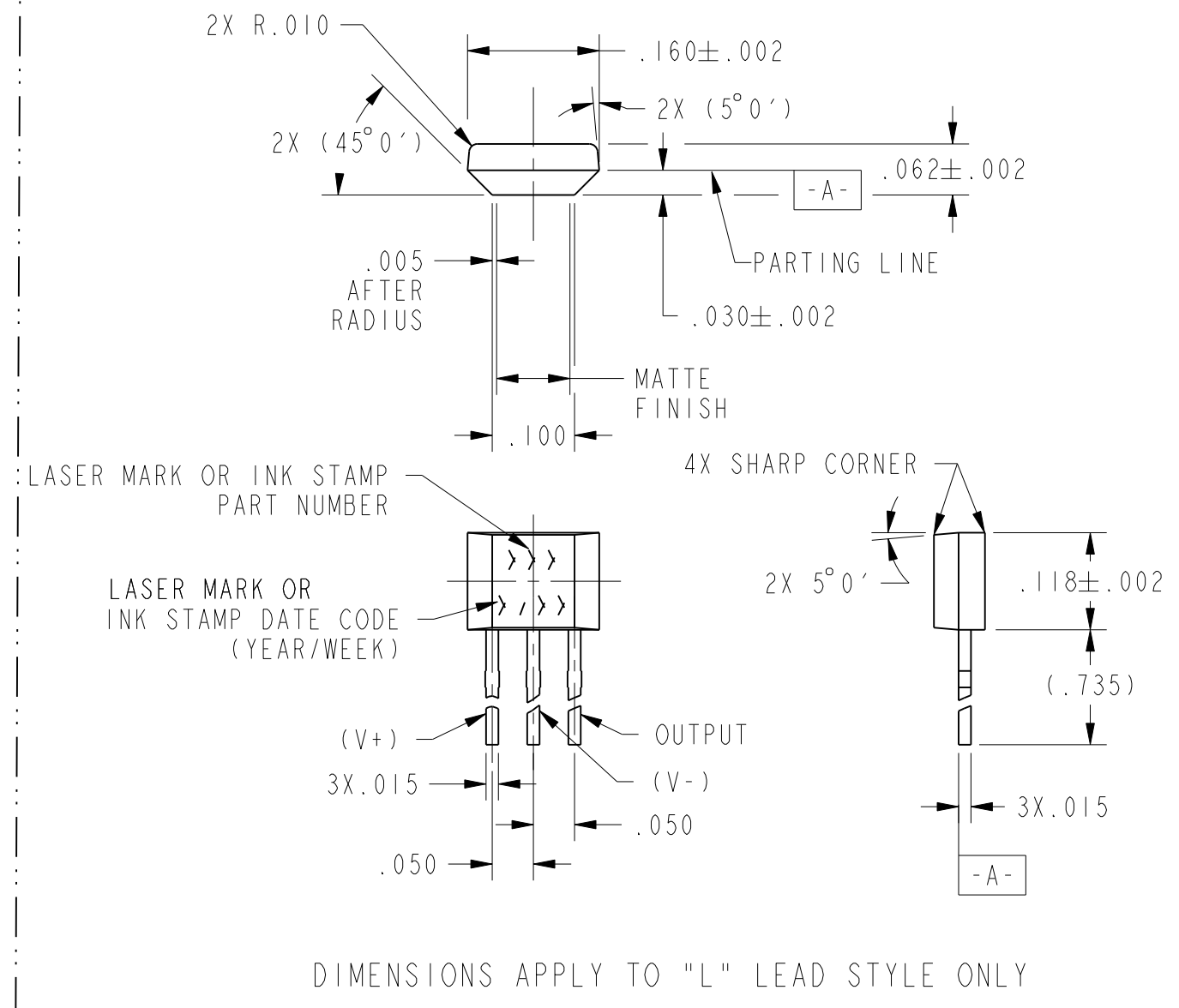
**NOTE:** Interruption of power to a latching device may cause the output to change state when power is restored. If a magnetic field of sufficient strength is present, the sensor output will be in the condition dictated by the magnetic field.

Product Specifications	
Product Type	Hall-Effect Digital Position Sensor IC
Package Quantity/Type	Available in 1,000/Bag
Package Style	Radial Lead IC
Supply Voltage	3.8 Vdc to 30.0 Vdc
Output Type	Sink
Termination Type	PC Board
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)	10 mA
Output Current (max.)	20 mA
Operate Point @ 25 °C	18.0 mT [180 G] max.
Release Point @ 25 °C	-18.0 mT [-180 G] min.
Leakage Current max.	10 μA
Differential	14.0 mT [140 G] min.
Series Name	SS400

LEAD STYLES



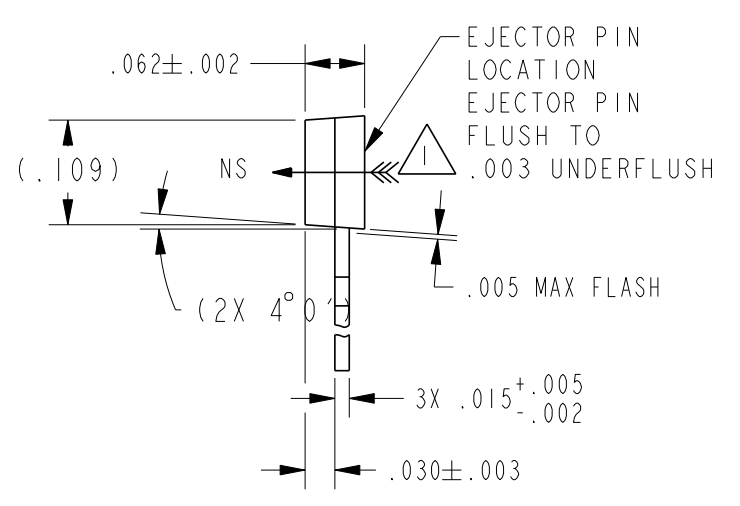
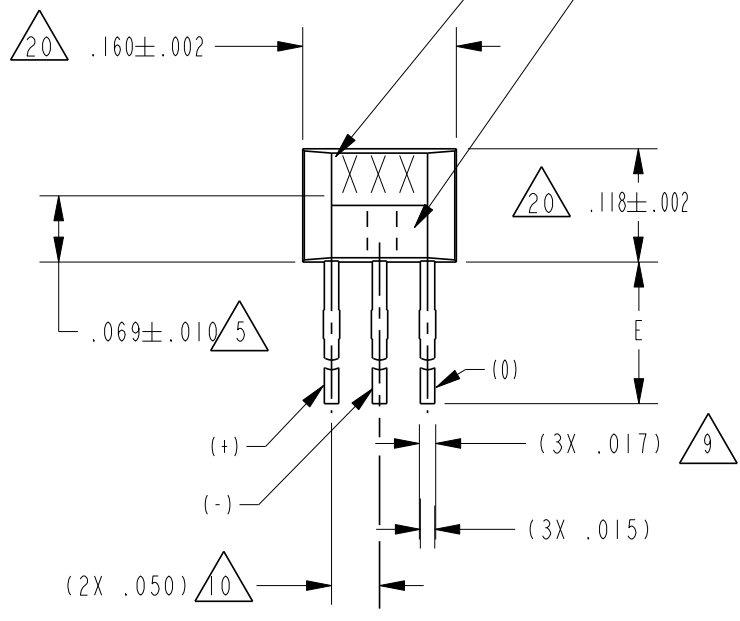
ALL EXCEPT "L" LEAD STYLES



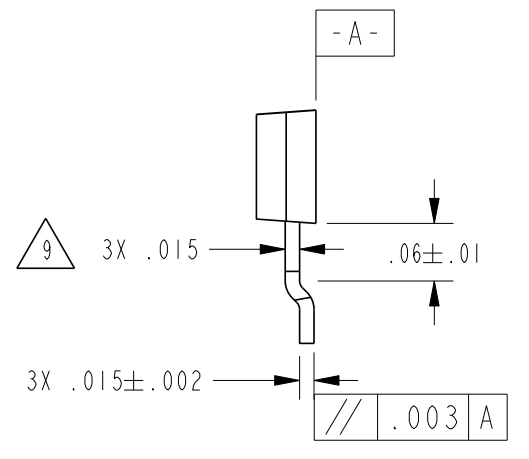
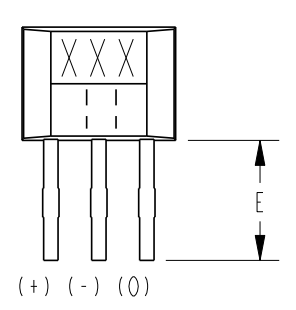
DIMENSIONS APPLY TO "L" LEAD STYLE ONLY

LASER MARK OR INK STAMP BRAND SYMBOL  
.039 HIGH CHARACTERS

LASER MARK OR INK STAMP DATE CODE  
( YEAR, WEEK ) .039 HIGH CHARACTERS ( 3 DIGITS )



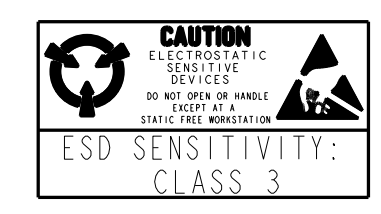
LEAD STYLES "STD", "R", "RP"



LEAD STYLES "S" & "SP"

NOTES

- 1 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)
- 2 THE MAGNETIC FIELD STRENGTH (GAUSS) REQUIRED TO CAUSE THE SWITCH TO CHANGE STATE (OPERATE AND RELEASE) WILL BE AS TABULATED. TO TEST THE SWITCH AGAINST THE SPECIFIED LIMITS, THE SWITCH MUST BE PLACED IN A UNIFORM MAGNETIC FIELD
- 3 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 RATED VOLTAGE AND/OR CURRENTS ARE EXCEEDED NOR WILL THE DEVICE NECESSARILY OPERATE AT ABSOLUTE MAXIMUM RATINGS
- 4 TEST CONDITIONS:  $V_{CC}=12V$ ,  $R_2=1.6K$  OHMS,  $C_2=20\mu f$
- 5 APPROXIMATE HALL ELEMENT LOCATION
- 6 LEADS MUST BE ADEQUATELY SUPPORTED DURING ANY FORMING/SHEERING OPERATION TO ASSURE THAT THE LEADS ARE NOT STRESSED WITHIN THE PLASTIC
- 7 PCB WAVE SOLDERING GUIDELINES ARE AS FOLLOWS:  
250°C PEAK FOR 10 S MAX OR 260°C PEAK FOR 5S MAX  
SOLDERING TIME
- 8  $V_{CC}=12V$ ,  $R_1=1.6K$ ,  $C_1=20\mu f$
- 9 BURRS ARE ALLOWED ONLY IF FULL LENGTH OF LEADS WILL PASS THROUGH  $\varnothing.023$  HOLE. LEAD REFERENCE DIMENSIONS DO NOT INCLUDE SOLDER THICKNESS
- 10 DIMENSION REFERS TO THE LOCATION OF LEAD CENTERLINES AS THEY EXIT THE PLASTIC PACKAGE
- 11 TYPICAL DIMENSIONS NOT SHOWN IN LEAD STYLE "S" AND "SP"
- 12 SOME COMBINATIONS OF BASIC LISTING AND PACKING OPTIONS ARE NOT AVAILABLE
- 13 TAPE AND AMMOPACK PER EIA-468-A-1990
- 14 POCKET TAPE AND REEL PER EIA-481-A-1986
- 15  $V_{CC}=30V$ ,  $I_{sink}=20mA$ ,  $-40^\circ C < T < 150^\circ C$ , B>MAX OP GAUSS FOR SPECIFIC LISTING
- 16  $V_{CC}=3.8V$ ,  $I_{sink}=20mA$ , B>MAX OP GAUSS FOR SPECIFIC LISTING
- 17  $V_{out}=30V$ ,  $V_{CC}=24V$ , B<MIN RELEASE GAUSS FOR SPECIFIC LISTING
- 18 AMMOPACK STYLE "T2" AND "T3". 24 SWITCHES BETWEEN FOLDS, SKIP 1 SPACE AT FOLD. MAY BE REFERRED TO AS "FAN FOLD"
- 19 LEAD STRAIGHTNESS MAY BE DETERIORATED ON SOME UNITS BY BULK PACKAGING. APPLICATIONS HAVING A CRITICAL LEAD STRAIGHTNESS REQUIREMENT SHOULD USE A TAPE PACKAGING OPTION
- 20 MOLDED PART DIMENSIONS DO NOT INCLUDE FLASH. FLASH IS LIMITED TO .005 MAX
- 21 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  $> B_{rp}$  AND  $< B_{op}$ ). MICRO SWITCH RECOMMENDS THAT THE APPLICATION CIRCUIT DESIGNER ALLOW 10 MICROSECONDS AFTER SUPPLY VOLTAGE HAS REACHED 5 VOLTS FOR THE OUTPUT VOLTAGE TO STABILIZE



THIRD ANGLE PROJECTION			
SCALE 5 : 1			
DO NOT SCALE PRINT			
TOLERANCES			
APPLY TO DESIGN UNITS. CONVERSIONS ARE ONLY FOR REFERENCE. UNLESS NOTED, TOLERANCES ARE :			
DIM.	TOL.	DIM.	TOL.
NO PLACES	X	mm/100	X.X
ONE PLACE	X.X	mm/10	X.XX
TWO PLACES	X.XX	mm/1	X.XXX
THREE PLACES	X.XXX	mm/0.1	X.XXXX
ANGLES			
SI METRIC		US CUSTOMARY	
DESIGN UNITS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
WEIGHT			

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MICRO SWITCH a Honeywell Division

SOLID STATE SENSOR

SS400 SERIES CHART 1

CATALOG LISTING

ANSI Y14.5M-1982 APPLIES

FED. MFG. CODE 91929

SS400 SERIES CHART 1

ISSUE 16

REVISIONS

DATE

BY

CHKD

APP'D

PTC/CAD 3D

GRT 26 MAR 02

SAV 26 MAR 02

RELEASE NO. PR-21345

PAGE 1 OF 4

REPLACES





CATALOG LISTING  
**SS400 SERIES CHART 1**

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ISSUE  
**16**

REVISIONS

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PRS  
26 OCT 07

REPLACES -

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14 JAN 99

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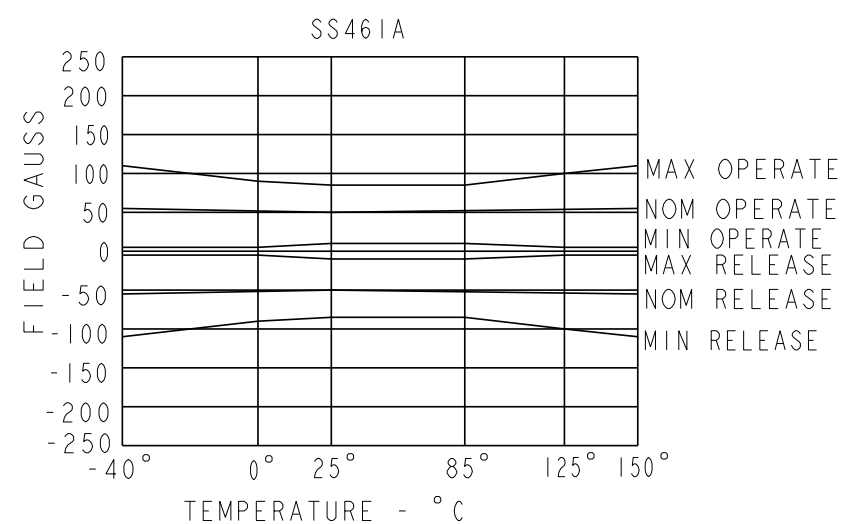
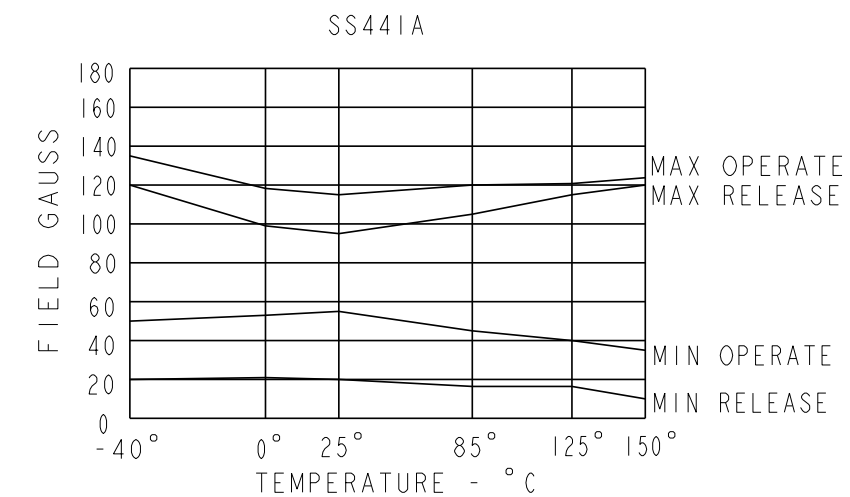
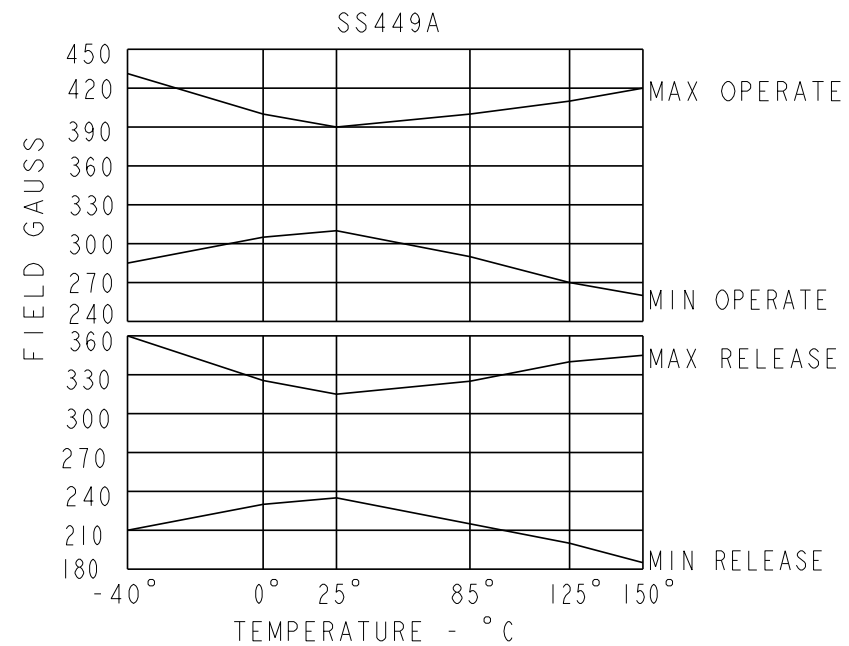
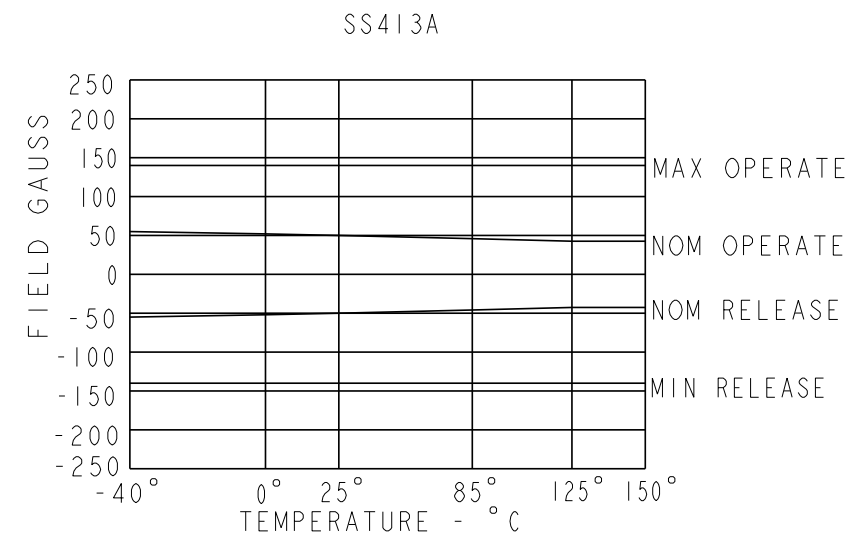
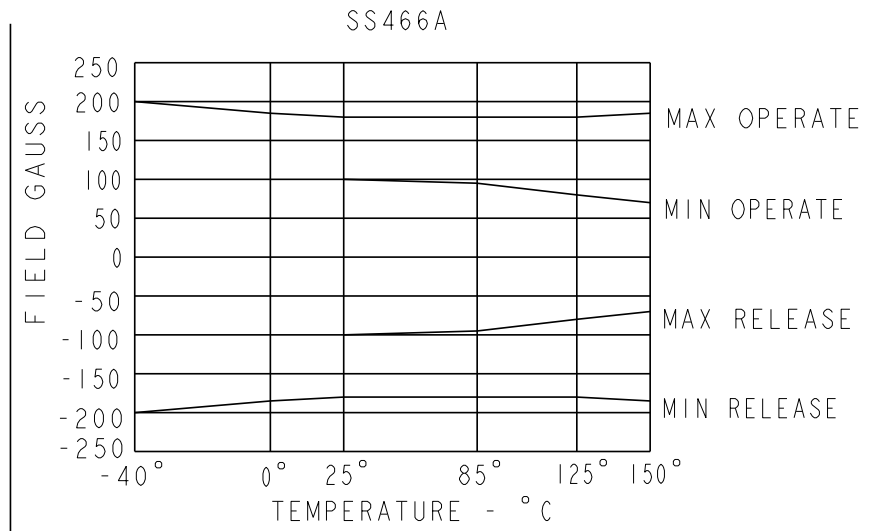
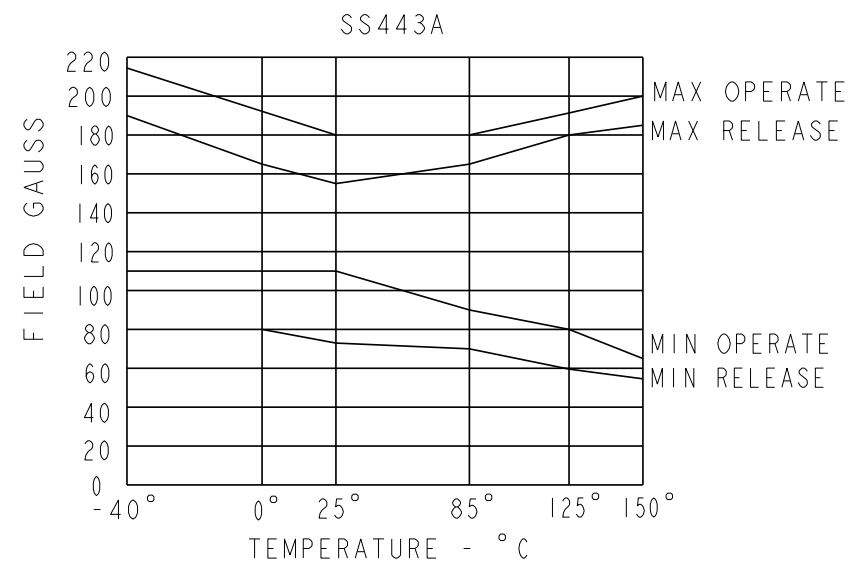
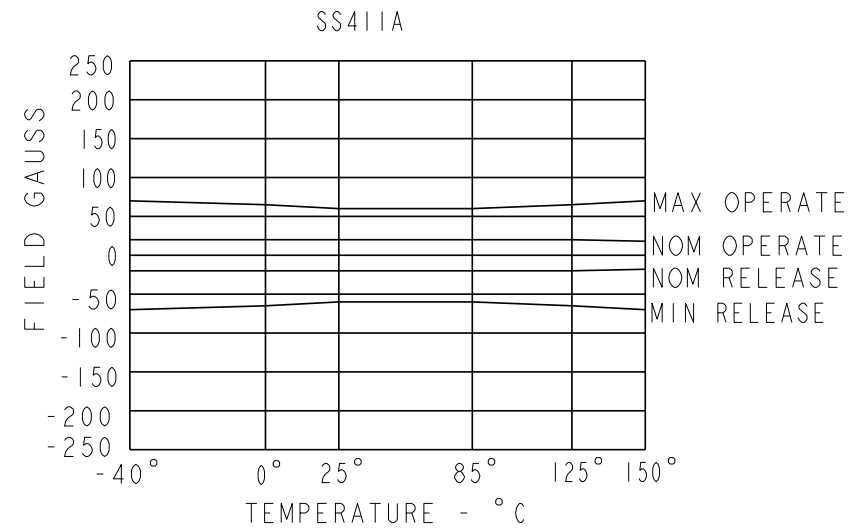
14 JAN 99

3D

DRAWN

KED

ANSI Y14.5M-1982 APPLIES



**CAUTION**  
ELECTROSTATIC SENSITIVE DEVICES  
DO NOT OPEN OR HANDLE EXCEPT AT A STATIC FREE WORKSTATION

ESD SENSITIVITY:  
CLASS 3

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	