

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. SS5 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

CATALOG LISTING  
**SS5 SERIES CHART 1**

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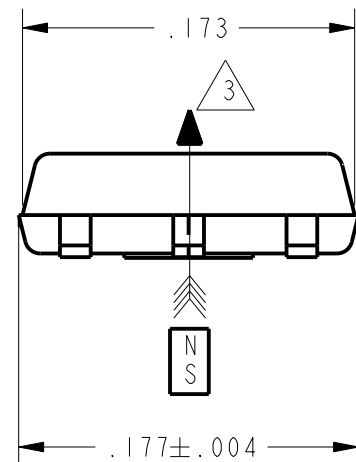
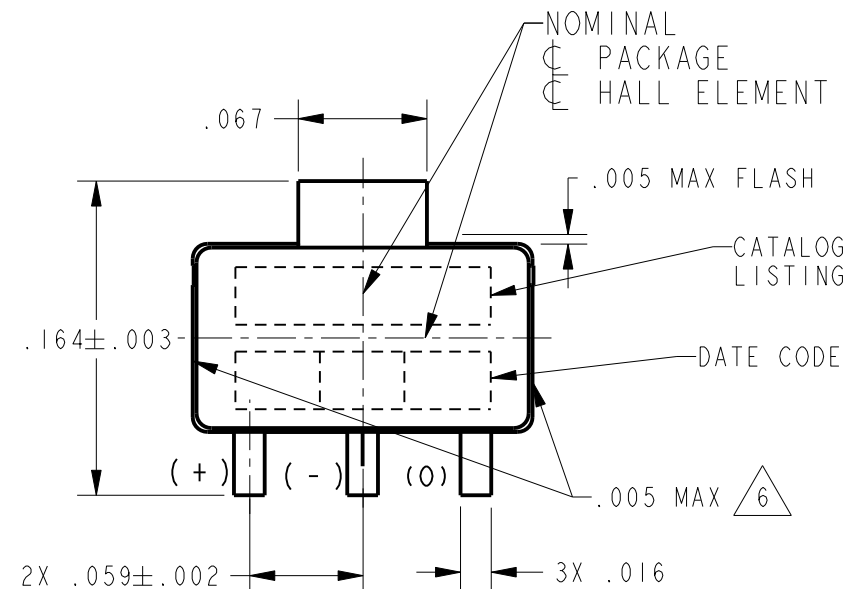
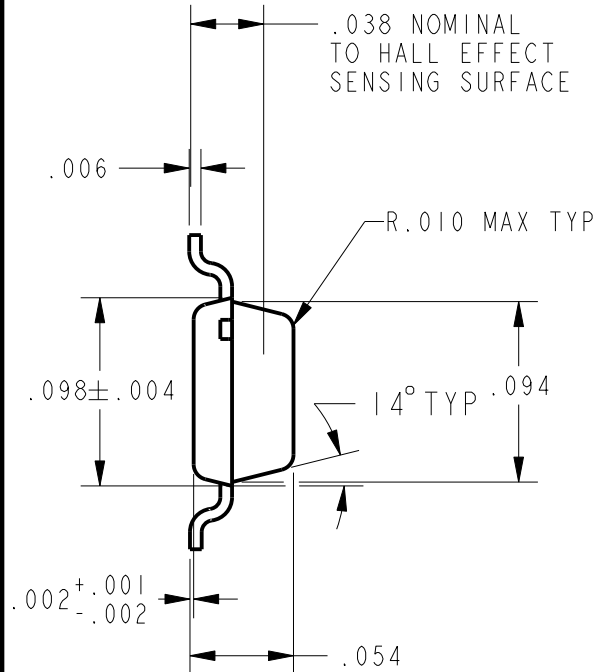
ISSUE 12

REVISIONS

|    |                  |           |     |
|----|------------------|-----------|-----|
| B  | REL DWG PR 23390 | 18 JAN 06 | WJC |
| C  | CO-93692         | 06 OCT 98 | PPF |
| D  | CO-93789         | 03 NOV 98 | KED |
| E  | CO-93816         | 14 JAN 99 | KED |
| F  | CO-94183         | 1 MAR 99  | WJC |
| G  | 200505           | 19 JAN 98 | TSM |
| H  | 201747           | 19 JAN 98 | LJK |
| J  | 206174           | 19 JAN 98 | GLH |
| K  | 207146           | 19 JAN 98 | GLH |
| 12 | 0018451          | 18 JAN 06 | SR  |

PTC/CAD 3D  
DRAWN WJC

REPLACES -  
RELEASE NO. DR-4996  
CHECK 18 JAN 06  
CHECK 18 JAN 98  
CHECK 19 JAN 98  
CHECK 18 JAN 06



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

**ESD SENSITIVITY: CLASS 3**

| 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   | (.0)   | ±.030 |
| TWO PLACE   | (.00)  | ±.015 |
| THREE PLACE | (.000) | ±.005 |
| ANGLES      |        | ±     |
| WEIGHT      |        |       |

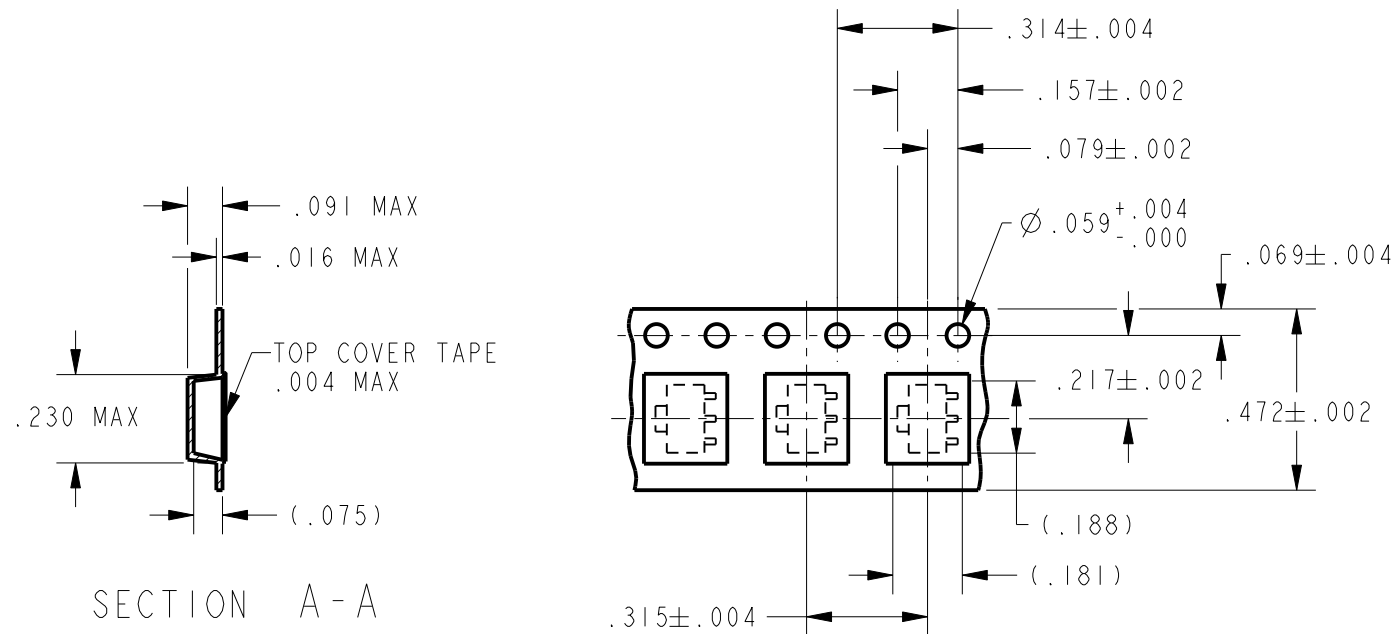
CATALOG LISTING SS5 SERIES CHART 1

M

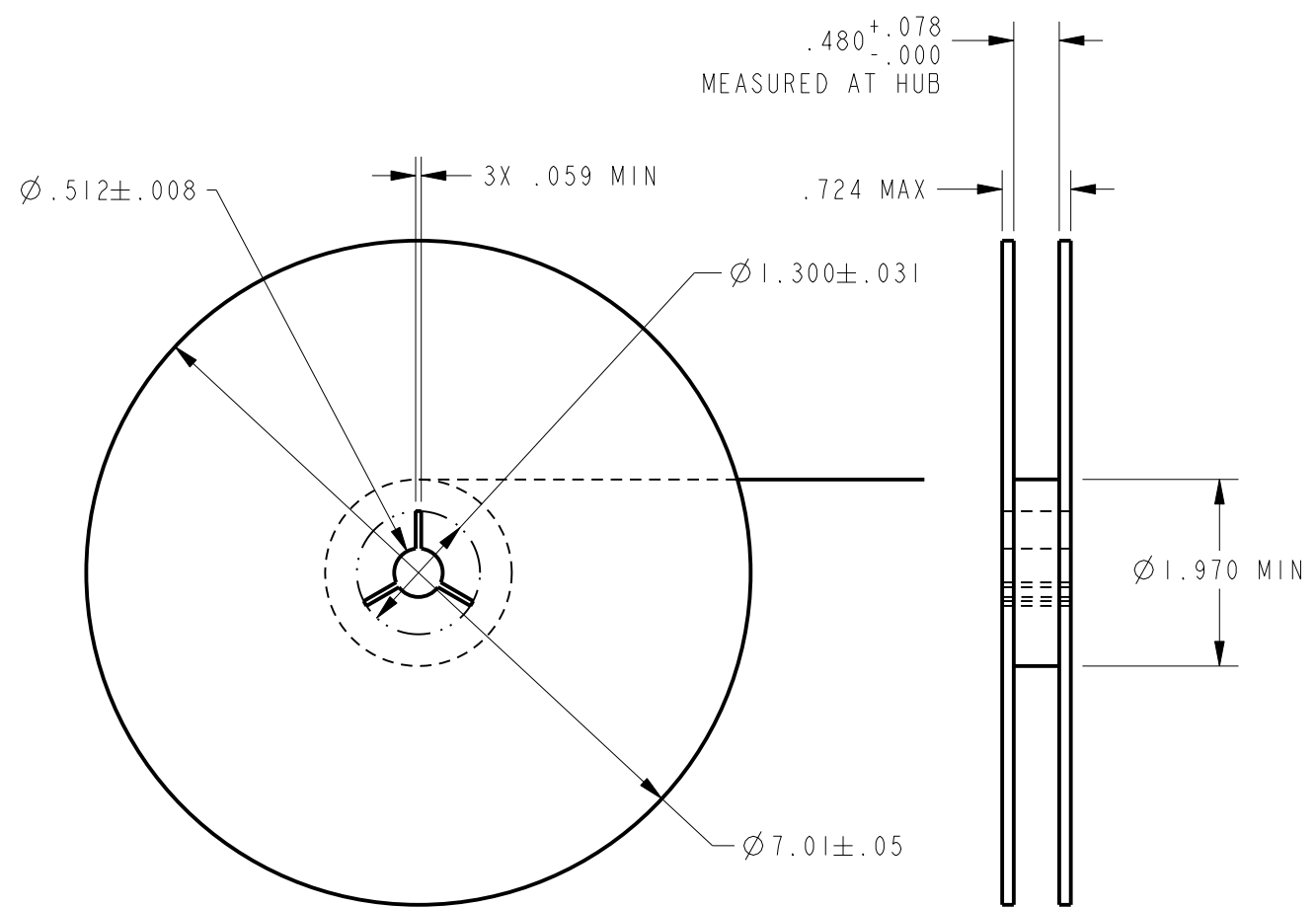
ISSUE 12

| REVISIONS |                                |
|-----------|--------------------------------|
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| C         | CO-93692 PPF 06 OCT 98         |
| D         | CO-93789 RED 3 NOV 98          |
| E         | CO-93816 RED 14 JAN 99         |
| F         | CO-94183 WJC 1 MAR 99          |
| G         | 200505 TSM 31 MAY 00           |
| H         | 201747 LJK 20 NOV 00           |
| J         | 206174 GLH 8 AUG 02            |
| K         | 207146 GLH 6 JAN 03            |
| 12        | 0018451 SR 18 JAN 06           |

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DRAWN WJC



TAPE AND REEL DIMENSIONS 5



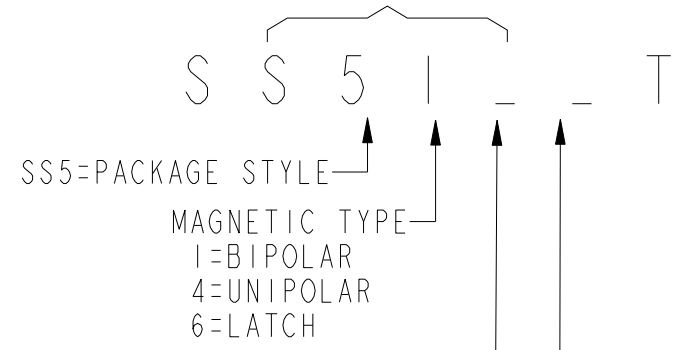
DIRECTION OF FEED FROM REEL

ANSI Y14.5M-1982 APPLIES

SS5 CATALOG SYSTEM 5

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

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



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

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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                                    |              |

CATALOG LISTING  
**SS5 SERIES CHART 1**

ISSUE  
**12**

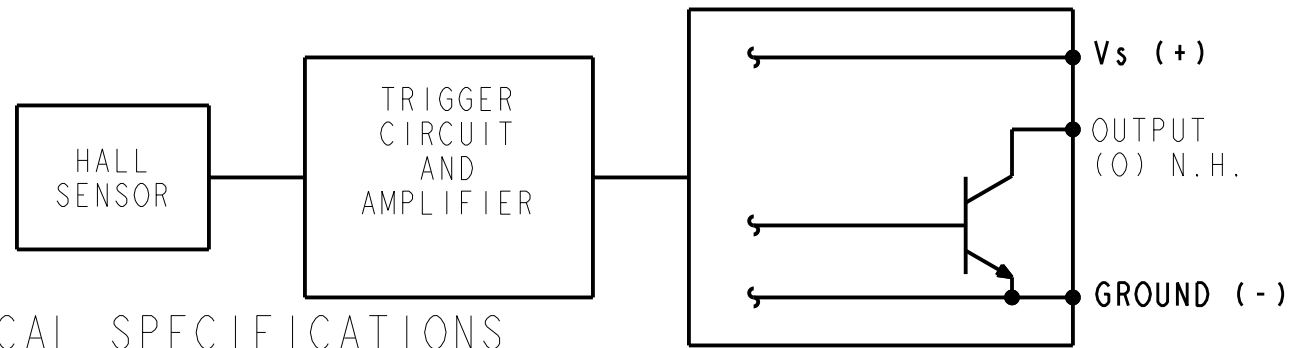
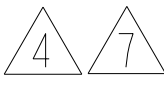
REVISIONS

|   |                  |           |
|---|------------------|-----------|
| B | REL DWG PR-23390 | 27 JUL 98 |
| C | WJC              | 3 NOV 98  |
| D | CO-93789         | 3 NOV 98  |
| E | KED              | 14 JAN 99 |
| F | CO-93816         | 1 MAR 99  |
| G | WJC              | 200505    |
| H | TSM              | 31 MAY 00 |
| I | LJK              | 20 NOV 00 |
| J | GLH              | 206174    |
| K | GLH              | 6 JAN 03  |
| L | GLH              | 6 JAN 03  |
| M | SR               | 0018451   |
| N | SR               | 18 JAN 06 |

RELEASE NO. DR-4996  
PAGE 3 OF 5  
CHECK  
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CHECK  
5 JAN 98

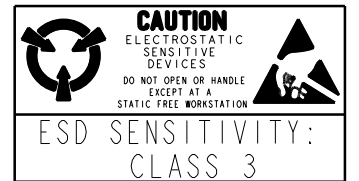
TABLE 1 - MAGNETIC SPECIFICATIONS

| LISTING           | -40°C | 0°C  | 25°C | 85°C | 125°C | 150°C |
|-------------------|-------|------|------|------|-------|-------|
| MIN OPERATE GAUSS |       |      |      |      |       |       |
| SS5IT             | NS    | NS   | NS   | NS   | NS    | NS    |
| SS511AT           | NS    | NS   | NS   | NS   | NS    | NS    |
| SS513AT           | NS    | NS   | NS   | NS   | NS    | NS    |
| SS541AT           | 50    | 53   | 55   | 45   | 40    | 35    |
| SS543AT           | 110   | 110  | 110  | 90   | 80    | 65    |
| SS549AT           | 285   | 305  | 310  | 290  | 270   | 260   |
| SS561AT           | 5     | 5    | 10   | 10   | 5     | 5     |
| SS566AT           | 100   | 100  | 100  | 95   | 80    | 70    |
| MAX OPERATE GAUSS |       |      |      |      |       |       |
| SS5IT             | 145   | 145  | 140  | 150  | 200   | 250   |
| SS511AT           | 70    | 65   | 60   | 60   | 65    | 70    |
| SS513AT           | 140   | 140  | 140  | 140  | 140   | 140   |
| SS541AT           | 135   | 117  | 115  | 120  | 123   | 125   |
| SS543AT           | 215   | 190  | 180  | 180  | 190   | 200   |
| SS549AT           | 435   | 400  | 390  | 400  | 410   | 420   |
| SS561AT           | 110   | 90   | 85   | 85   | 100   | 110   |
| SS566AT           | 200   | 185  | 180  | 180  | 180   | 185   |
| MIN RELEASE GAUSS |       |      |      |      |       |       |
| SS5IT             | -145  | -145 | -140 | -150 | -200  | -250  |
| SS511AT           | -70   | -65  | -60  | -60  | -65   | -70   |
| SS513AT           | -140  | -140 | -140 | -140 | -140  | -140  |
| SS541AT           | 20    | 20   | 20   | 15   | 15    | 10    |
| SS543AT           | 80    | 80   | 75   | 70   | 60    | 55    |
| SS549AT           | 210   | 230  | 235  | 215  | 200   | 185   |
| SS561AT           | -110  | -90  | -85  | -85  | -100  | -110  |
| SS566AT           | -200  | -185 | -180 | -180 | -180  | -185  |
| MAX RELEASE GAUSS |       |      |      |      |       |       |
| SS5IT             | NS    | NS   | NS   | NS   | NS    | NS    |
| SS511AT           | NS    | NS   | NS   | NS   | NS    | NS    |
| SS513AT           | NS    | NS   | NS   | NS   | NS    | NS    |
| SS541AT           | 120   | 99   | 95   | 105  | 115   | 120   |
| SS543AT           | 190   | 165  | 155  | 165  | 180   | 195   |
| SS549AT           | 360   | 325  | 315  | 325  | 340   | 345   |
| SS561AT           | -5    | -5   | -10  | -10  | -5    | -5    |
| SS566AT           | -100  | -100 | -100 | -95  | -80   | -70   |
| MIN DIFF GAUSS    |       |      |      |      |       |       |
| SS5IT             | 40    | 50   | 50   | 50   | 60    | NS    |
| SS511AT           | 15    | 15   | 15   | 12   | 12    | 10    |
| SS513AT           | 20    | 20   | 20   | 20   | 20    | 20    |
| SS541AT           | 15    | 15   | 20   | 15   | 8     | 5     |
| SS543AT           | 25    | 25   | 25   | 15   | 10    | 5     |
| SS549AT           | 30    | 30   | 30   | 30   | 30    | 30    |
| SS561AT           | 50    | 50   | 50   | 50   | 50    | 50    |
| SS566AT           | 200   | 200  | 200  | 190  | 160   | 140   |



SS5XT ELECTRICAL SPECIFICATIONS

| CHARACTERISTIC       | TEST CONDITIONS   | VALUES    | UNITS |
|----------------------|---|-----------|-------|
| VOLTAGE RANGE        |   | 4.5 TO 24 | VOLTS |
| MAX I <sub>on</sub>  | V <sub>cc</sub> = 24V, -40°C < T < 150°C, B > MAX OP                          | 10.0      | mA    |
| MAX I <sub>off</sub> | V <sub>cc</sub> = 24V, V <sub>out</sub> = 24V, -40°C < T < 150°C, B < MIN REL | 11.3      | mA    |
| SINK CURRENT         |   | 20        | mA    |
| MAX V <sub>sat</sub> | V <sub>cc</sub> = 4.5V TO 24V, T = 25°C, B > MAX OP                           | 0.4       | VOLTS |
| MAX LEAKAGE          |   | 10        | μA    |
| RISE TIME 10% TO 90% | V <sub>cc</sub> = 12V, R <sub>L</sub> = 1.6KΩ, C <sub>L</sub> = 20pf          | 1.5       | μS    |
| FALL TIME 90% TO 10% | V <sub>cc</sub> = 12V, R <sub>L</sub> = 1.6KΩ, C <sub>L</sub> = 20pf          | 1.5       | μS    |



ABSOLUTE MAXIMUM RATINGS SS5XT 2

|                                      |   |
|--------------------------------------|---|
| TEMPERATURE                          | -40°C TO +150°C   |
| SUPPLY VOLTAGE                       | -28 VDC 28 VDC  |
| VOLTAGE EXTERNALLY APPLIED TO OUTPUT | 28.0 VDC MAX WITH SWITCH IN OFF COND. ONLY<br>-0.5 VDC WITH SWITCH IN ON OR OFF COND. |
| OUTPUT CURRENT                       | 20 mA   |
| MAGNETIC FLUX                        | NO LIMIT  |

TABLE 2  
SS5XX  
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                     |

SS5XXAT ELECTRICAL SPECIFICATIONS

| CHARACTERISTIC       | TEST CONDITIONS   | VALUES    | UNITS |
|----------------------|---|-----------|-------|
| VOLTAGE RANGE        |   | 3.8 TO 30 | VOLTS |
| MAX I <sub>on</sub>  | V <sub>cc</sub> = 30V, -40°C < T < 150°C, B > MAX OP                          | 10.0      | mA    |
| MAX I <sub>off</sub> | V <sub>cc</sub> = 30V, V <sub>out</sub> = 30V, -40°C < T < 150°C, B < MIN REL | 10.0      | mA    |
| SINK CURRENT         |   | 20        | mA    |
| MAX V <sub>sat</sub> | V <sub>cc</sub> = 3.8V, B > MAX OP  | 0.4       | VOLTS |
| MAX LEAKAGE          |   | 10        | μA    |
| RISE TIME 10% TO 90% | V <sub>cc</sub> = 12V, R <sub>L</sub> = 1.6KΩ, C <sub>L</sub> = 20pf          | 1.5       | μS    |
| FALL TIME 90% TO 10% | V <sub>cc</sub> = 12V, R <sub>L</sub> = 1.6KΩ, C <sub>L</sub> = 20pf          | 1.5       | μS    |

ABSOLUTE MAXIMUM RATING SS5XXAT 2

| CHARACTERISTIC        | SYMBOL         | MIN | MAX         | UNITS |
|-----------------------|----------------|-----|-------------|-------|
| POWER SUPPLY          | VCC            | -1  | 30          | VOLTS |
| OUTPUT VOLTAGE (OFF)  | VOUT           |     | 30          | VOLTS |
| OUTPUT ON CURRENT     | I SINK         |     | SEE TABLE 2 | mA    |
| OPERATING TEMPERATURE | T              | -50 | 160         | °C    |
| STORAGE TEMPERATURE   | T <sub>s</sub> | -65 | 160         | °C    |
| MAGNETIC FLUX         |                |     |             |       |

| LISTING | TYPE     | BRAND |
|---------|----------|-------|
| SS5IT   | BIPOLAR  | SS5I  |
| SS511AT | BIPOLAR  | S511A |
| SS513AT | BIPOLAR  | S513A |
| SS541AT | UNIPOLAR | S541A |
| SS543AT | UNIPOLAR | S543A |
| SS549AT | UNIPOLAR | S549A |
| SS561AT | LATCH    | S561A |
| SS566AT | LATCH    | S566A |

THIRD ANGLE PROJECTION

SCALE NONE

DO NOT SCALE PRINT

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|                    |       |
|--------------------|-------|
| ONE PLACE (.0)     | ±.030 |
| TWO PLACE (.00)    | ±.015 |
| THREE PLACE (.000) | ±.005 |
| ANGLES             | ±     |

WEIGHT

PTC/CAD  
DRAWN

CATALOG LISTING  
**SS5 SERIES CHART 1**

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ISSUE **M**

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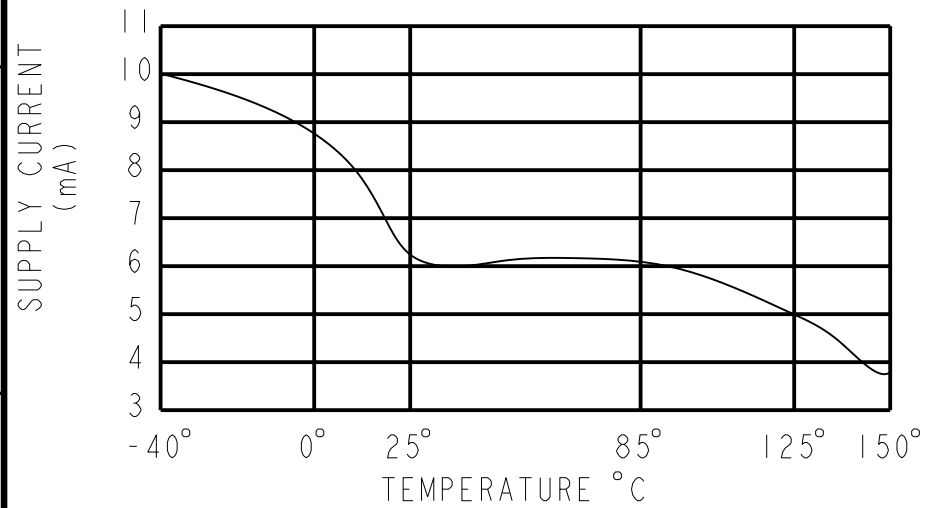
REVISIONS

|    |                     |     |           |
|----|---------------------|-----|-----------|
| A  | REL DWG<br>PR-23390 | WJC | 27 JUL 98 |
| B  | CO-<br>93789        | KED | 3 NOV 98  |
| C  | CO-<br>93816        | KED | 14 JAN 99 |
| D  | CO-<br>94183        | WJC | 1 MAR 99  |
| E  | 200505              | TSM | 31 MAY 00 |
| F  | 201747              | LJK | 20 NOV 00 |
| G  | 206174              | GLH | 8 AUG 02  |
| H  | 207146              | GLH | 6 JAN 03  |
| 12 | 0018451             | SR  | 18 JAN 06 |

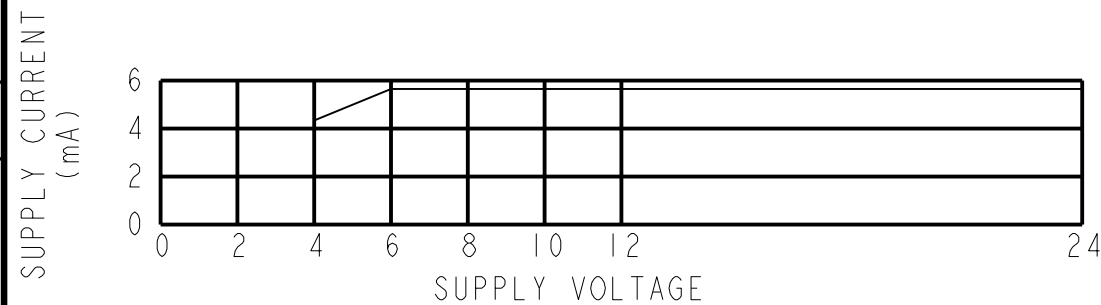
PTC/CAD 3D  
DRAWN

RELEASE NO. DR-4996  
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CHECK 5 JAN 98

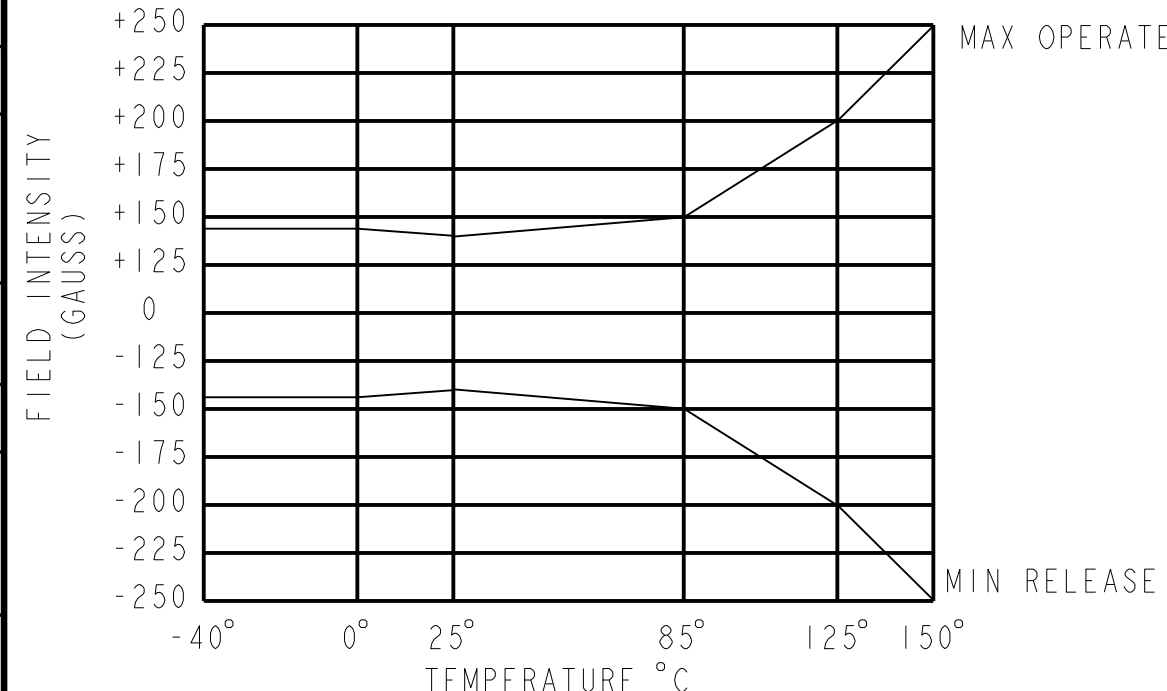
SS5IT



MAXIMUM SUPPLY CURRENT VS TEMPERATURE (OFF)

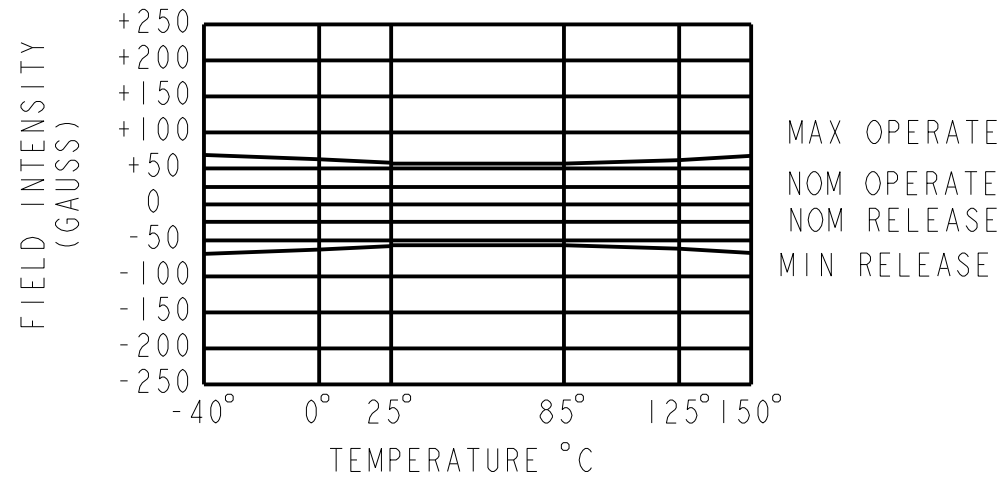


TYPICAL SUPPLY CURRENT (DEVICE OFF) AT 25°C

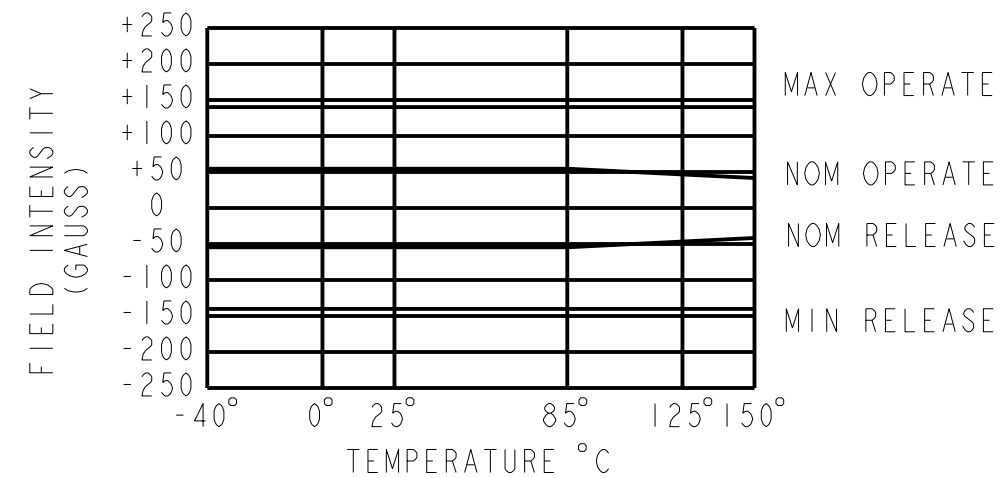


ANSI Y14.5M-1982 APPLIES

SS511AT



SS513AT



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ESD SENSITIVITY:  
CLASS 3

|   |              |
|---|--------------|
| THIRD ANGLE PROJECTION                    |              |
| SCALE                                     | NONE         |
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| UNLESS OTHERWISE SPECIFIED TOLERANCES ARE |              |
| ONE PLACE                                 | (.0) ±.030   |
| TWO PLACE                                 | (.00) ±.015  |
| THREE PLACE                               | (.000) ±.005 |
| ANGLES                                    | ±            |
| WEIGHT                                    |              |

**MICROSWITCH**  
a Honeywell Division

FED. MFG. CODE 91929

**SOLID STATE SENSOR**

CATALOG LISTING

**SS5 SERIES CHART 1**

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SS5 SERIES CHART 1

CATALOG LISTING



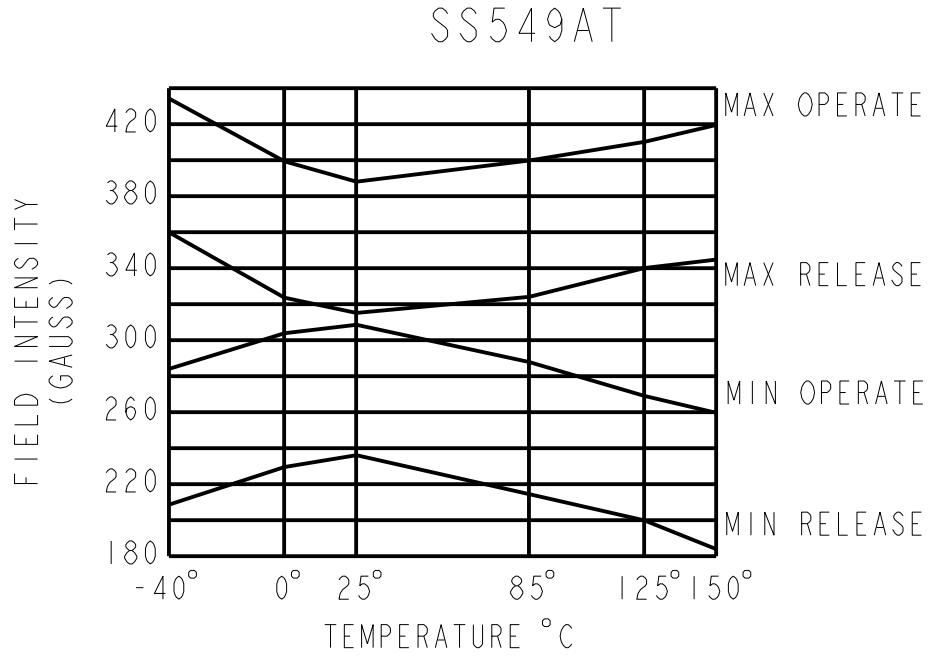
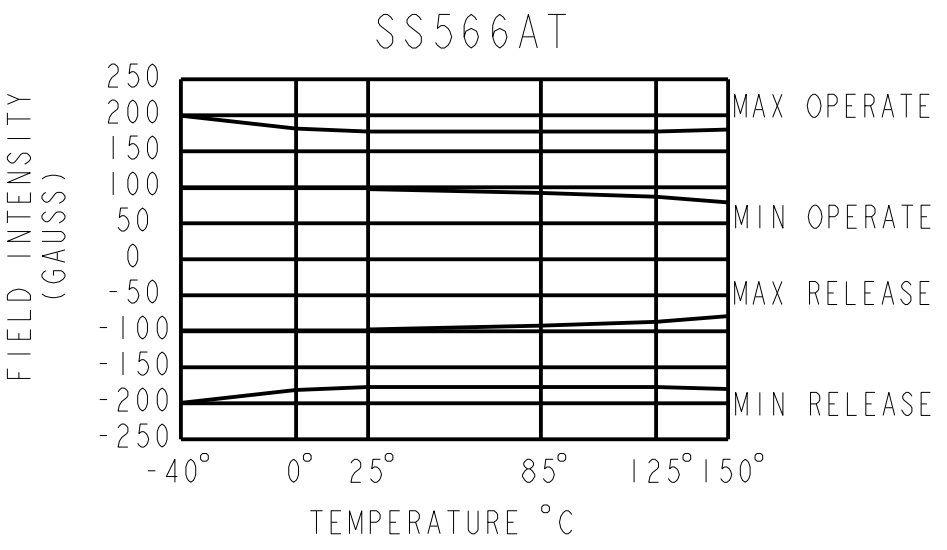
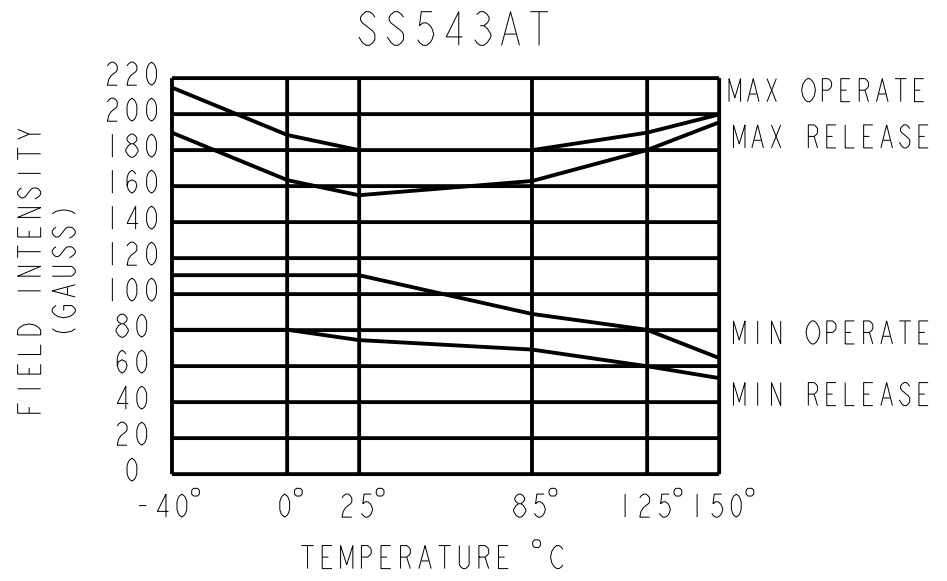
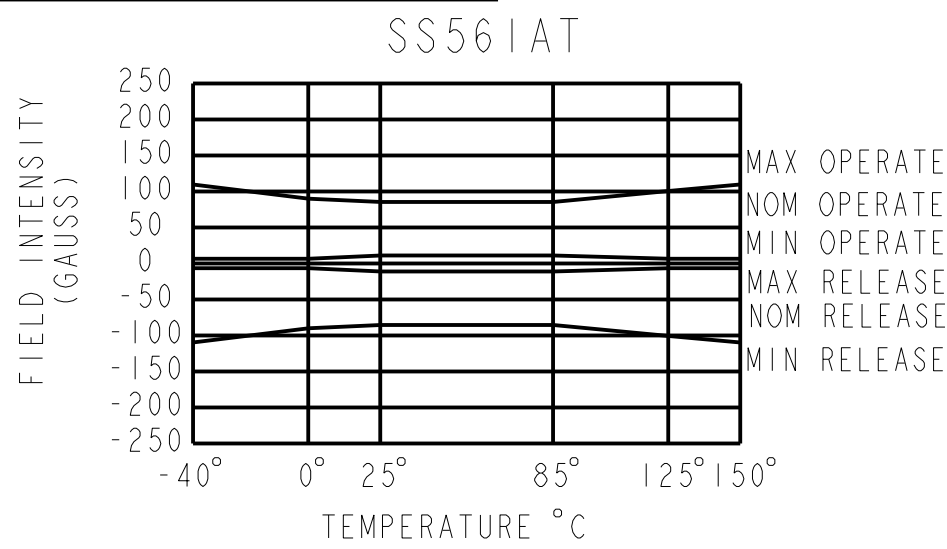
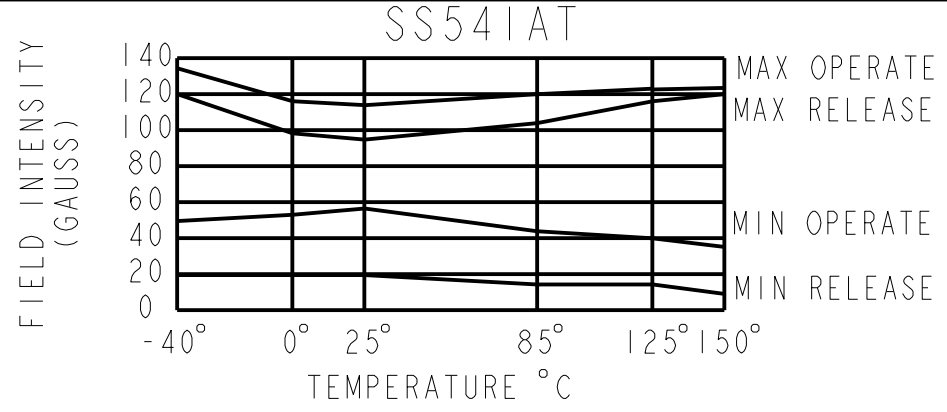
ISSUE

12

REVISIONS

|   |         |          |           |     |
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| A | REL DWG | PR-23390 | 27 JUL 98 | WJC |
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| C | CO-     | 93816    | 14 JAN 99 | KED |
| D | CO-     | 94183    | 1 MAR 99  | WJC |
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ANSI Y14.5M-1982 APPLIES

THIRD ANGLE PROJECTION

SCALE NONE

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|             |        |       |
|-------------|--------|-------|
| ONE PLACE   | (.0)   | ±.030 |
| TWO PLACE   | (.00)  | ±.015 |
| THREE PLACE | (.000) | ±.005 |
| ANGLES      |        | ±     |
| WEIGHT      |        |       |

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