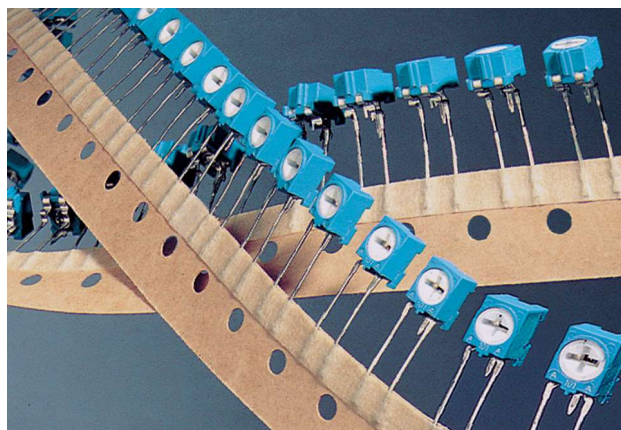




### FEATURES

- RoHS compliant materials.
- Carbon resistive element.
- Plastic substrate.
- Over-moulding manufacturing technique.
- SMD or through hole.
- Embossed Tape (for SMD), Tape on reel, Ammopack and Magazine packaging for automatic insertion and bulk for manual assembly.
- Wiper positioned at 50%.
- Both sides cross slot easy adjustment.
- Accidental rotor movement protected.
- Traceability insured through date code marking.
- Assembly method: stand up and lay down.

### MECHANICAL SPECIFICATIONS

- Mechanical rotation angle:  $280^\circ \pm 10^\circ$
- Electrical rotation angle:  $245^\circ \pm 25^\circ$
- Torque: 0.2 to 3 Ncm.  
(0.28 to 4.2 in-oz)
- Stop torque: > 7.5 Ncm. ( 10.5 in-oz)

### ELECTRICAL SPECIFICATIONS

- Range of values\*  
 $100\Omega \leq R_n \leq 1M\Omega$  (1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
- Tolerance\*:  $100\Omega \leq R_n \leq 1M\Omega$ .....  $\pm 30\%$
- Max. Voltage: 100 VDC
- Nominal Power  $50^\circ\text{C}$  ( $122^\circ\text{F}$ ) (see power rating curve): 0.1W
- Taper: linear
- End resistance:  $\leq 2\% R_n$  ( $10\Omega$  min.)
- Equivalent noise resistance:  $\leq 5\% R_n$
- Operating temperature\*\* :  $-25^\circ\text{C} + 70^\circ\text{C}$  ( $-13^\circ\text{F} + 158^\circ\text{F}$ )

\* Others check availability.

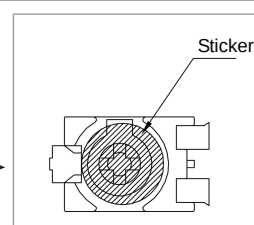
\*\* Up to  $85^\circ\text{C}$  depending on application.

### HOW TO ORDER

| N6     | L                            | 30                                                           | T0                                                                                                                                                                                                                                                                            | N - 102 - 3030                                            |                                                                                                             |
|--------|------------------------------|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Series | Mounting method              | Terminal style                                               | Packaging                                                                                                                                                                                                                                                                     | Crimping                                                  | Tolerance                                                                                                   |
|        | S = Stand up<br>L = Lay down | 25 = 2.5 mm.<br>30 = 3.0 mm.<br>50 = 5.0 mm.<br>(See note 1) | T0 = Bulk<br>T1 = Reel ..... A = 20<br>T2 = Reel ..... A = 21.5<br>T3 = Ammopack... A = 20<br>T4 = Ammopack... A = 21.5<br>T5 = Magazine<br>T6 = Magazine.... Sealed for vacuum pickup<br>T7 = Embossed Tape<br>T8 = Embossed Tape...Sealed for vacuum pickup<br>(See note 2) | S = SMD<br>N = Not crimped<br>C = Crimped<br>(See note 3) | 3030 = $\pm 30\%$<br>2020 = $\pm 20\%$<br>1010 = $\pm 10\%$<br>(See note 5)                                 |
|        |                              |                                                              |                                                                                                                                                                                                                                                                               |                                                           | Value                                                                                                       |
|        |                              |                                                              |                                                                                                                                                                                                                                                                               |                                                           | 101 = 100 $\Omega$<br>.....<br>105 = 1M $\Omega$<br>(See note 4)                                            |
|        |                              |                                                              |                                                                                                                                                                                                                                                                               |                                                           | RoHS reflowable<br>(See N6R datasheet at <a href="http://www.piher.net">www.piher.net</a> )<br>(See note 6) |

#### NOTES:

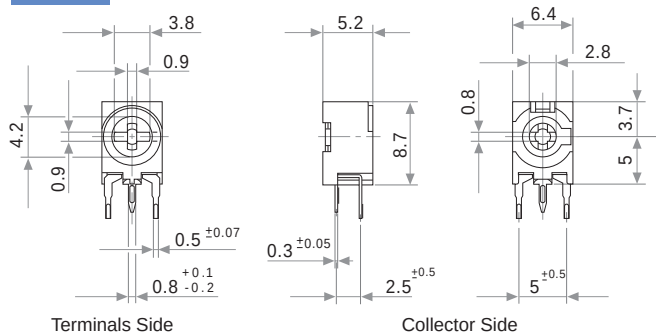
- (1) - Type "N-6 S" is only available with terminal style "25".  
- Terminal style "50" is only available with bulk packing "T0", "T1", "T3", "T5", "T6", "T7", "T8"
- (2) - Delivery for "T2" and "T4" only available in: N-6 S 25 and N-6 L 30  
- "T5", "T6", "T7" and "T8" only available in SMD.  
- "T7", "T8" Embossed Tape 750 Units per Reel. Diameter: 330 mm, aprox. thickness: 30 mm.  
- "T6" and "T8" are sealed for vacuum pickup (sticker at the bottom side)
- (3) - Crimped terminals are only available in bulk packing "T0".  
- Type "S" is only available in N-6 L 50 T0, N-6 L 50 T5, N-6 L 50 T6, N-6 L 50 T7, N-6 L 50 T8
- (4) Value: Example: Code: 10 2 = 1 K  
Number of zeros  
First two digits of the value.
- (5) - Default tolerance is  $\pm 30\%$ . For  $\pm 10\%$ ,  $\pm 20\%$  and others: check availability.
- (6) - Option R: black housing & rotor colour. Range of values:  $250\Omega \leq R_n \leq 500K\Omega$  (see separate datasheet "N6R" at [www.piher.net](http://www.piher.net))



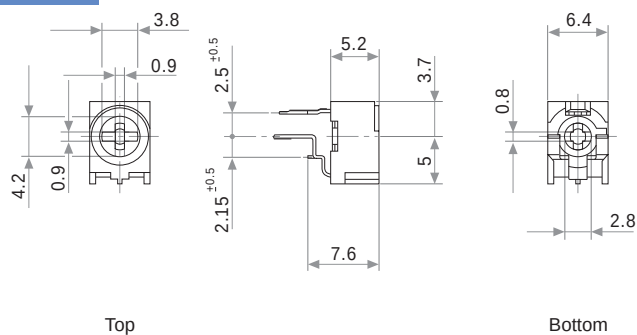
This project has been financially supported by the Spanish Technological Development Institute (CDTI).

## MOUNTING METHOD

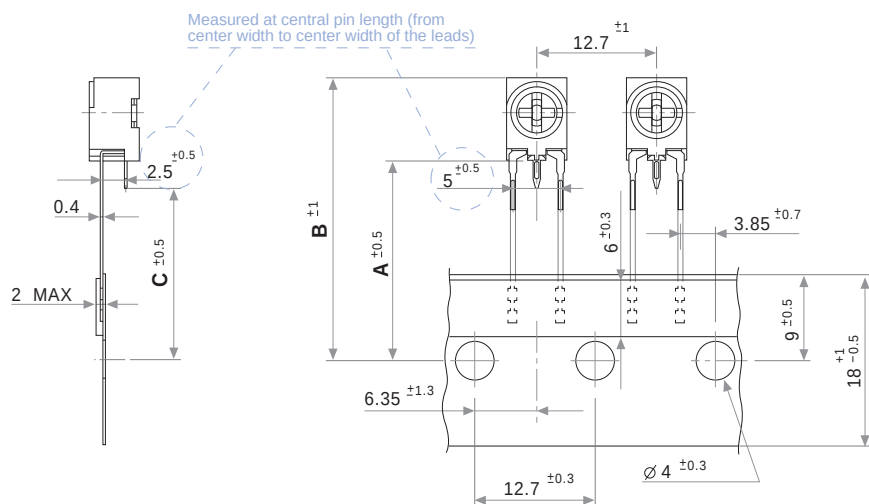
Type S



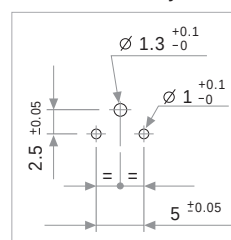
Type L



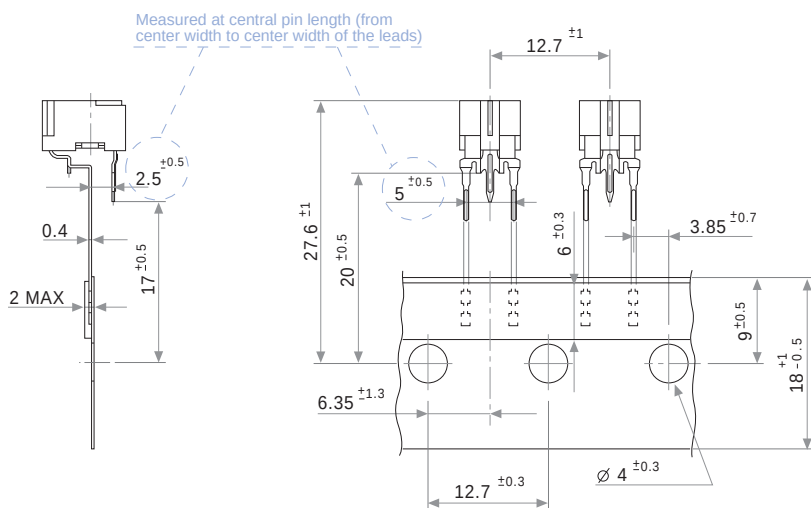
## TAPE



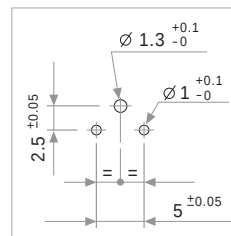
PCB Hole Layout



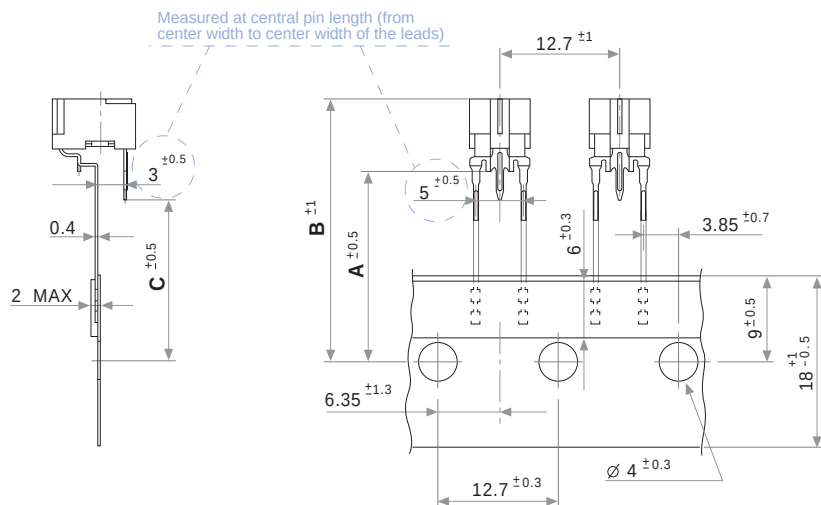
| MODEL            | A    | B    | C    |
|------------------|------|------|------|
| N-6 S 25 T1 / T3 | 20   | 28.7 | 17   |
| N-6 S 25 T2 / T4 | 21.5 | 30.2 | 18.5 |



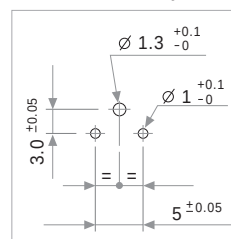
PCB Hole Layout



N-6 L 25 T1 / T3

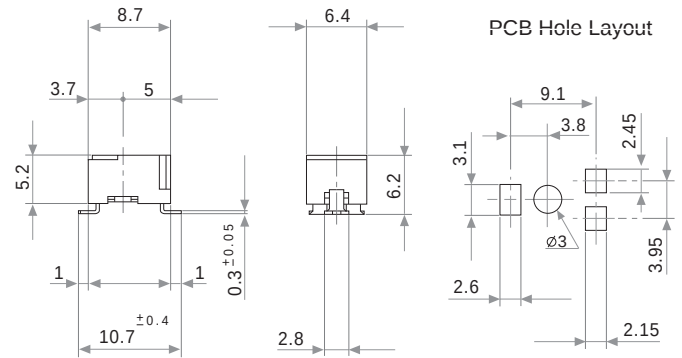
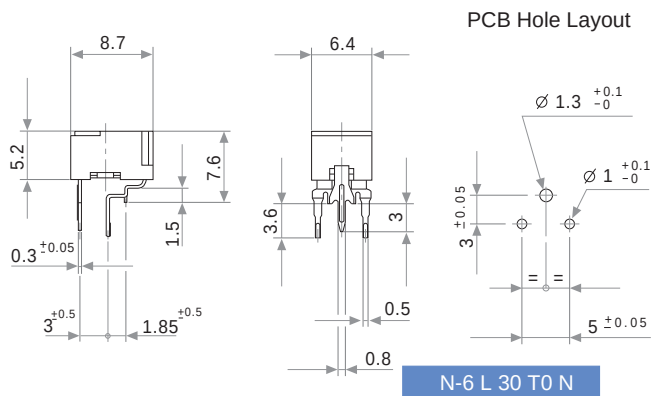
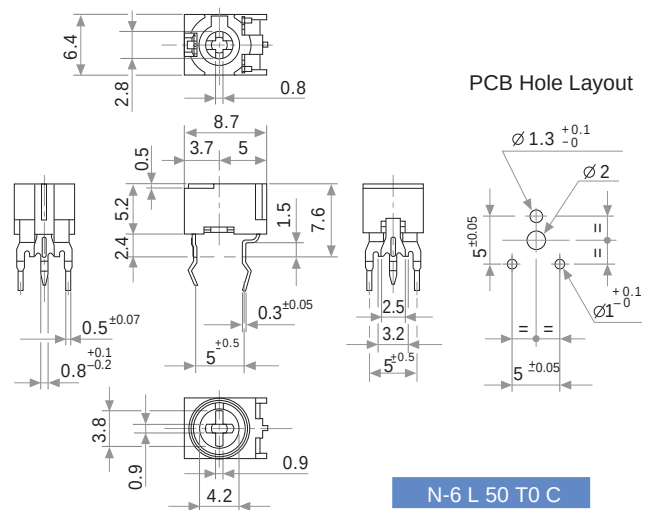
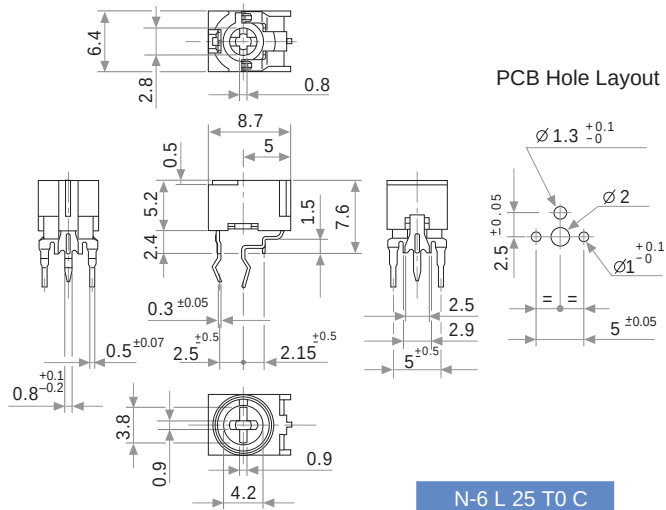


PCB Hole Layout

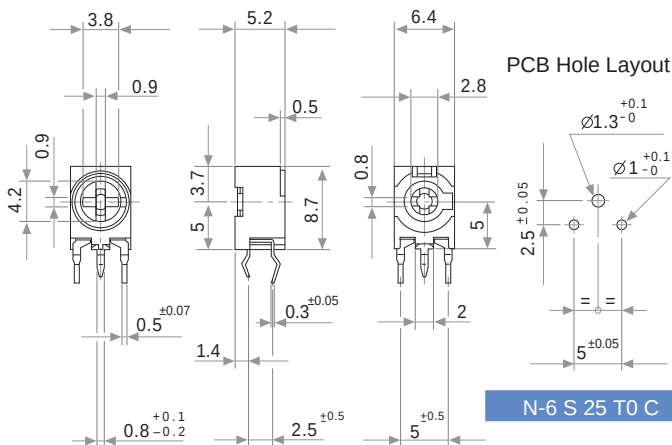


| MODEL            | A    | B    | C    |
|------------------|------|------|------|
| N-6 L 30 T1 / T3 | 20   | 27.6 | 17   |
| N-6 L 30 T2 / T4 | 21.5 | 29.1 | 18.5 |

## BULK TYPE L



## BULK TYPE S

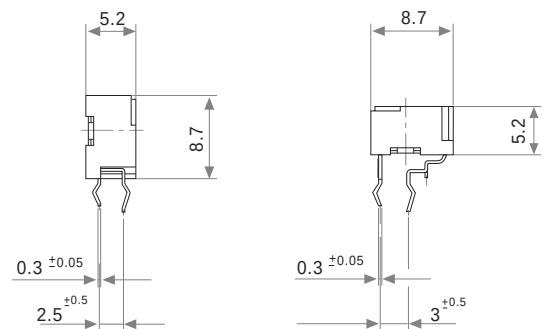


N-6 L 50 T0 S

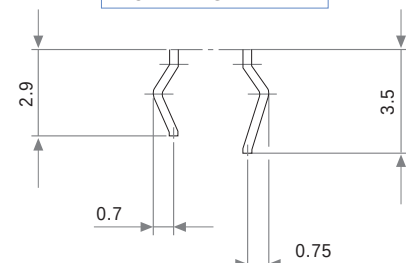
## CRIMPING DETAIL "C"

Type S

Type L



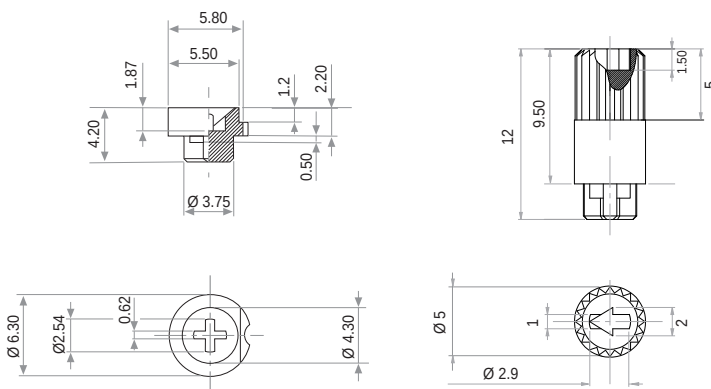
## CRIMPING DETAIL

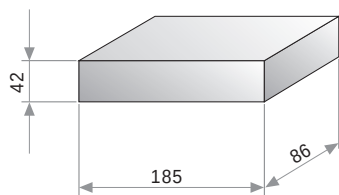


## KNOB Ref.: 5680

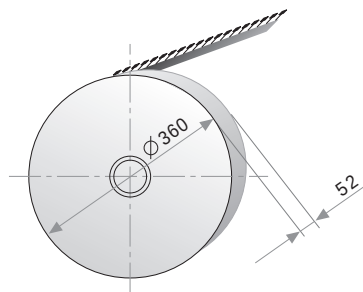
## SHAFT Ref.: 6133

Please order both Knob and Shaft separately. If you wish to use your own custom plastic shaft/knob/actuator please contact Piher for advice about compatible materials.

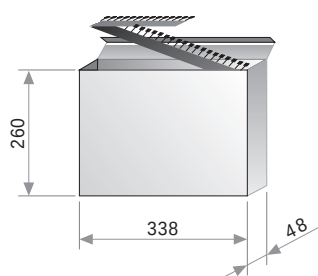




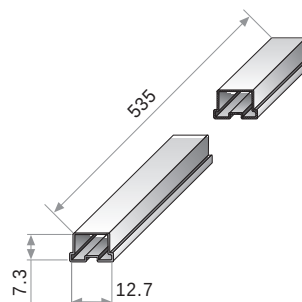
**T0 BULK**  
500 Units per box.



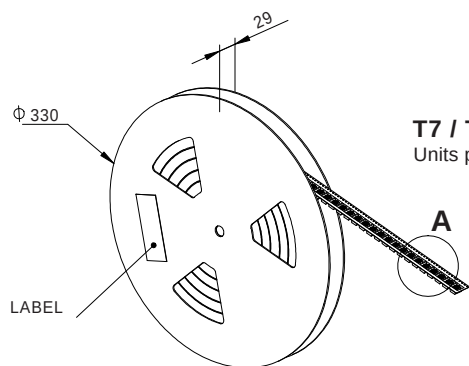
**T1 / T2 TAPE ON REEL**  
Units per Reel according to type:  
S: 1.000  
L: 750



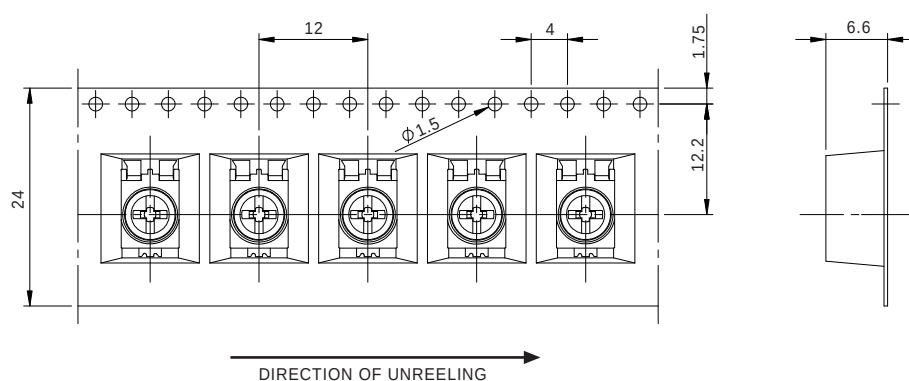
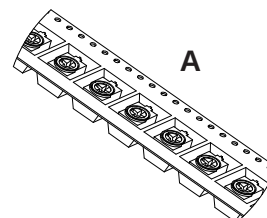
**T3 / T4 AMMOPACK**  
Units per Box according to type.  
S: 1.000  
L: 750



**T5 / T6 MAGAZINE**  
Units per magazine: 80



**T7 / T8 EMBOSSED TAPE**  
Units per reel: 750



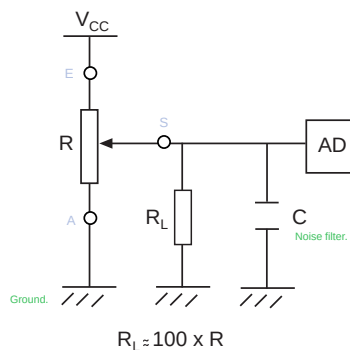
| AVAILABLE COMBINATIONS | TAPE |    |    |    | MAGAZINE |    | EMB.  | BULK |       |
|------------------------|------|----|----|----|----------|----|-------|------|-------|
|                        | T1   | T2 | T3 | T4 | T5       | T6 | T7/T8 | SMD  | CRIMP |
| N-6 S 25               | ●    | ●  | ●  | ●  |          |    |       |      | ●     |
| N-6 L 25               | ●    |    | ●  |    |          |    |       |      | ●     |
| N-6 L 30               | ●    | ●  | ●  | ●  |          |    |       |      | ●     |
| N-6 L 50               | ●    |    | ●  |    | ●        | ●  | ●     | ●    | ●     |

| TESTS                            |                           | TYPICAL VARIATIONS                                 | POWER RATING CURVE |
|----------------------------------|---------------------------|----------------------------------------------------|--------------------|
| ELECTRICAL LIFE                  | 1.000 h. @ 50°C: 0.1 W    | ±10 %                                              |                    |
| MECHANICAL LIFE (CYCLES)         | 100 @ 10 CPM ...15 CPM    | ±3 % ( $R_n < 1 \text{ M } \Omega$ )               |                    |
| TEMPERATURE COEFFICIENT          | -25°C; +70°C              | ±300 ppm ( $1\text{K} \leq R_n \leq 100\text{K}$ ) |                    |
| THERMAL CYCLING                  | 16 h. @ 85°C; 2h. @ -25°C | ±5 %                                               |                    |
| DAMP HEAT                        | 500 h. @ 40°C @ 95% HR    | ±5 %                                               |                    |
| VIBRATION (for each plane X,Y,Z) | 2 h. @ 10 Hz. ... 55 Hz.  | ±2 %                                               |                    |

NOTE: Out of range values may not comply with these results.

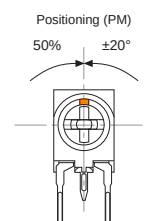
## RECOMMENDED CONNECTIONS

Piher potentiometer's recommended connection circuit for a position sensor or control application. (voltage divider circuit electronic design).



## POSITIONING

This mark in the rotor shows the wiper's position.



(example of 50% of the travel)

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