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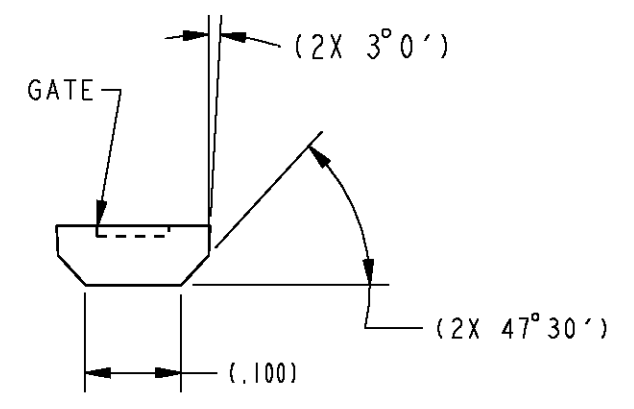
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ELECTRONICS

**www.Jameco.com ♦ 1-800-831-4242**

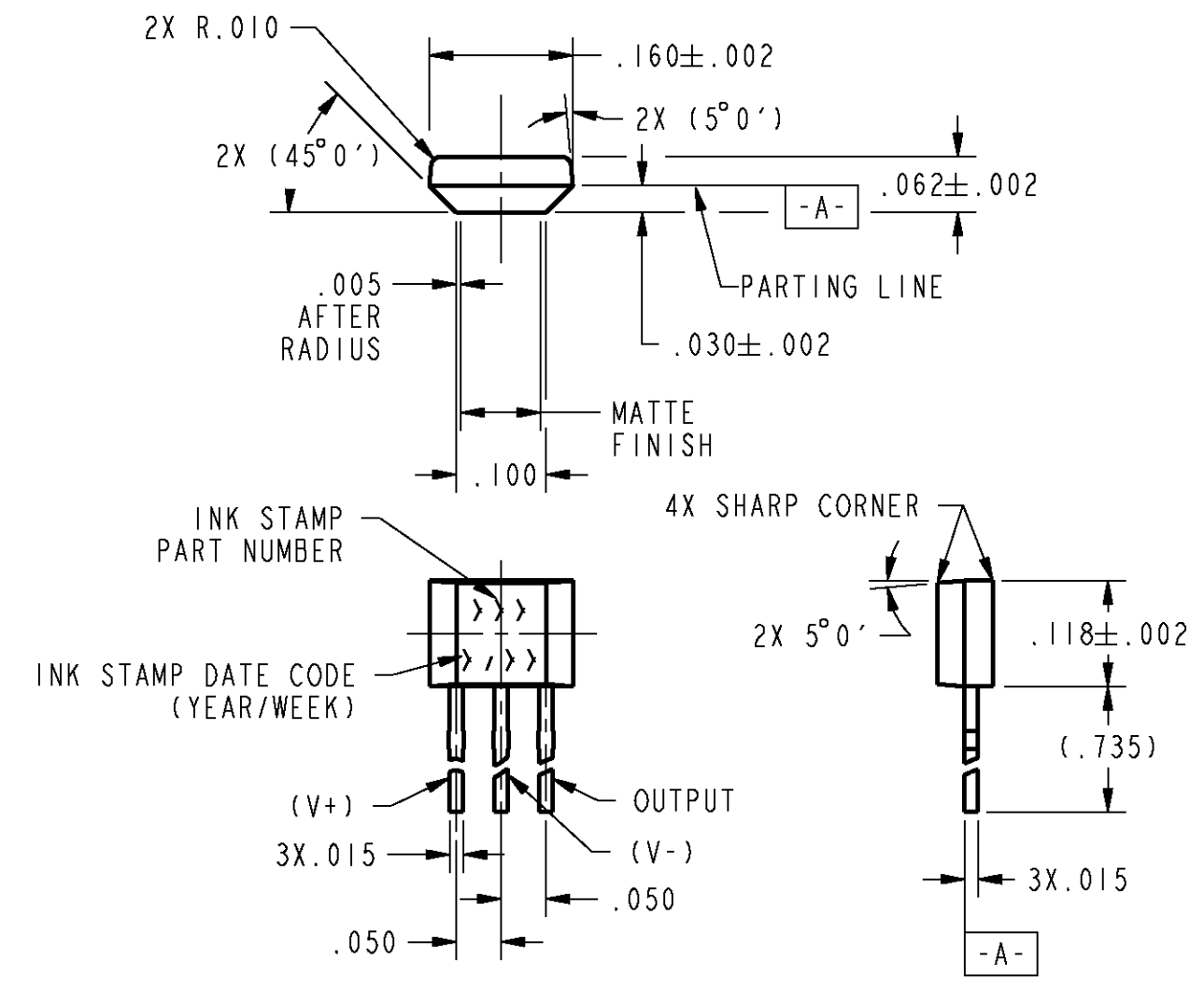
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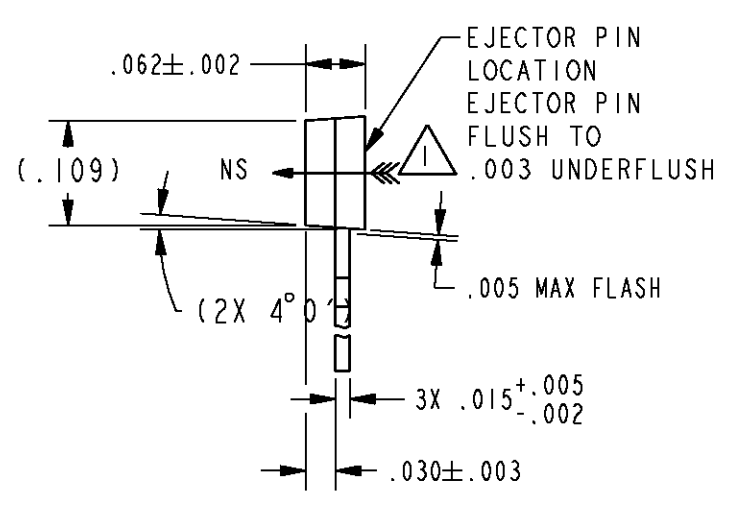
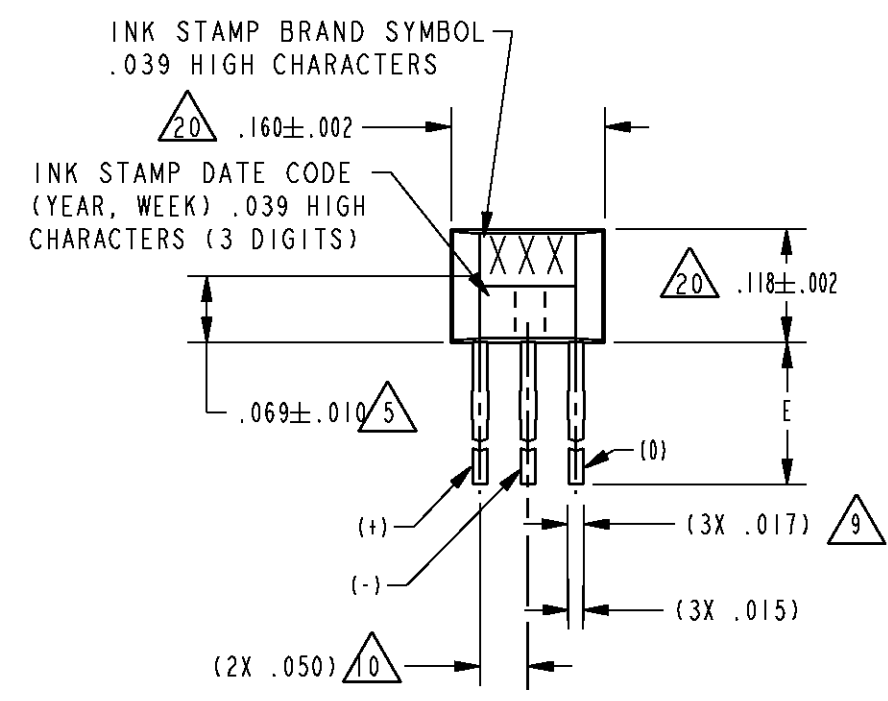
LEAD STYLES



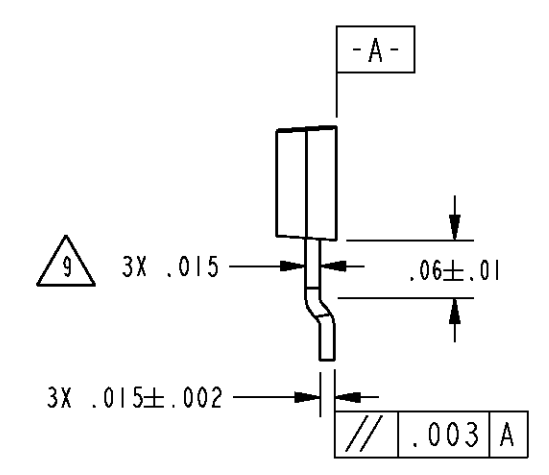
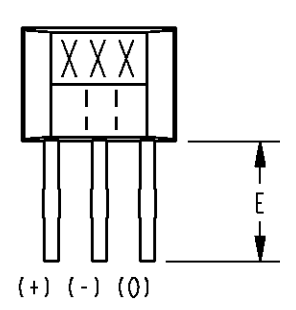
ALL EXCEPT "L" LEAD STYLES



DIMENSIONS APPLY TO "L" LEAD STYLE ONLY



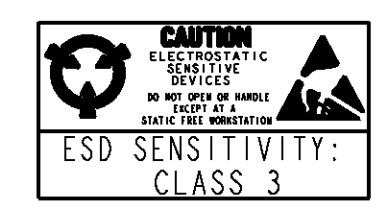
LEAD STYLES "STD", "R", "RP"



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,  $C_2=20pf$
- 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 TO 260°C SOLDERING TEMPERATURE 3 SECONDS MAX
- 8 SOLDERING TIME  
 $V_{cc}=12V$ ,  $R_1=1.6K$ ,  $C_L=20pf$
- 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.
	mm	mm/16	mm/16
NO PLACES	X	1/16	1/16
ONE PLACE	X.X	0.01/0.016	0.01/0.016
TWO PLACES	X.XX	0.001/0.006	0.001/0.006
THREE PLACES	X.XXX		0.0001/0.0006
DESIGN UNITS		SI METRIC	US CUSTOMARY
WEIGHT			

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MICRO SWITCH a Honeywell Division

SOLID STATE SENSOR

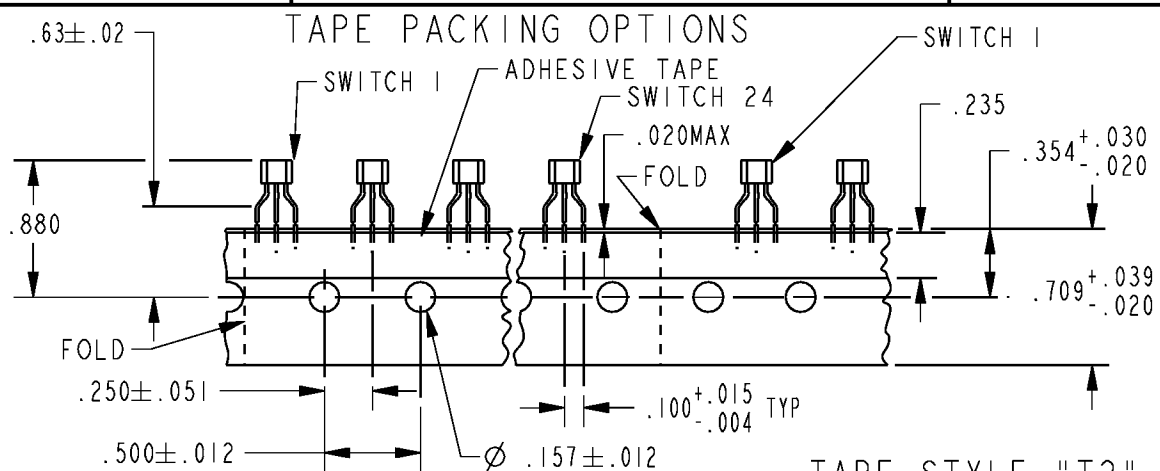
SS400 SERIES CHART 1

ANSI Y14.5M-1982 APPLIES

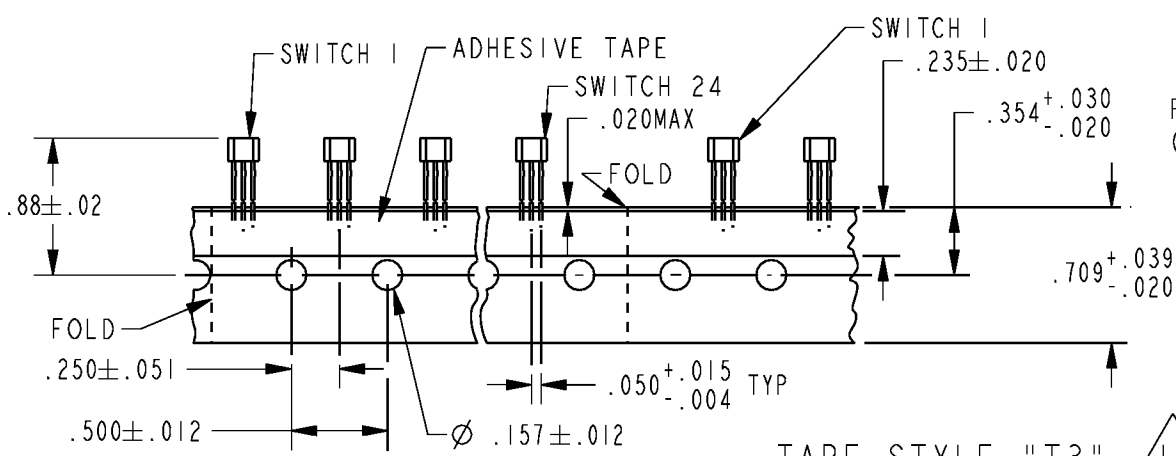
FED. MFG. CODE 91929

SS400 SERIES CHART 1  
PAGE 1 OF 4  
RELEASE NO. PR-21345  
DRAWING NUMBER  
ISSUE 15  
REVISIONS  
A 205184  
GRT 26 MAR 02  
CHECK  
SAV 26 MAR 02  
CHECK  
PTC/CAD 3D  
DRAWN  
GRT 26 MAR 02  
CHECK  
SAV 26 MAR 02  
CHECK

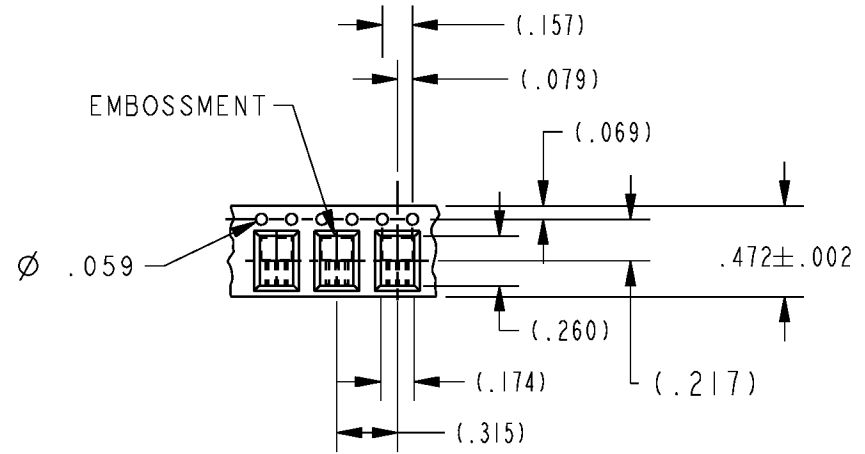
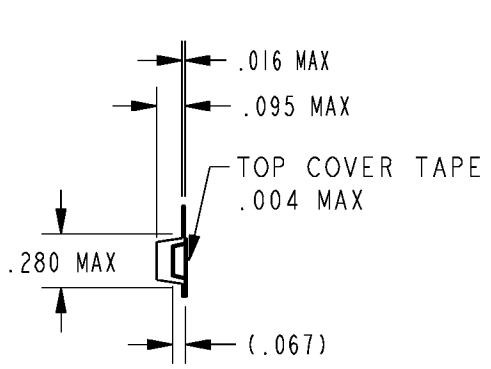
CATALOG LISTING **SS400 SERIES CHART 1**  
PAGE 2 OF 4  
RELEASE NO. PR-21345  
REPLACES -  
CHECK  
14 JAN 99  
CHECK  
14 JAN 99  
DRAWN  
PTC/CAD 3D  
KED 14 JAN 99  
ANSI Y14.5M-1982 APPLIES



TAPE STYLE "T2"  $\Delta$ 13  $\Delta$ 18



TAPE STYLE "T3"  $\Delta$ 13  $\Delta$ 18



TAPE STYLE "SP" & "RP"  $\Delta$ 14

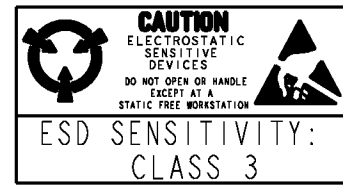
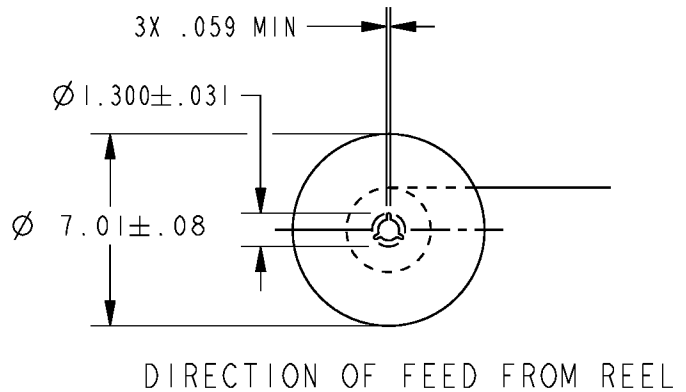
PREFIX SUFFIX  
BASIC CATALOG LISTING: PACKAGE STYLE, MAGNETIC TYPE, ELECTRICAL/MAGNETIC SPECS  
LEAD & PACKAGING OPTIONS: BULK, TAPE & REEL, POCKET TAPE & REEL

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

SS441A1

SS4=PACKAGE STYLE  
MAGNETIC TYPE  
1=BIPOLAR  
4=UNIPOLAR  
6=LATCH  
9=LINEAR  
RELATIVE GAUSS OPERATING RANGE (0-9, 9=HIGH GAUSS)#  
ELECTRICAL/MAGNETIC OPTIONS (A-K, & U-Z)  
A=STANDARD  
B-K & U-Z=SPECIALS  
SPECIAL FEATURE (BLANK, 1-9)  
BLANK=STANDARD  
1-9=SPECIALS

DESCRIPTION	NOMINAL LEAD SPACING	NOMINAL "E" DIM LENGTH ±.015	PARTS PER CONTAINER
STANDARD, BULK PACK $\Delta$ 9	.050	.590	1000/BAG
-T 2 TAPE, AMMOPACK	.100	.590	5000/BOX
-T 3 TAPE, AMMOPACK	.050	.590	5000/BOX
-S SURFACE MOUNT, BULK PACK	.050	.125	1000/BAG
-S P SURFACE MOUNT, POCKET TAPE	.050	.125	1000/REEL
-R REDUCED LENGTH, BULK PACK	.050	.130	1000/BAG
-R P REDUCED LENGTH, POCKET TAPE	.050	.130	1000/REEL
-L LONG LEADS, BULK PACK	.050	.735	1000/BAG



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	

CATALOG LISTING SS400 SERIES CHART 1  
 PAGE 3 OF 4  
 ISSUE 15  
 REVISIONS  
 A C093816 KED 14 JAN 99  
 B 200511 JLH OCT 00  
 C 201747 LJK 20 NOV 00  
 D 205184 GRT 26 MAR 02  
 PTC/CAD 3D  
 DRAWN  
 KED 14 JAN 99  
 CHECK  
 JAF  
 CHECK  
 14 JAN 99  
 CHECK  
 JAF  
 CHECK  
 14 JAN 99  
 RELEASE NO. PR-21345  
 REPLACES -

TABLE 1 - MAGNETIC AND ELECTRICAL SPECIFICATIONS  $\triangle 2 \triangle 21$

	-40°C	0°C	25°C	85°C	125°C	150°C
<b>MIN OPERATE GAUSS</b>						
SS411A	NS	NS	NS	NS	NS	NS
SS413A	NS	NS	NS	NS	NS	NS
SS441A	50	53	55	45	40	35
SS443A	110	110	110	90	80	65
SS449A	285	305	310	290	270	260
SS461A	5	5	10	10	5	5
SS466A	100	100	100	95	80	70
<b>MAX OPERATE GAUSS</b>						
SS411A	70	65	60	60	65	70
SS413A	140	140	140	140	140	140
SS441A	135	117	115	120	123	125
SS443A	215	190	180	180	190	200
SS449A	435	400	390	400	410	420
SS461A	110	90	85	85	100	110
SS466A	200	185	180	180	180	185
<b>MIN RELEASE GAUSS</b>						
SS411A	-70	-65	-60	-60	-65	-70
SS413A	-140	-140	-140	-140	-140	-140
SS441A	20	20	20	15	15	10
SS443A	80	80	75	70	60	55
SS449A	210	230	235	215	200	185
SS461A	-110	-90	-85	-85	-100	-110
SS466A	-200	-185	-180	-180	-100	-185
<b>MAX RELEASE GAUSS</b>						
SS411A	NS	NS	NS	NS	NS	NS
SS413A	NS	NS	NS	NS	NS	NS
SS441A	120	99	95	105	115	120
SS443A	190	165	155	165	180	195
SS449A	360	325	315	325	340	345
SS461A	-5	-5	-10	-10	-5	-5
SS466A	-100	-100	-100	-95	-80	-70
<b>MIN DIFF GAUSS</b>						
SS411A	15	15	15	12	12	10
SS413A	20	20	20	20	20	20
SS441A	15	15	20	15	8	5
SS443A	25	25	25	15	10	5
SS449A	30	30	30	30	30	30
SS461A	50	50	50	50	50	50
SS466A	200	200	200	190	160	140

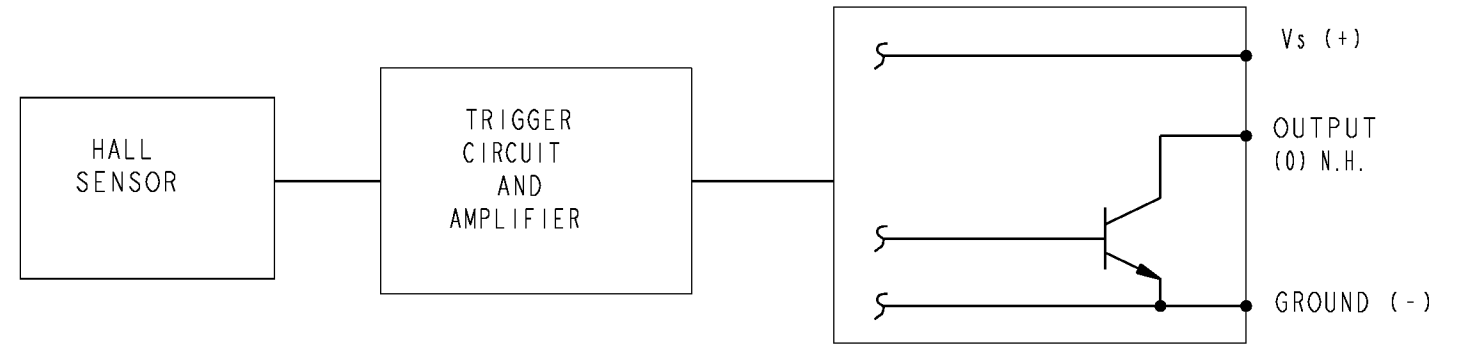


TABLE 2

PACKING	BAG
SPECIFIED VOLTAGE RANGE	3.8 - 30
MAX I <sub>off</sub> milliamp	15
MAX I <sub>on</sub> milliamp	15
RATED SINK CURRENT I <sub>sa</sub>	20
MAX V <sub>sat</sub> VOLTS	0.4
MAX LEAKAGE AT 24V, I <sub>UA</sub>	10
RISE TIME AT 25°C 10% TO 90% $\mu$ S	1.5
FALL TIME AT 25°C 90% TO 10% $\mu$ S	1.5
STORAGE TEMP °C	-65 TO +160
OPERATING TEMP °C	-55 TO +160

TABLE 4

CATALOG LISTING	MAGNETIC TYPE	BRAND SYMBOL
SS411A	BIPOLAR	11A
SS413A	BIPOLAR	13A
SS441A	UNIPOLAR	41A
SS443A	UNIPOLAR	43A
SS449A	UNIPOLAR	49A
SS461A	LATCH	61A
SS466A	LATCH	66A

ABSOLUTE LIMITS  $\triangle 3$  TABLE 3

SUPPLY VOLTAGE	-1 TO +30
APPLIED OUTPUT VOLTAGE	-0.5 TO +30
OUTPUT CURRENT mA	SEE TABLE 5
MAGNETIC FLUX GAUSS	NO LIMIT

TABLE 5

OUTPUT CURRENT ABSOLUTE LIMITS	
SUPPLY VOLTAGE	OUTPUT CURRENT MAX, MA
-1 TO 24	50
24 TO 25	37
25 TO 26	33
26 TO 27	28
27 TO 28	24
28 TO 29	19
29 TO 30	15



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	

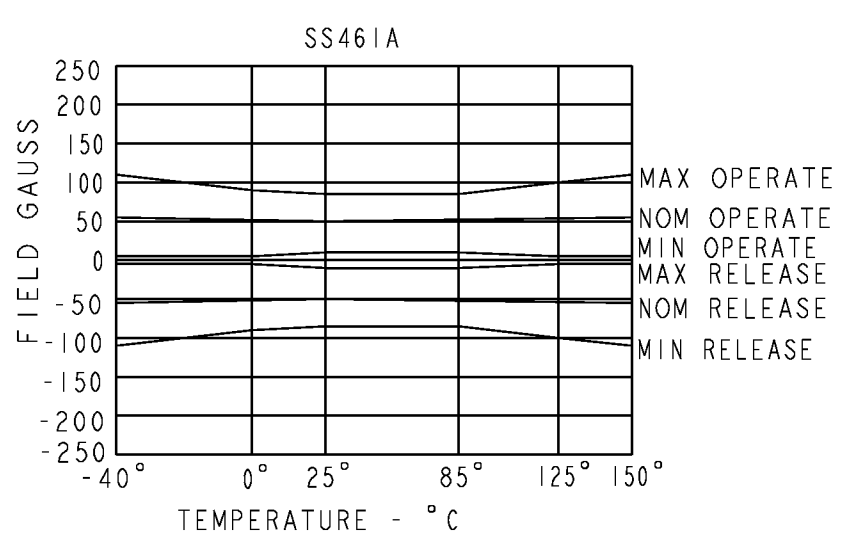
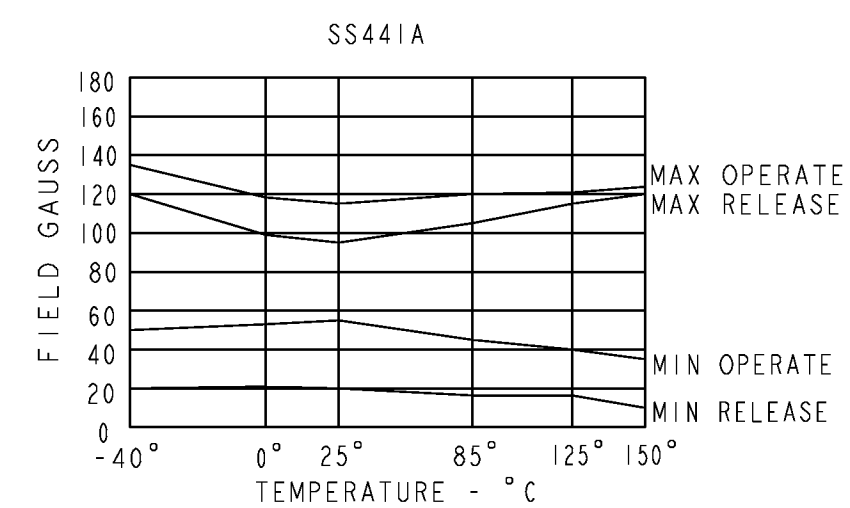
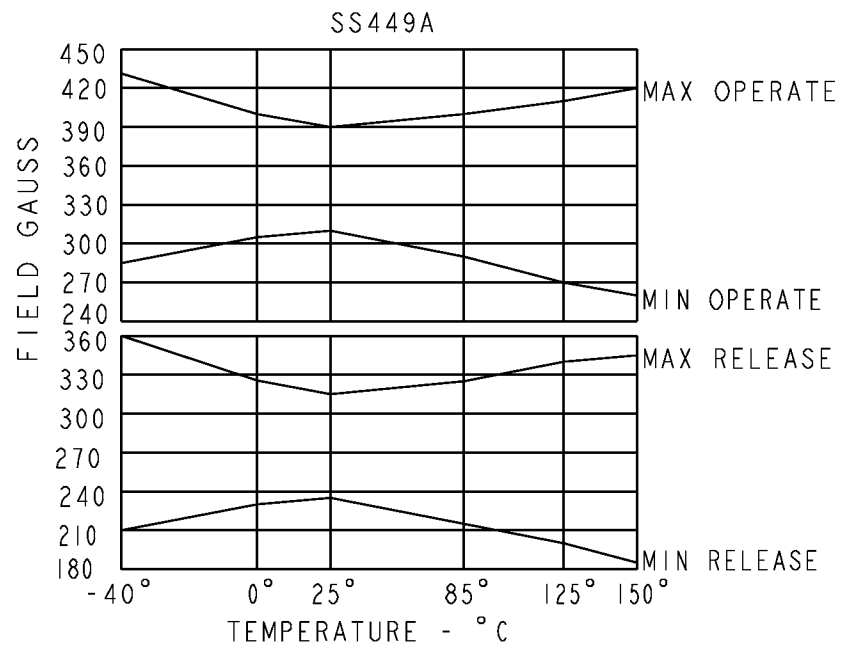
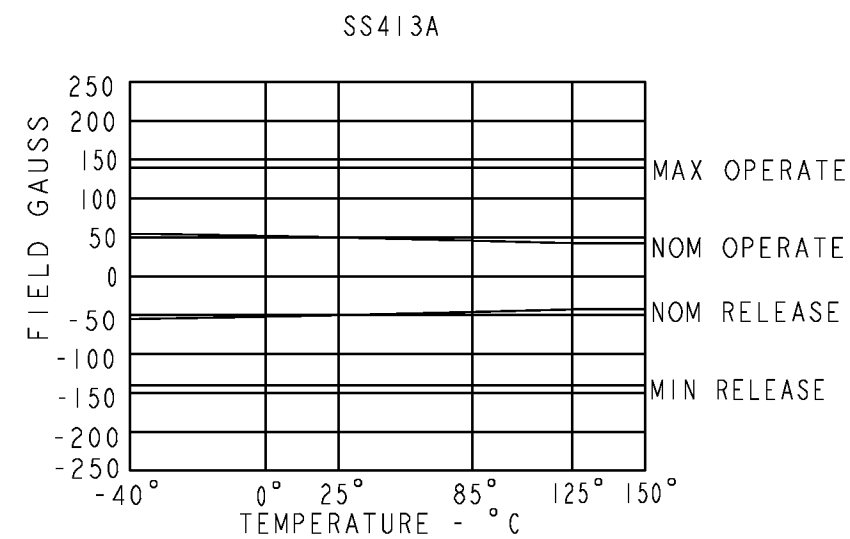
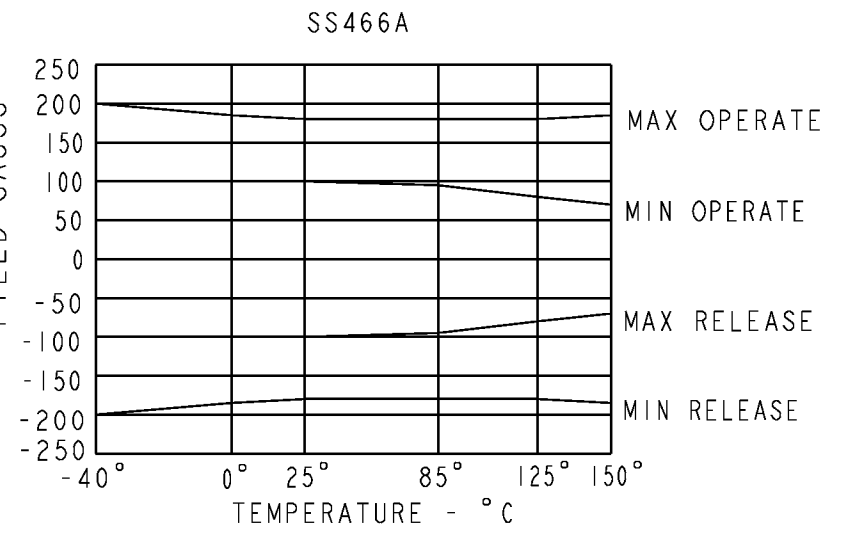
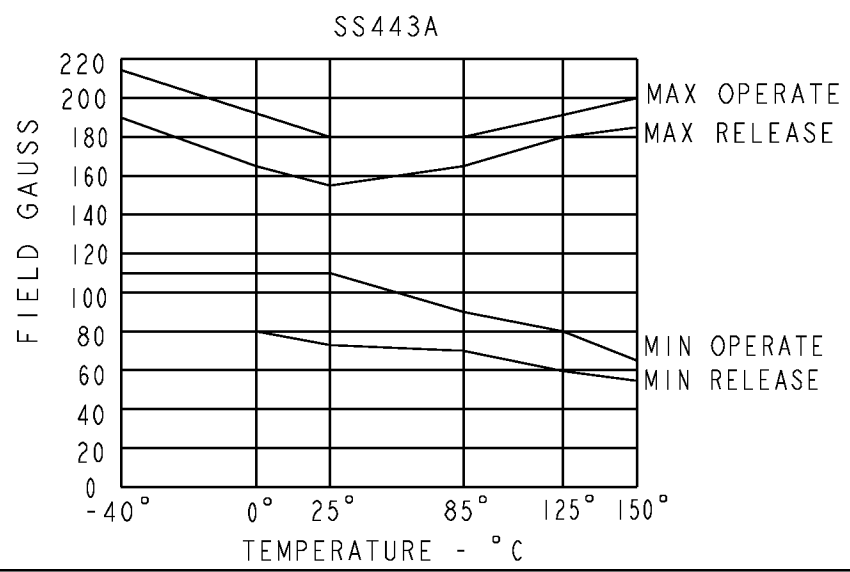
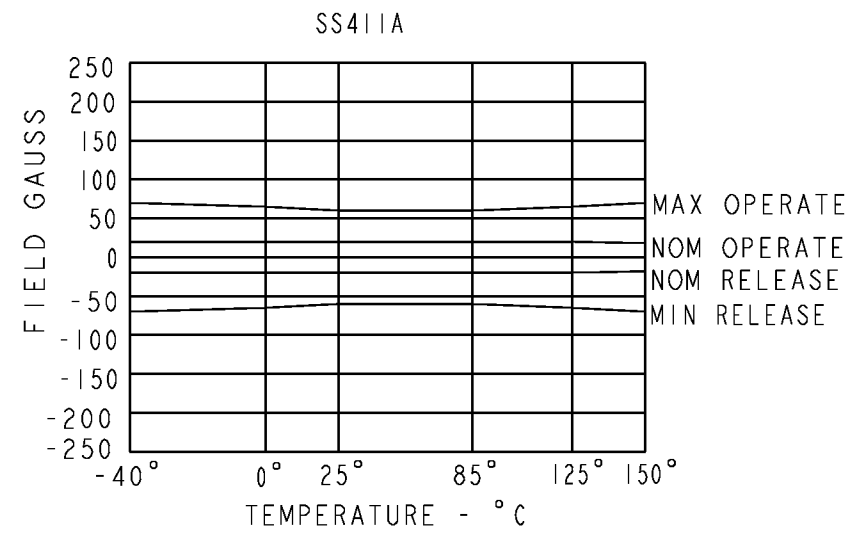
CATALOG LISTING  
**SS400 SERIES CHART 1**

ISSUE  
**15**

REVISIONS

A	C093816	KED	14 JAN 99
B	200511	JLH	OCT 00
C	201747	LJK	20 NOV 00
D	205184	GRT	26 MAR 02

PTC/CAD 3D  
DRAWN  
KED 14 JAN 99  
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JAF 14 JAN 99  
CHECK  
14 JAN 99  
REPLACES  
RELEASE NO. PR-21345  
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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