

Miniature Trimmer Single-Turn Cermet



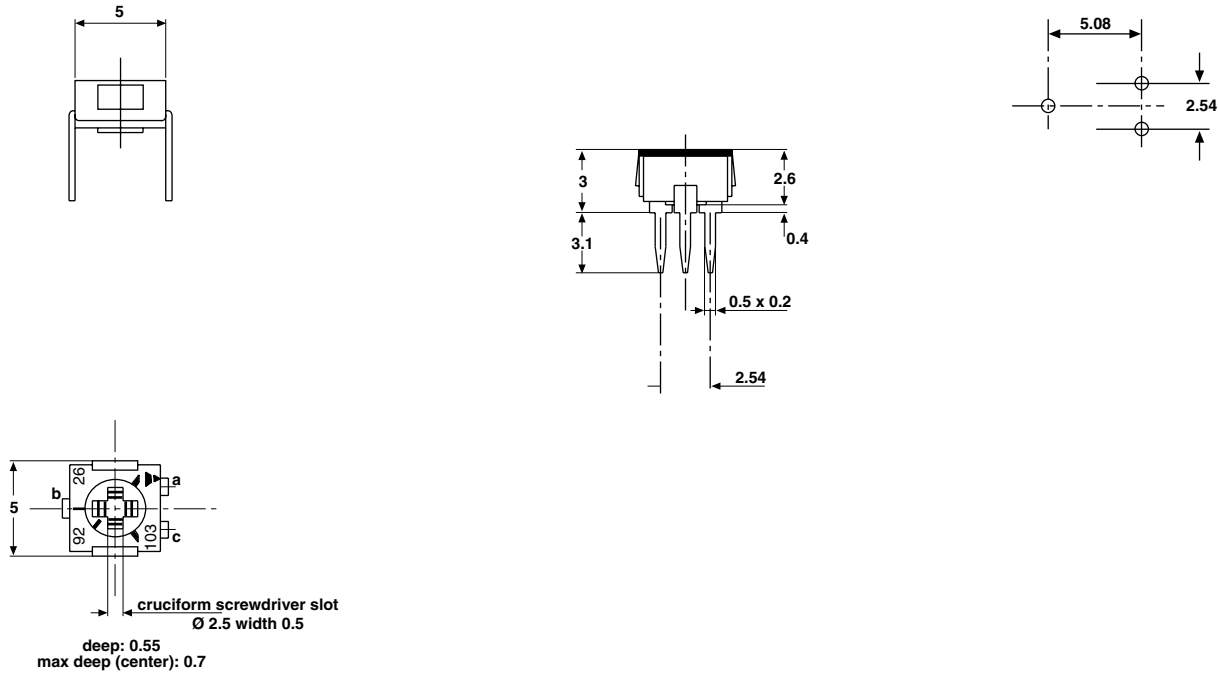
The T53 trimming potentiometer volumetric efficiency (5 x 5 x 2.7 mm) with high performance and stability. The T53 design is suitable for both manual or automatic operation.

FEATURES

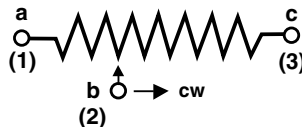
- Fully sealed
- 0.25 Watt at 70 °C
- Wide ohmic range (10 Ω to 1 MΩ)
- Low contact resistance variation (2 % or 3 Ω)
- Small size for optimum packing density
- Suitable for both manual or automatic operation
- For SMD version see TS53Y series



DIMENSIONS in millimeters



CIRCUIT DIAGRAM



Tolerances unless otherwise specified ± 0.25

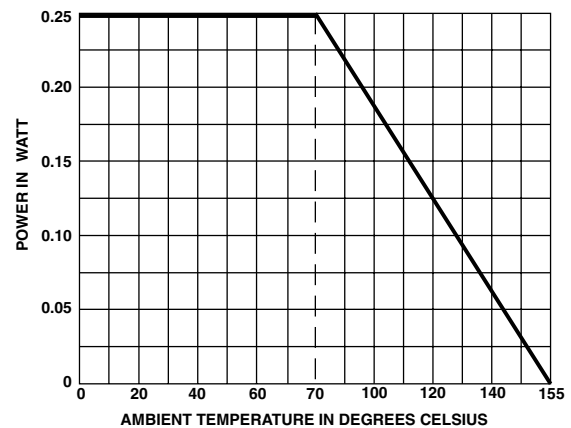
| ELECTRICAL SPECIFICATIONS | | |
|---------------------------------------|--------------------------------------|-----------------|
| Resistive Element | Cermet | |
| Electrical Travel | 220° ± 15° | |
| Resistance Range | 10 Ω to 1 MΩ | |
| Standard Series | 1 - 2 - 5 | |
| Tolerance Standard | ± 20 % | |
| Power Rating | Linear | 0.25 W at 70 °C |
| | Logarithmic | not applicable |
| Temperature Coefficient | See Standard Resistance Element Data | |
| Limiting Element Voltage (Linear Law) | 200 V | |
| Contact Resistance Variation | 2 % or 3 Ω | |
| End Resistance (Typical) | 0.1 % or 3 Ω | |
| Dielectric Strength (RMS) | 1000 V | |
| Insulation Resistance | 10 ⁶ MΩ | |
| Specification | in accordance with CECC 41100 | |

MECHANICAL SPECIFICATIONS

| | |
|-----------------------------|------------|
| Mechanical Travel | 270° ± 10° |
| Operating Torque (max. Ncm) | 1.5 |
| End Stop Torque (max. Ncm) | 3.5 |
| Unit Weight (max. g) | 0.15 |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-------------------|-----------------------|
| Temperature Range | - 55 °C to + 155 °C |
| Climatic Category | 55/125/56 |
| Sealing | enables cleaning IP67 |

POWER RATING CHART


| PERFORMANCE | | | |
|---|---|---|--|
| TESTS | CONDITIONS | TYPICAL VALUES AND DRIFTS | |
| | | $\frac{\Delta RT}{RT}$ (%) | $\frac{\Delta R_{1-2}}{R_{1-2}}$ (%) |
| Load Life | 1000 hours at rated power 90'/30' - ambient temperature + 70 °C | ± 2 % Contact resistance variation: $\Delta R < 1 \% R_n$ | ± 3 % |
| Moisture Resistance | MIL STD 202 Method 106 10 cycles of 24 hours constituted with damp heat - cold - vibrations | ± 2 % Dielectric strength: 1000 V RMS Insulation resistance: > 10 ⁴ MΩ | ± 3 % |
| Long Term Damp Heat | Temperature 40 °C - RH 93 % 56 days | ± 2 % Dielectric strength: 1000 V RMS Insulation resistance: > 10 ⁴ MΩ | ± 3 % |
| Thermal Shock | - 55 °C to + 125 °C - 5 cycles | ± 1 % | $\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 2 \%$ |
| Rotational Life (Electrical and Mechanical) | 100 cycles - rated power | ± 3 % | |
| Shock | MIL STD 202 Method 213/1 100 g - 6 ms 3 successive shocks in 3 directions | ± 1 % | $\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 1 \%$ |
| Vibration | MIL STD 202 Method 204/D 20 g - 12 hours | ± 1 % | $\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 1 \%$ |



| STANDARD RESISTANCE ELEMENT DATA | | | | |
|----------------------------------|---------------------|----------------------|-----------------|--|
| STANDARD RESISTANCE VALUES | LINEAR LAW | | | TCR - 55 °C + 125 °C ppm/°C |
| | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CUR. | |
| Ω | W | V | mA | |
| 10 | 0.25 | 1.58 | 158 | 0 + 200 |
| 20 | ↓ | 2.24 | 112 | |
| 50 | | 3.54 | 71 | |
| 100 | | 5.00 | 50 | ± 100 |
| 200 | | 7.07 | 35 | |
| 500 | | 11.2 | 22 | |
| 1K | | 15.8 | 16 | |
| 2K | | 22.4 | 11 | |
| 5K | | 35.4 | 7 | |
| 10K | | 50.0 | 5 | |
| 20K | | 70.7 | 3.5 | |
| 50K | 112 | 2.2 | | |
| 100K | 0.25 | 158 | 1.6 | |
| 200K | 0.20 | 200 | 1.0 | |
| 500K | 0.08 | 200 | 0.4 | |
| 1M | 0.04 | 200 | 0.2 | |

MARKING

VISHAY trademark, ohmic value, manufacturing date.

The ohmic value is indicated by a 3 figure code, the first two are significant figures, the third one is the multiplier.

Example: 100 = 10 Ω
 101 = 100 Ω
 102 = 1000 Ω
 503 = 50 000 Ω

The manufacturing date is indicated by four digits, the first two for the year, the last two for the week number.

SOLDERING RECOMMENDATIONS

see Application notes

| PACKAGING |
|---|
| - In bulk (plastic box of 250 pieces), code BO250 |

| ORDERING INFORMATION | | | | | |
|----------------------|------------|-----------------------|---------------------|--------------------|-------------------|
| T53 SERIES | Y STYLE | 500 kΩ OHMIC VALUE | ± 20 % TOLERANCE | BO250 PACKAGING | e3 LEAD FINISH |
| | | | | | e3: pure Sn |

| SAP PART NUMBERING GUIDELINES | | | | | | | | | | | | | |
|---|---|---|-------|-------------|---|---|-----|----------------|---|---|-------------------------|---|---|
| T | 5 | 3 | Y | 5 | 0 | 4 | M | B | 4 | 1 | □ | □ | □ |
| MODEL | | | STYLE | OHMIC VALUE | | | TOL | PACKAGING CODE | | | SPECIAL (IF APPLICABLE) | | |
| See the end of this data book for conversion tables | | | | | | | | | | | | | |



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