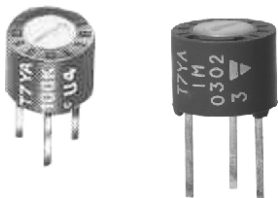


## 7 mm Diameter Miniature Cermet Trimmer



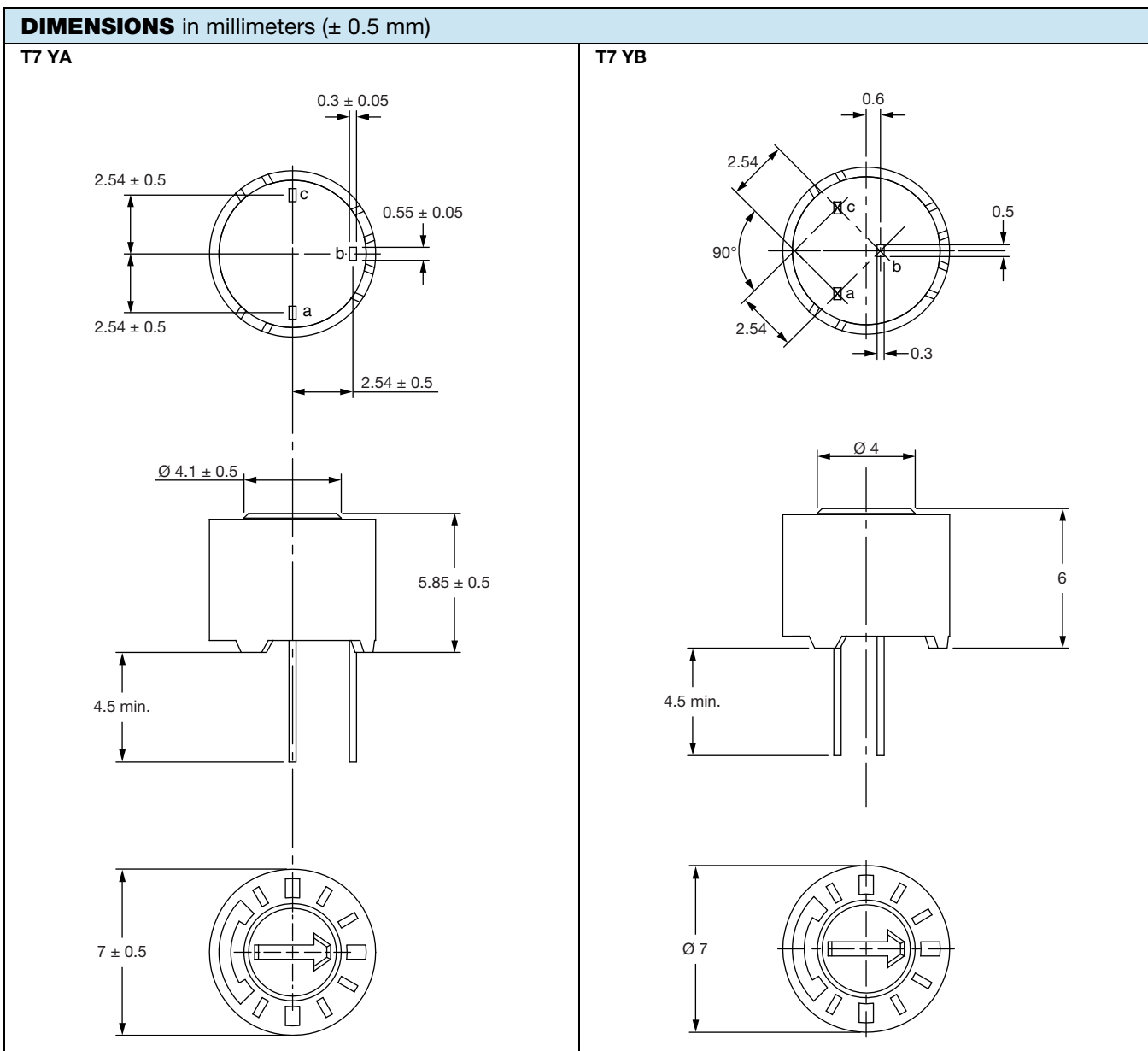
A dust sealed plastic case protecting a quality cermet track guarantees high performance and proven reliability. Adjustments are made easier by the clear scale readings. T7 is ideally suited to all industrial applications.

### FEATURES

- Industrial grade
- 0.5 W at 70 °C
- Tests according to CECC 41100 or IEC 60393-1
- Low temperature coefficient (100 ppm/K typical)
- Wide resistance range (10 Ω to 2.2 MΩ)
- Easy to read scale
- 7 mm (0.275") diameter
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT



| <b>ELECTRICAL SPECIFICATIONS</b>      |   |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
|---------------------------------------|---|--------------------------|--------------|---|------|----|------|----|------|----|------|----|------|-----|-------|-----|------|
| Resistive element                     | Cermet  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Electrical travel                     | 270° ± 15°  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Resistance range                      | 10 Ω to 2.2 MΩ  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Standard series E3                    | 1 - 2.2 - 4.7 and on request 1 - 2 - 5  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Tolerance standard                    | standard  | ± 20 %                   |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
|                                       | on request  | ± 10 %                   |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Power rating                          | 0.5 W at 85 °C  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| linear                                | <table border="1"> <caption>Power Rating vs Ambient Temperature</caption> <thead> <tr> <th>Ambient Temperature (°C)</th> <th>Power (Watt)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.50</td></tr> <tr><td>20</td><td>0.50</td></tr> <tr><td>40</td><td>0.50</td></tr> <tr><td>60</td><td>0.50</td></tr> <tr><td>85</td><td>0.50</td></tr> <tr><td>100</td><td>0.375</td></tr> <tr><td>125</td><td>0.00</td></tr> </tbody> </table> | Ambient Temperature (°C) | Power (Watt) | 0 | 0.50 | 20 | 0.50 | 40 | 0.50 | 60 | 0.50 | 85 | 0.50 | 100 | 0.375 | 125 | 0.00 |
| Ambient Temperature (°C)              | Power (Watt)  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 0                                     | 0.50  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 20                                    | 0.50  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 40                                    | 0.50  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 60                                    | 0.50  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 85                                    | 0.50  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 100                                   | 0.375   |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| 125                                   | 0.00  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Circuit diagram                       |   |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Temperature coefficient               | See Standard Resistance Element Data  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Limiting element voltage (linear law) | 250 V   |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Contact resistance variation          | 3 % or 3 Ω  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| End resistance (typical)              | 1 Ω   |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Dielectric strength (RMS)             | 1000 V  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |
| Insulation resistance                 | 10 <sup>6</sup> MΩ  |                          |              |   |      |    |      |    |      |    |      |    |      |     |       |     |      |

| <b>MECHANICAL SPECIFICATIONS</b> |                      |
|----------------------------------|----------------------|
| Mechanical travel                | 300° ± 5°            |
| Operating torque (max. Ncm)      | 1.5                  |
| End stop torque (max. Ncm)       | 3                    |
| Unit weight (max. g)             | 0.5                  |
| Terminals                        | SnAg alloy (code e2) |

| <b>ENVIRONMENTAL SPECIFICATIONS</b> |   |
|-------------------------------------|---|
| Temperature range                   | -55 °C to +125 °C   |
| Climatic category                   | 55/100/56   |
| Sealing                             | IP64<br>For board cleaning, Vishay recommends testing before usage. Water immersion is forbidden. Ultrasonic may cause component damage or failure. |



| PERFORMANCES             |  |  |   |
|--------------------------|--|--|---|
| TESTS                    | CONDITIONS   | TYPICAL VALUES AND DRIFTS  |   |
|                          |  | $\Delta R_T/R_T$ (%)   | $\Delta R_{1-2}/R_{1-2}$ (%)                      |
| Load life                | 1000 h at rated power<br>90'/30' - ambient temperature 70 °C | $\pm 3$ %<br>Contact resistance variation:<br>< 3 % Rn   | $\pm 4$ %   |
| Climatic sequence        | Phase A dry heat 100 °C                                      | $\pm 2$ %  | $\pm 3$ %   |
| Long term damp heat      | Phase B damp heat  |  |   |
| Rapid temperature change | Phase C cold -55 °C  |  |   |
| Shock                    | Phase D damp heat 5 cycles                                   |  |   |
| Vibration                | 56 days  | $\pm 2$ %<br>Dielectric strength: 1000 V <sub>RMS</sub><br>Insulation resistance: > 10 <sup>4</sup> MΩ | $\pm 3$ %   |
| Rotational life          | 5 cycles -55 °C at +125 °C                                   | $\pm 1$ %  | $\Delta V_{1-2}/\Delta V_{1-3}$<br>$\leq \pm 2$ % |
| Load life                | 50 g - 11 ms   | $\pm 0.5$ %  | $\pm 1$ %   |
| Climatic sequence        | 3 successive shocks  |  |   |
| Long term damp heat      | in 3 directions  |  |   |
| Rapid temperature change | 10 Hz to 55 Hz<br>0.75 mm or 10 g during 6 h                 | $\pm 0.5$ %  | $\Delta V_{1-2}/\Delta V_{1-3}$<br>$\leq \pm 1$ % |
| Shock                    | 200 cycles   | $\pm 3$ %  |   |
| Vibration                |  | Contact resistance variation:<br>< 3 % Rn  |   |

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability.

| STANDARD RESISTANCE ELEMENT DATA |                     |                      |                    |                                  |
|----------------------------------|---------------------|----------------------|--------------------|----------------------------------|
| STANDARD RESISTANCE VALUES       | LINEAR LAW          |                      |                    | TYPICAL TCR<br>-55 °C to +125 °C |
|                                  | MAX. POWER AT 85 °C | MAX. WORKING VOLTAGE | MAX. WIPER CURRENT |                                  |
| Ω                                | W                   | V                    | mA                 | ppm/°C                           |
| 10                               | 0.5                 | 2.2                  | 224                | $\pm 100$                        |
| 22                               | 0.5                 | 3.3                  | 150                |                                  |
| 47                               | 0.5                 | 4.8                  | 103                |                                  |
| 100                              | 0.5                 | 7.0                  | 70                 |                                  |
| 220                              | 0.5                 | 10.5                 | 47                 |                                  |
| 470                              | 0.5                 | 15.3                 | 32                 |                                  |
| 1K                               | 0.5                 | 22.4                 | 22                 |                                  |
| 2.2K                             | 0.5                 | 33.2                 | 15                 |                                  |
| 4.7K                             | 0.5                 | 48.5                 | 10                 |                                  |
| 10K                              | 0.5                 | 70.7                 | 7.0                |                                  |
| 22K                              | 0.5                 | 105                  | 4.8                |                                  |
| 47K                              | 0.5                 | 153                  | 3.2                |                                  |
| 100K                             | 0.5                 | 224                  | 2.2                |                                  |
| 220K                             | 0.28                | 250                  | 1.1                |                                  |
| 470K                             | 0.13                | 250                  | 1.53               |                                  |
| 1M                               | 0.06                | 250                  | 0.25               |                                  |
| 2.2M                             | 0.028               | 250                  | 0.11               |                                  |

| MARKING   |
|---|
| <ul style="list-style-type: none"> <li>• Vishay trademark</li> <li>• Model</li> <li>• YA or YB style</li> <li>• Ohmic value (in Ω, kΩ, MΩ)</li> <li>• Manufacturing date</li> <li>• Marking of terminal: 3</li> </ul> |



| PACKAGING   |
|---|
| <ul style="list-style-type: none"> <li>In box of 200 pieces, code B40</li> <li>On request: In tube of 50 pieces, code T20 (TU50)</li> </ul> |

| ORDERING INFORMATION (part number) |               |                                     |   |                                     |   |   |   |  |   |   |  |  |  |  |
|------------------------------------|---------------|-------------------------------------|---|-------------------------------------|---|---|---|--|---|---|--|--|--|--|
| T                                  | 7             | Y                                   | A | 4                                   | 7 | 4   | M | B  | 4 | 0 |  |  |  |  |
| MODEL                              | STYLE         | OHMIC VALUE                         |   | TOLERANCE                           |   | PACKAGING CODE  |   | SPECIAL NUMBER                                       |   |   |  |  |  |  |
| T7                                 | YA<br>YB<br>X | From 10 Ω<br>to 2.2 MΩ<br>103 = 10K |   | M = 20 %<br>On request:<br>K = 10 % |   | B40 = box 200 pieces<br>On request:<br>T20 = tube 50 pieces |   | (If applicable)<br>Given by Vishay for custom design |   |   |  |  |  |  |

| DESCRIPTION (for information only) |       |       |           |         |           |             |
|------------------------------------|-------|-------|-----------|---------|-----------|-------------|
| T7                                 | YA    | 470K  | 20 %      |         | BO        | e2          |
| MODEL                              | STYLE | VALUE | TOLERANCE | SPECIAL | PACKAGING | LEAD FINISH |

| RELATED DOCUMENTS   |  |
|---|--|
| <b>APPLICATION NOTES</b>  |  |
| Potentiometers and Trimmers                                       | <a href="http://www.vishay.com/doc?51001">www.vishay.com/doc?51001</a> |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | <a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a> |



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