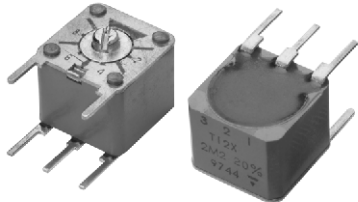


T12, T13

Vishay Sfernice



Fully Sealed Container Square or Round Cermet Trimmers



The Vishay SFERNICE trimming potentiometers T12 and T13 fully meet the requirements of CECC 41 100.

The use of a cermet track combined with sealing of the case provides unique characteristics and performances.

T12 and T13 have been specially designed for mounting on printed circuit board.

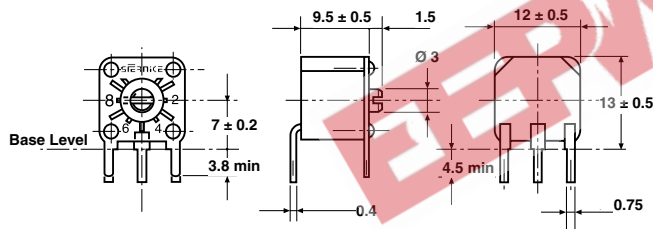
FEATURES

- Military and Professional Grade
- High power rating (1 Watt at 70 °C)
- CECC 41100
- High stability (1 % typical)
- Mechanical strength
- Hermetic sealing of the case
- Different mounting types

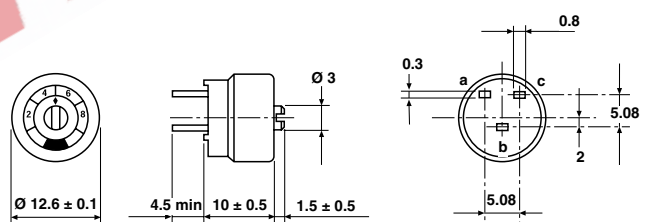


DIMENSIONS in millimeters

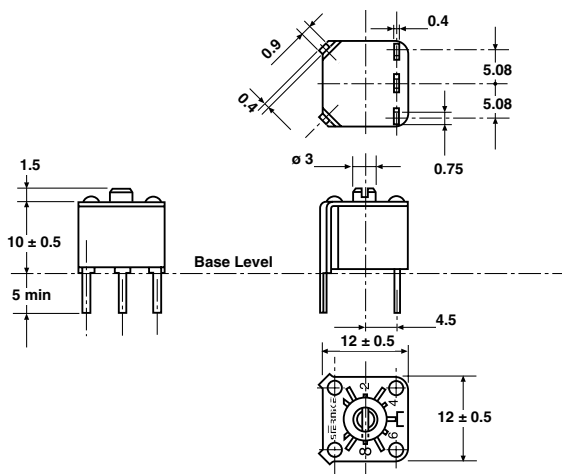
T12X - PM06X



T13Y

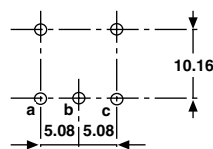


T12Y - PM06Y

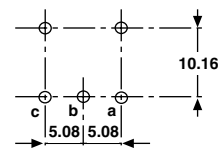


TERMINAL SPACING ON THE PCB Drilling diameter: 1.2 mm

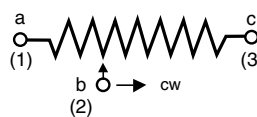
T12X



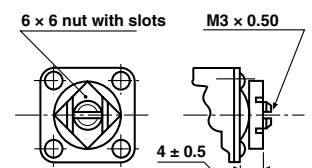
T12Y



CIRCUIT DIAGRAM



LOCKING DEVICE: T12 XB - YB



Tolerances unless otherwise specified ± 0.5



T12, T13

Fully Sealed Container Square or Round Cermet Trimmers Vishay Sfernice

| ELECTRICAL SPECIFICATIONS | | |
|---------------------------------------|-------------|--|
| Resistive Element | | cermet |
| Electrical Travel | | 270° ± 10° |
| Resistance Range | | 22 Ω to 10 MΩ |
| Standard series E3 | | 1 - 2.2 - 4.7 and on request 1 - 2 - 5 |
| Tolerance | Standard | ± 20 % |
| | On Request | ± 10 % |
| Power Rating | Linear | 1 W at 70 °C |
| | Logarithmic | 0.5 W at 70 °C |
| Temperature Coefficient | | See Standard Resistance Element Table |
| Limiting Element Voltage (Linear Law) | | 350 V |
| Contact Resistance Variation | | 3 % R _n or 3 Ω |
| End Resistance (Typical) | | 1 Ω |
| Dielectric Strength (RMS) | | 1000 V |
| Insulation Resistance (500VDC) | | 10 ⁹ MΩ |

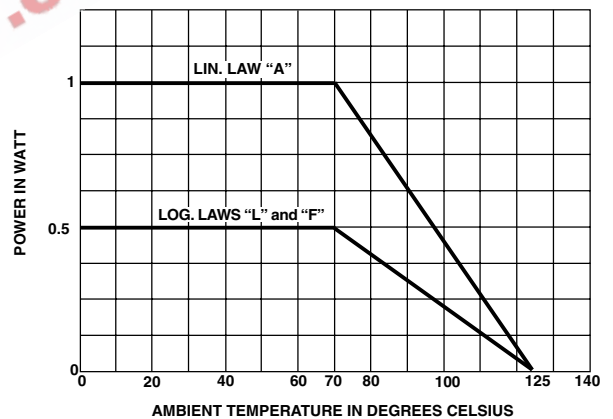
MECHANICAL SPECIFICATIONS

| | |
|-----------------------------|-----------|
| Mechanical Travel | 300° ± 5° |
| Operating Torque (max. Ncm) | 3 |
| End Stop Torque (max. Ncm) | 15 |
| Unit Weight (max. g) | 4.7 |

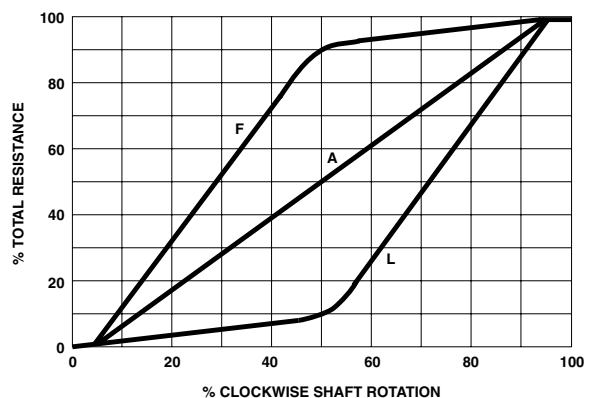
ENVIRONMENTAL SPECIFICATIONS

| | |
|-------------------|-----------------------------|
| Temperature Range | - 55 °C to + 125 °C |
| Climatic Category | 55/100/56 |
| Sealing | fully sealed container IP67 |

POWER RATING CHART



RESISTANCE LAWS



T12, T13



Vishay Sfernice Fully Sealed Container Square or Round Cermet Trimmers

| PERFORMANCE | | | |
|--------------------------|--|---|---|
| TESTS | CONDITIONS | TYPICAL VALUES AND DRIFTS | |
| | | $\frac{\Delta R_T}{R_T}$ (%) | $\frac{\Delta R_{1-2}}{R_{1-2}}$ (%) |
| Load Life | 1000 hours at rated power 90°/30' - ambient temperature 70 °C | ± 1 % Contact res. variation: < 2 % Rn | ± 2 % |
| Climatic Sequence | Phase A dry heat 100 °C Phase B damp heat Phase C cold - 55 °C Phase D damp heat 5 cycles | ± 0.5 % | ± 1 % |
| Long Term Damp Heat | 56 days 40 °C 93 % RH | ± 0.5 % Dielectric strength: 1000 V RMS Insulation resistance: > 10 ⁴ MΩ | ± 1 % |
| Rapid Temperature Change | 5 cycles - 55 °C at + 125 °C | ± 0.5 % | $\frac{\Delta V_{1-2}}{\Delta V_{1-3}}$ ≤ ± 1 % |
| Shock | 50 g at 11 m secs 3 successive shocks in 3 directions | ± 0.1 % | ± 0.5 % |
| Vibration | 10 - 55 Hz 0.75 mm or 10 g during 6 hours | ± 0.1 % | $\frac{\Delta V_{1-2}}{\Delta V_{1-3}}$ ≤ ± 0.5 % |
| Rotational Life | 200 cycles | ± 1 % Contact res. variation: < 2 % Rn | |

| STANDARD RESISTANCE ELEMENT DATA | | | | | | | |
|----------------------------------|---------------------|----------------------|-----------------|---------------------|----------------------|-----------------|--|
| STANDARD RESISTANCE VALUES | LINEAR LAW | | | LOG LAWS | | | TCR - 55 °C + 125 °C ppm/°C |
| | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CUR. | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. WIPER CUR. | |
| Ω | W | V | mA | W | V | mA | |
| 22 | 1 | 4.69 | 213.2 | | | | 0 |
| 47 | | 6.85 | 145.8 | | | | + 200 |
| 100 | | 10 | 100 | | | | |
| 220 | | 14.8 | 67.4 | | | | |
| 470 | | 21.6 | 46.1 | | | | |
| 1K | | 31.6 | 31.6 | 0.5 | 22.4 | 22.4 | |
| 2.2K | | 46.9 | 21.3 | | 33.2 | 15.1 | |
| 4.7K | | 68.5 | 14.5 | | 48.5 | 10.3 | |
| 10K | | 100 | 10 | | 79.7 | 7.07 | |
| 22K | | 148.3 | 6.7 | | 105 | 4.77 | |
| 47K | | 216.7 | 4.6 | | 153 | 3.26 | ± 100 |
| 100K | 1 | 316.2 | 3.16 | | 224 | 2.24 | |
| 220K | 0.56 | 350 | 1.59 | 0.5 | 332 | 1.51 | |
| 470K | 0.26 | 350 | 0.75 | 0.26 | 350 | 0.74 | |
| 1M | 0.12 | 350 | 0.35 | 0.12 | 350 | 0.35 | |
| 2.2M | 0.05 | 350 | 0.16 | | | | |
| 4.7M | 0.02 | 350 | 0.07 | | | | |
| 10M | 0.01 | 350 | 0.03 | | | | |

MARKING

- Printed:
- VISHAY trademark
 - series
 - ohmic value (in Ω, kΩ, MΩ)
 - tolerance (in %)
 - manufacturing date
 - marking of terminal: (1, 2, 3)



T12, T13

Fully Sealed Container Square or Round Cermet Trimmers Vishay Sfernice

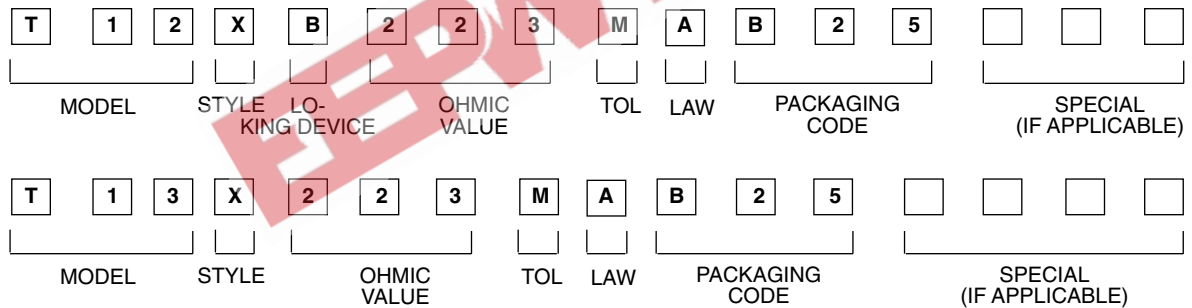
PACKAGING

- Plastic box of 50 pieces for T13Y and BL50
- Carton box of 50 pieces for T12Y and T12X, code BO50

ORDERING INFORMATION

| T12 | X | B | 22 kΩ | ± 20 % | A | BO50 | e3 |
|--------|-------|----------------|-------------|-----------|-----------|-----------------------|-------------|
| SERIES | STYLE | ON REQUEST | OHMIC VALUE | TOLERANCE | RESISTANC | PACKAGING | LEAD FINISH |
| T12 | X | LOCKING DEVICE | | | LAWS | Version T12X, Y: BO50 | |
| T13 | Y | | | | | Version T13Y: BL50 | e3: pure Sn |

SAP PART NUMBERING GUIDELINES



See the end of this data book for conversion tables



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