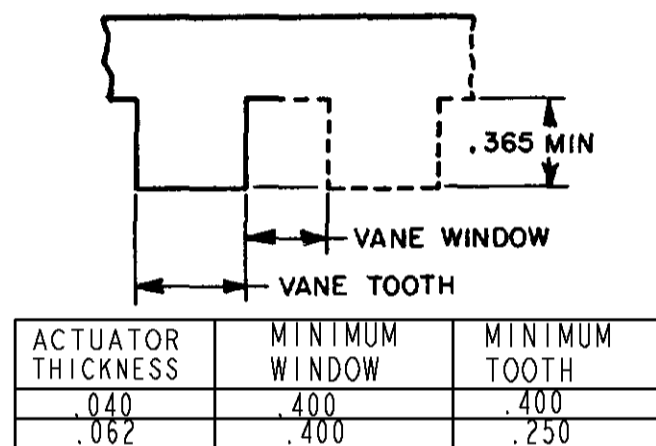
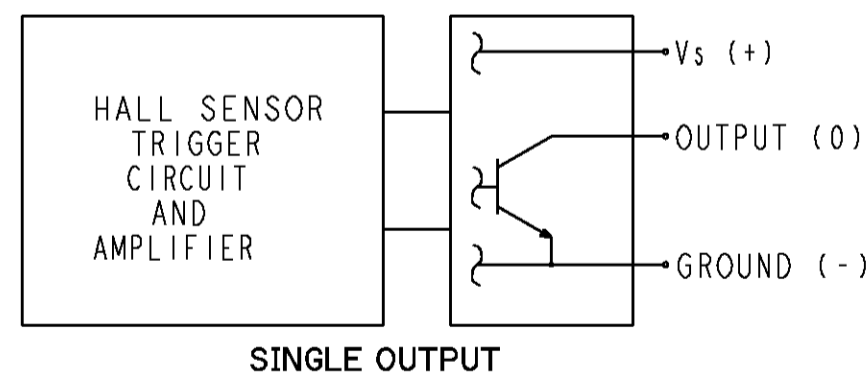


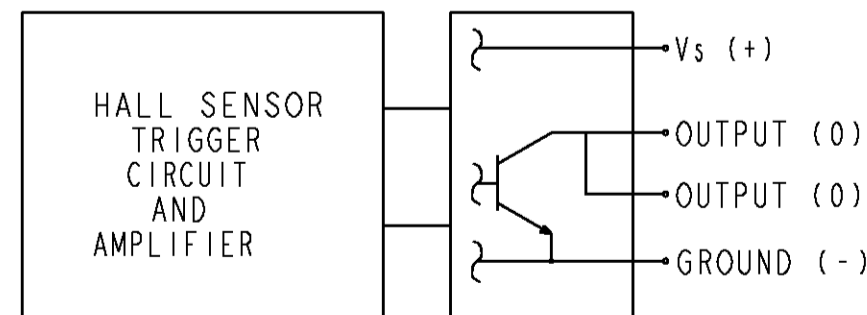
PC BOARD TERMINATION



VANE ACTUATOR  
(MATERIAL TO BE ANNEALED 1010-1018 COLD ROLLED STEEL OR LOWER IN CARBON)



SINGLE OUTPUT



DOUBLE OUTPUT

BLOCK DIAGRAM SHOWING CURRENT SINKING OUTPUT

| MECHANICAL CHARACTERISTICS |                          |             |             |             |             |   |
|----------------------------|--------------------------|-------------|-------------|-------------|-------------|---|
| SUPPLY VOLTAGE             | OPERATING TEMPERATURE °C | LEFT        |             | RIGHT       |             | DIFFERENTIAL LEFT OP TO R REL RIGHT OP TO L REL |
|                            |                          | OPERATE     | RELEASE     | OPERATE     | RELEASE     |   |
| 4.5 TO 24.0                | 25°C                     | ±.006       | ±.006       | ±.006       | ±.006       | ±.010   |
| 12.0                       | 25°C                     | .213 ± .025 | .237 ± .025 | .337 ± .025 | .313 ± .025 | .10 ± .01                                       |
| 4.5 TO 24.0                | -40°C TO +85°C           | ±.024       | ±.018       | ±.024       | ±.018       |   |
| 4.5 TO 24.0                | -40°C TO +125°C          | ±.040       | ±.030       | ±.040       | ±.030       | ±.070   |

| ELECTRICAL CHARACTERISTICS (OPERATING CONDITION) |                   |   |
|--|-------------------|---|
| SUPPLY VOLTAGE                                   | V <sub>cc</sub>   | 4.5 TO 26.5 Vdc   |
| SUPPLY CURRENT "ON"                              | I <sub>cc</sub>   | 5 TO 18.5 mA  |
| OUTPUT VOLTAGE "ON"                              | V <sub>sat</sub>  | 0 TO 0.4 Vdc (SINKING 20 mA)  |
| OUTPUT VOLTAGE "ON"                              | V <sub>sat</sub>  | 0 TO 0.5 Vdc (SINKING 40mA)   |
| OUTPUT CURRENT "OFF"                             | I <sub>leak</sub> | 0 TO 10µA (PULLED UP TO 24 Vdc MAX)   |
| OUTPUT SWITCHING RISE TIME                       | t <sub>r</sub>    | 0 TO 1.5µS (V <sub>cc</sub> 12V, R <sub>load</sub> 1K OHM, C <sub>load</sub> 20pF MAX 25°C) |
| OUTPUT SWITCHING FALL TIME                       | t <sub>f</sub>    | 0 TO 1.0µS (V <sub>cc</sub> 12V, R <sub>load</sub> 1K OHM, C <sub>load</sub> 20pF MAX 25°C) |
| REVERSE SUPPLY VOLTAGE CURRENT                   | I <sub>ccr</sub>  | -2.5 TO 0 mA (-30 VOLT SUPPLY, 0 VOLT OUTPUT APPLIED)                                       |

| ABSOLUTE MAXIMUM RATINGS  |                      |
|---------------------------|----------------------|
| SUPPLY VOLTAGE            | ±30 VDC              |
| VOLTAGE APPLIED TO OUTPUT | -0.5VDC TO +30VDC    |
| OUTPUT CURRENT            | ±50mA                |
| TEMPERATURE               | -40°C TO +150°C      |
| TRANSIENT SUPPLY CURRENT  | ±0.5 AMP<br>15µS MAX |
| TRANSIENT OUTPUT CURRENT  | ±0.5 AMP<br>15µS MAX |

| CATALOG LISTING | OUTPUT STYLE | TERMINAL STYLE | DIM. L      |
|-----------------|--------------|----------------|-------------|
| 4AV15F          | SINGLE       | LEADWIRE       | 5.50 ± .25  |
| 4AV16F          | SINGLE       | LEADWIRE       | 7.45 ± .25  |
| 4AV17F          | SINGLE       | LEADWIRE       | 13.15 ± .50 |
| 4AV18F          | SINGLE       | LEADWIRE       | 18.15 ± .50 |
| 4AV19F          | SINGLE       | LEADWIRE       | 22.0 ± .5   |
| 4AV20F          | DOUBLE       | PCB            | .140 ± .035 |
| 4AV20F-T1       | AMP          | TERMINAL       |             |
| 4AV20F-T2       | MOLEX        | TERMINAL       |             |

| TRANSIENT CHARACTERISTICS (REFERENCE ISO 7637-1, 25°C) |                        |                 |            |
|--|------------------------|-----------------|------------|
| INDUCTIVE LOAD OPENING                                 | PULSE 1                | DURATION <0.2ms | -110 VOLTS |
| INDUCTIVE LOAD OPENING                                 | PULSE 1                | DURATION <2ms   | -100 VOLTS |
| SERIES CURRENT INTERRUPT                               | PULSE 2                | DURATION <200ms | +150 VOLTS |
| LOAD DUMP  | PULSE 5                | DURATION <400ms | +120 VOLTS |
| FIELD DECAY  | PULSE 36               | DURATION <100ns | +200 VOLTS |
| NEGATIVE TRANSIENT                                     | PULSE 39               | DURATION <100ns | -200 VOLTS |
| RFI  | 1 MHz THROUGH 1000 MHz |                 | > 40 V/M   |

- NOTES**
- ELECTRICAL CHARACTERISTICS SPECIFIED OVER VOLTAGE AND TEMPERATURE RANGE USING AN ACTUATOR .040 THICK WITH A .400 TOOTH AND WINDOW PASSING THROUGH THE CENTER OF THE AIR GAP
  - SWITCH IS OFF (RELEASE CONDITION) WHEN VANE ACTUATOR TOOTH IS IN THE AIR GAP
  - THE OUTPUT CURRENT MAXIMUM IS TOTAL OF OUTPUT SINKING CURRENTS
  - ABSOLUTE MAXIMUM RATINGS ARE THE EXTREME LIMITS THAT THE DEVICE WILL WITHSTAND WITHOUT DAMAGE. HOWEVER, THE ELECTRICAL AND MECHANICAL CHARACTERISTICS ARE NOT GUARANTEED ABOVE THE RECOMMENDED OPERATING CONDITIONS NOR WILL THE DEVICE NECESSARILY FUNCTION. RATINGS ARE TO BE CONSIDERED INDIVIDUALLY, NOT COMBINED
  - MAXIMUM CHANGE IN VANE TRAVEL MECHANICAL CHARACTERISTICS SWITCHING POINT REFERENCING 25°C AND 12Vdc INITIAL CONDITION
  - PRODUCT PERFORMANCE EVALUATED PER TS 060 192
  - WHEN HAND SOLDERING PRINTED CIRCUIT, BOARD TERMINATIONS, USE A Ø.125 THERMISTATICALLY CONTROLLED TIP OF 550°F AND APPLY TO THE TERMINALS NO LONGER THAN 6 SECONDS
  - LEADWIRES ARE 24 AWG WITH CROSSLINK POLYETHYLENE INSULATION OF Ø.060 MAX O.D.
  - MOLEX TERMINAL 22-05-3041 LOCKING FEATURE ON T2 LISTINGS MATE WITH MOLEX HOUSING 2695/6471
  - WILL MATE WITH AMP HOUSING NO.87499-B ON T1 LISTINGS ONLY
  - AMP TERMINALS 103323-4
  - LISTINGS 4AV20F-T1 AND 4AV20F-T2 HAVE A MAXIMUM TEMPERATURE RATING OF 85° C DUE TO TERMINAL BLOCK LIMITATIONS

| THIRD ANGLE PROJECTION                    |        |       |
|---|--------|-------|
| SCALE                                     | 3:1    |       |
| DO NOT SCALE PRINT                        |        |       |
| UNLESS OTHERWISE SPECIFIED TOLERANCES ARE |        |       |
| ONE PLACE                                 | (.0)   | ±.030 |
| TWO PLACES                                | (.00)  | ±.015 |
| THREE PLACES                              | (.000) | ±.005 |
| ANGLES                                    |        | ±     |
| WEIGHT                                    |        |       |

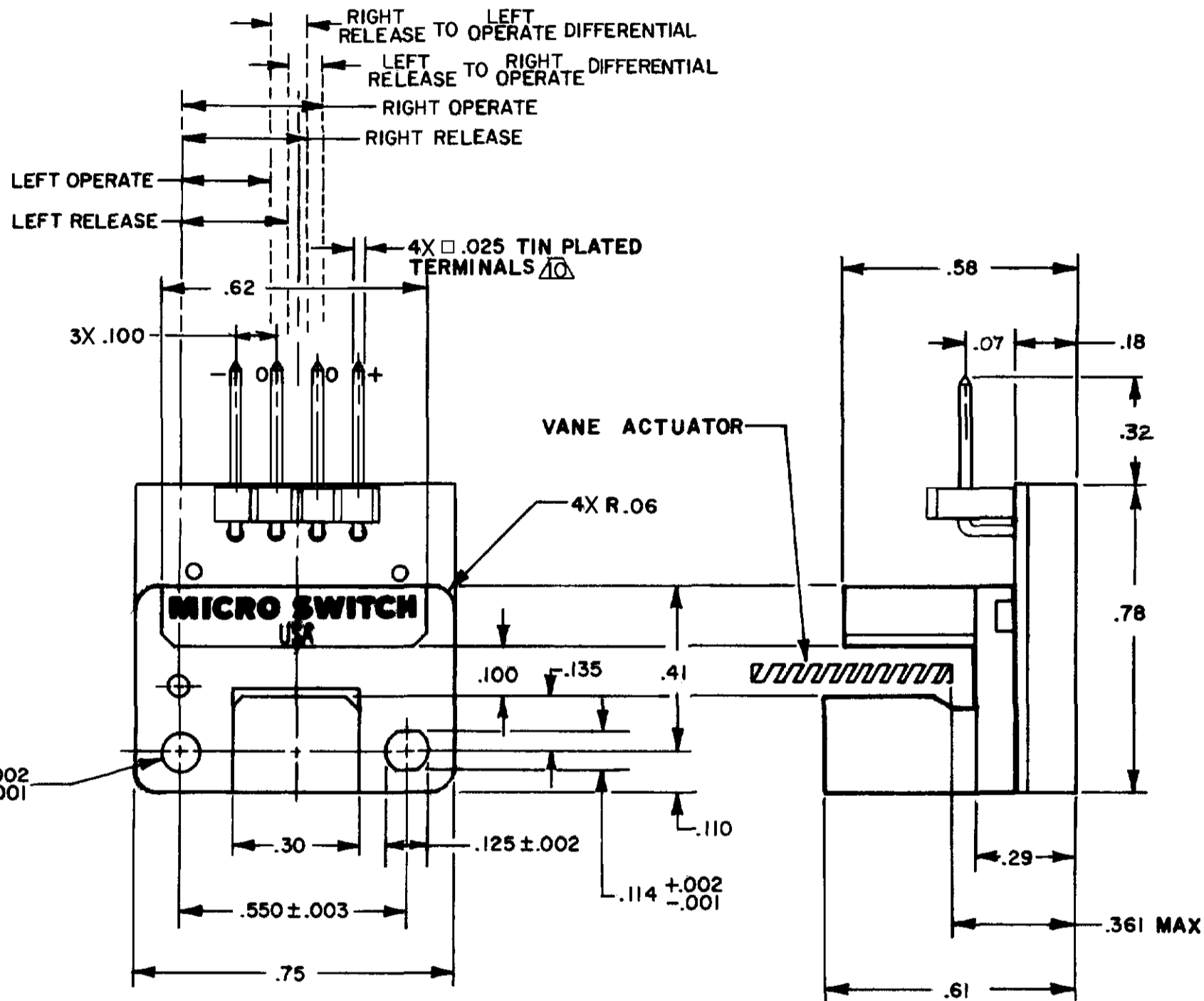
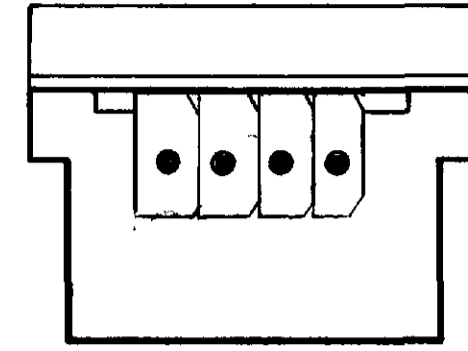
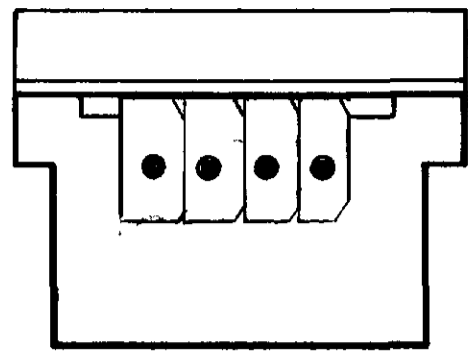
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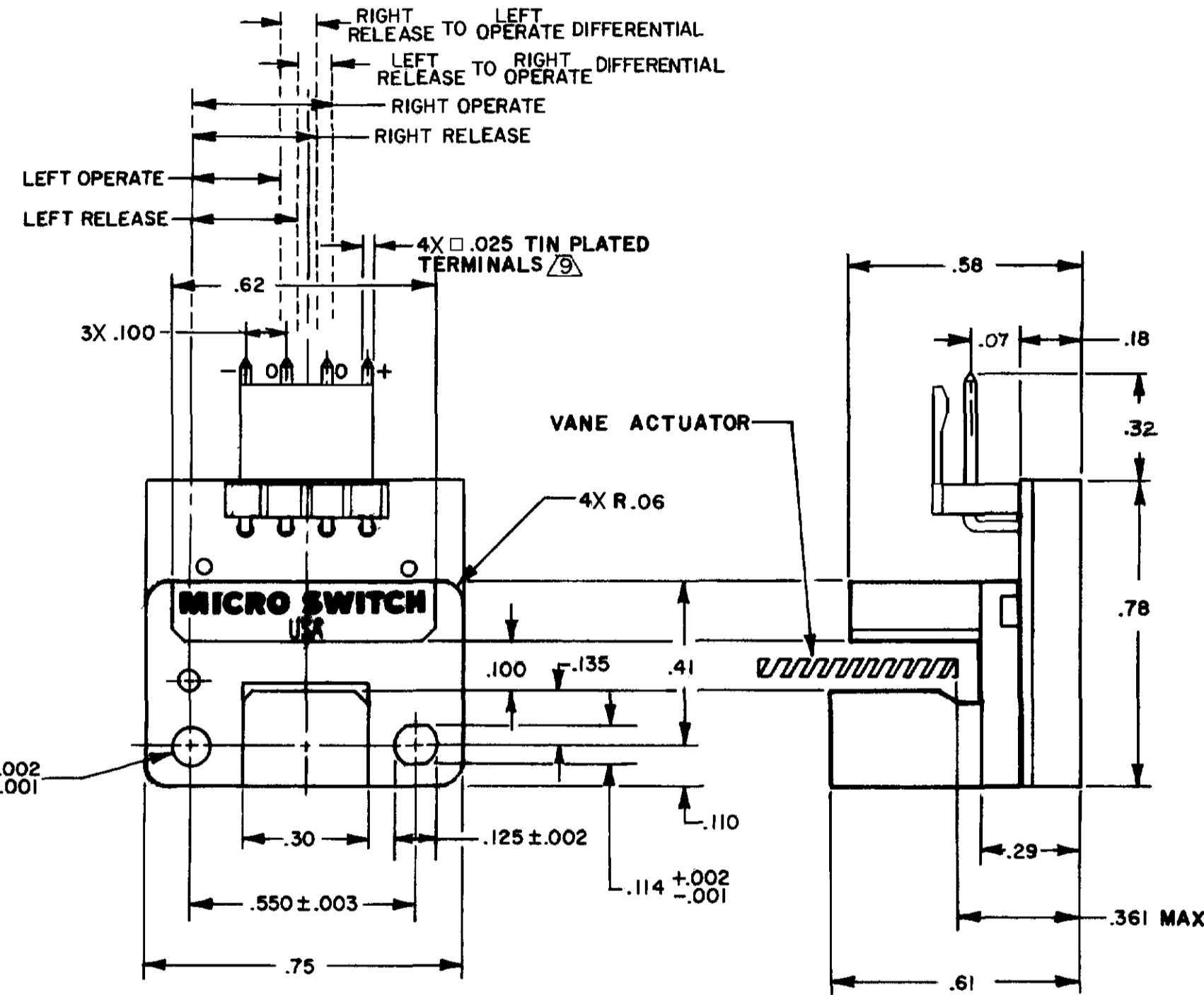
**SOLID STATE VANE SWITCH**

CATALOG LISTING  
**4AV SERIES CHART 4**

DRAWING NUMBER: 4AV SERIES CHART 4  
 PAGE 1 OF 2  
 ISSUE: 5  
 CHECK: DR-5009  
 RELEASE NO.: X102209-AV  
 REVISIONS:  
 A CO-93446 8 J W 22 SEP 98  
 B PR-23514 2 OCT 98  
 C CO93789 26 OCT 98  
 D 94108-A 19 FEB 99  
 J J A 11 MAY 98  
 J A F 11 MAY 98  
 J J A 11 MAY 98  
 FORMTEK  
 ANSI Y14.5M 1982 APPLIES MASTER REDUCED



STYLE T1



STYLE T2

DRAWING NUMBER: 4AV SERIES CHART 4  
 PAGE 2 OF 2  
 ISSUE 5  
 X102209-AV  
 REPLACES DR-5009  
 CHECK  
 REVISIONS:  
 A PR-23514 017 2 OCT 98  
 B C093789 017 26 OCT 98  
 C C094108-A 017 19 FEB 99  
 DRAWN: JJA 11 MAY 98  
 CHECK: JJA 11 MAY 98  
 FORMTEK

ANSI Y14.5M 1982 APPLIES  
MASTER REDUCED

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| <b>MICRO SWITCH</b><br>a Honeywell Division   |  | SCALE 3:1<br>DO NOT SCALE PRINT<br>UNLESS OTHERWISE SPECIFIED TOLERANCES ARE                      |  |
| SOLID STATE VANE SWITCH   |  | CATALOG LISTING<br>4AV SERIES<br>CHART 4  |  |
| FED. MFG. CODE 91929  |  | ONE PLACE (.0) ±.030<br>TWO PLACES (.00) ±.015<br>THREE PLACES (.000) ±.005<br>ANGLES ±<br>WEIGHT |  |