

# 1/4" Multi-Turn Fully Sealed Container Cermet Trimmer



## FEATURES

- 0.25 W at 70 °C
- Industrial grade
- Tests according to CECC 41000 or IEC 60393-1
- Multi-turn operation
- Low contact resistance variation 1 % typical
- Compliant to RoHS directive 2002/95/EC


**RoHS**  
COMPLIANT

Due to their square shape and small size (6.8 mm x 6.8 mm x 5 mm), the multi-turn trimmers of the T63 series are ideally suited for PCB use, enabling high density board mounting with reduced space requirement between cards.

Six versions are available differing by the top or side position of the adjustment screw and by PC pins configuration.

The use of cermet for the resistive track ensures an excellent stability of nominal specifications throughout life.

| DIMENSIONS in millimeters ( $\pm 0.5$ mm) |  |  |   |
|---|--|--|---|
| <b>T63XA</b><br>                          |  |  | <b>Terminal Spacing on a 2.54 PCB</b><br> |
| <b>T63XB</b><br>                          |  |  |   |
| <b>T63YA</b><br>                          |  |  |   |
| <b>T63YB</b><br>                          |  |  |   |
| <b>T63ZA</b><br>                          |  |  |   |
| <b>T63ZB</b><br>                          |  |  |   |

| ELECTRICAL SPECIFICATIONS                    |   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
|--|---|--------------------------|-----------|---|------|----|------|----|------|----|------|-----|-------|-----|-------|-----|---|
| Resistive element                            | Cermet  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Electrical travel                            | 14 turns $\pm$ 2  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Resistance range                             | 10 $\Omega$ to 2.2 M $\Omega$   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Standard series and on request series E3     | 1 - 2 - 5 (1 - 2.2 - 4.7)   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Tolerance                                    | Standard $\pm$ 10 %   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
|  | On request $\pm$ 5 %  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Power rating                                 | <p>Linear<br/>0.25 W at + 70 °C</p> <table border="1"> <caption>Power Rating Data</caption> <thead> <tr> <th>Ambient Temperature (°C)</th> <th>Power (W)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.25</td></tr> <tr><td>25</td><td>0.25</td></tr> <tr><td>50</td><td>0.25</td></tr> <tr><td>70</td><td>0.25</td></tr> <tr><td>100</td><td>0.167</td></tr> <tr><td>125</td><td>0.083</td></tr> <tr><td>155</td><td>0</td></tr> </tbody> </table> | Ambient Temperature (°C) | Power (W) | 0 | 0.25 | 25 | 0.25 | 50 | 0.25 | 70 | 0.25 | 100 | 0.167 | 125 | 0.083 | 155 | 0 |
| Ambient Temperature (°C)                     | Power (W)   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 0  | 0.25  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 25   | 0.25  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 50   | 0.25  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 70   | 0.25  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 100  | 0.167   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 125  | 0.083   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| 155  | 0   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Circuit diagram                              |   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Temperature coefficient                      | See Standard Resistance Element table   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Limiting element voltage (linear law)        | 250 V   |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Contact resistance variation                 | 2 % Rn or 2 $\Omega$  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| End resistance (typical)                     | 1 $\Omega$  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Dielectric strength (RMS)                    | 1000 V  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |
| Insulation resistance (500 V <sub>DC</sub> ) | 10 <sup>6</sup> M $\Omega$  |                          |           |   |      |    |      |    |      |    |      |     |       |     |       |     |   |

| MECHANICAL SPECIFICATIONS   |                            |
|-----------------------------|----------------------------|
| Mechanical travel           | 15 turns $\pm$ 5           |
| Operating torque (max. Ncm) | 1.5                        |
| End stop torque             | Clutch action              |
| Unit weight (max. g)        | 0.5                        |
| Wiper (actual travel)       | Positioned at approx. 50 % |
| Terminals                   | Pure Sn (code e3)          |

| ENVIRONMENTAL SPECIFICATIONS |                     |
|------------------------------|---------------------|
| Temperature range            | - 55 °C to + 155 °C |
| Climatic category            | 55/125/56           |
| Sealing                      | Fully sealed - IP67 |



1/4" Multi-Turn Fully Sealed Container  
Cermet Trimmer

Vishay Sfernice

| 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 temp. 70 °C   | ± 1 %<br>Contact res. variation: < 1 % Rn  | ± 2 %   |
| Climatic sequence        | Phase A dry heat 125 °C - 30 % Pr<br>Phase B damp heat<br>Phase C cold - 55 °C<br>Phase D damp heat 5 cycles | ± 0.5 %  | ± 1 %   |
| Long term damp heat      | 56 days<br>40 °C, 93 % RH  | ± 0.5 %<br>Dielectric strength: 1000 V <sub>RMS</sub><br>Insulation resistance: > 10 <sup>4</sup> MΩ | ± 1 %   |
| Rapid temperature change | 5 cycles<br>- 55 °C to + 125 °C  | ± 0.5 %  | $\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 1 \%$   |
| Shock                    | 50 g at 11 ms<br>3 successive shocks<br>in 3 directions  | ± 0.1 %  | ± 0.2 %   |
| Vibration                | 10 Hz to 55 Hz<br>0.75 mm or 10 g<br>during 6 h  | ± 0.1 %  | $\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 0.2 \%$ |
| Rotational life          | 200 cycles   | ± (2 % + 3 Ω)<br>Contact res. variation: < 1 % Rn  | -   |

| STANDARD RESISTANCE ELEMENT DATA |                     |                      |                 |                                    |
|----------------------------------|---------------------|----------------------|-----------------|------------------------------------|
| STANDARD RESISTANCE VALUES       | LINEAR LAW          |                      |                 | TYPICAL TCR<br>- 55 °C<br>+ 125 °C |
|                                  | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CUR. |                                    |
| Ω                                | W                   | V                    | mA              | ppm/°C                             |
| 10                               | 0.25                | 1.58                 | 158             | ± 100                              |
| 20                               | 0.25                | 2.23                 | 112             |                                    |
| 50                               | 0.25                | 3.5                  | 77              |                                    |
| 100                              | 0.25                | 35                   | 50              |                                    |
| 200                              | 0.25                | 7.07                 | 35              |                                    |
| 500                              | 0.25                | 11.2                 | 22              |                                    |
| 1K                               | 0.25                | 15.8                 | 15.8            |                                    |
| 2K                               | 0.25                | 22.3                 | 11.2            |                                    |
| 5K                               | 0.25                | 35.3                 | 7.1             |                                    |
| 10K                              | 0.25                | 50                   | 5               |                                    |
| 20K                              | 0.25                | 70.7                 | 3.5             |                                    |
| 25K                              | 0.25                | 79                   | 3.2             |                                    |
| 50K                              | 0.25                | 112                  | 2.2             |                                    |
| 100K                             | 0.25                | 158                  | 1.6             |                                    |
| 200K                             | 0.25                | 224                  | 1.1             |                                    |
| 250K                             | 0.25                | 250                  | 1.1             |                                    |
| 500K                             | 0.13                | 250                  | 0.50            |                                    |
| 1M                               | 0.06                | 250                  | 0.25            |                                    |
| 2.2M                             | 0.03                | 250                  | 0.125           |                                    |

| MARKING  |
|--|
| <ul style="list-style-type: none"> <li>• Vishay trademark</li> <li>• Model</li> <li>• Style</li> <li>• Ohmic value (in Ω, kΩ, MΩ)</li> <li>• Tolerance (in %) only if non standard</li> <li>• Manufacturing date</li> <li>• Marking of terminal 3</li> </ul> |

| PACKAGING  |
|--|
| <ul style="list-style-type: none"> <li>• In tube of 50 pieces code T20 (TU50)</li> </ul> |

| ORDERING INFORMATION (Part Number) |                                  |   |   |  |   |   |                                |   |                         |   |   |  |
|------------------------------------|----------------------------------|---|---|--|---|---|--------------------------------|---|-------------------------|---|---|--|
| T                                  | 6                                | 3 | X | A                                      | 1 | 0 | 4                              | K | T                       | 2 | 0   |  |
| Model                              | STYLE                            |   |   | OHMIC VALUE                            |   |   | TOLERANCE                      |   | PACKAGING               |   | SPECIAL NUMBER  |  |
| T63                                | XA<br>XB<br>YA<br>YB<br>ZA<br>ZB |   |   | From<br>10 Ω to 2.2 MΩ<br>104 = 100 kΩ |   |   | K = 10 %<br>on request J = 5 % |   | T20 = Tube<br>50 pieces |   | (If applicable)<br>Given by<br>Vishay<br>for custom<br>design |  |

| DESCRIPTION (for information only) |       |       |           |         |           |             |
|------------------------------------|-------|-------|-----------|---------|-----------|-------------|
| T63                                | XA    | 100K  | 10 %      |         | TU        | e3          |
| MODEL                              | STYLE | VALUE | TOLERANCE | SPECIAL | PACKAGING | LEAD FINISH |



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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.