

## 5 mm Through Hole Trimmer Single-Turn Cermet



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

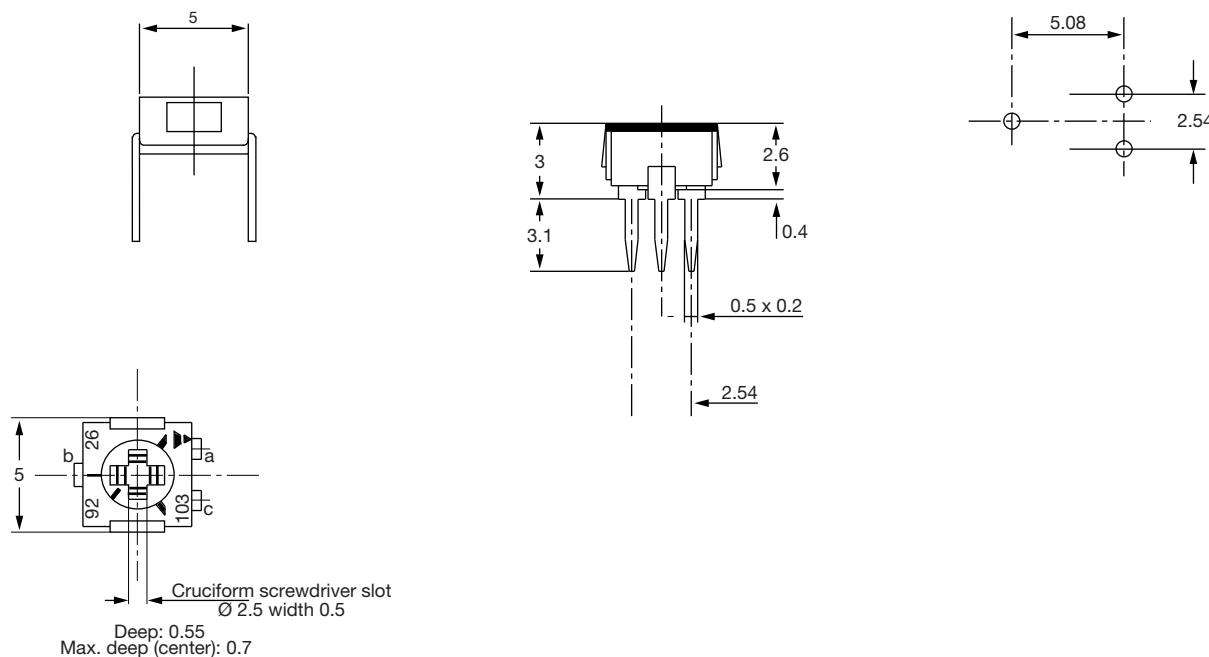
### FEATURES

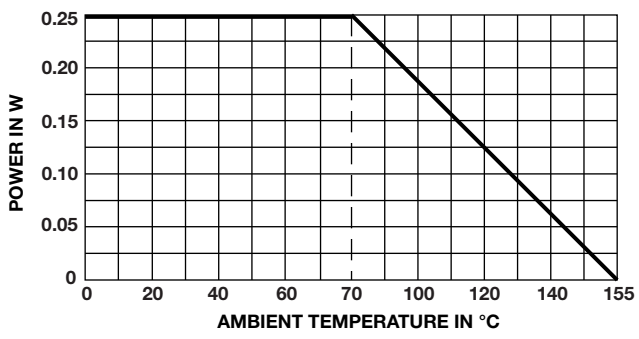
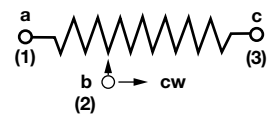
- Fully sealed
- 0.25 W at 70 °C
- Wide ohmic range (10  $\Omega$  to 1 M $\Omega$ )
- Low contact resistance variation (2 % or 3  $\Omega$ )
- Small size for optimum packaging density
- Suitable for both manual or automatic operation
- For SMD version see TS53Y series
- Tests according to CECC 41000 or IEC 60393-1
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### DIMENSIONS in millimeters ( $\pm 0.25$ mm)



ELECTRICAL SPECIFICATIONS	
Resistive element	Cermet
Electrical travel	$220^\circ \pm 15^\circ$
Resistance range	$10\ \Omega$ to $1\ \text{M}\Omega$
Standard series	1 - 2 - 5
Tolerance	Standard
	On request
	Linear
	0.25 W at $+70^\circ\text{C}$
Power rating	
Circuit diagram	
Temperature coefficient	See Standard Resistance Element Data table
Limiting element voltage (linear law)	200 V
Contact resistance variation	2 % or $3\ \Omega$
End resistance (typical)	0.1 % or $3\ \Omega$
Dielectric strength (RMS)	1000 V
Insulation resistance	$10^6\ \text{M}\Omega$
Specification	In accordance with CECC 41100

MECHANICAL SPECIFICATIONS	
Mechanical travel	$270^\circ \pm 10^\circ$
Operating torque (max. Ncm)	1.5
End stop torque (max. Ncm)	3.5
Unit weight (max. g)	0.15
Terminals	Pure Sn (code e3)

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	$-55^\circ\text{C}$ to $+155^\circ\text{C}$
Climatic category	55/125/56
Sealing	Enables cleaning - IP67



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 90°/30' - ambient temp. +70 °C	± 2 % Contact res. variation: $\Delta R < 1 \% R_n$	3 %
Moisture resistance	MIL-STD 202 method 106 10 cycles of 24 h constituted with damp heat - cold - vibrations	± 2 % Dielectric strength: 1000 V <sub>RMS</sub> Insulation resistance: $> 10^4 \text{ M}\Omega$	± 3 %
Long term damp heat	Temperature 40 °C - RH 93 % 56 days	± 2 % Dielectric strength: 1000 V <sub>RMS</sub> Insulation resistance: $> 10^4 \text{ M}\Omega$	± 3 %
Thermal shock	-55 °C to +125 °C - 5 cycles	± 1 %	$\Delta V_{1-2}/V_{1-3} \leq \pm 2 \%$
Rotational life (electrical and mechanical)	100 cycles - rated power	± (3 % + 5 Ω)	
Shock	MIL-STD 202 method 213/1 100 g - 6 ms 3 successive shocks in 3 directions	± 1 %	$\Delta V_{1-2}/V_{1-3} \leq \pm 1 \%$
Vibration	MIL-STD 202 method 204/D 20 g - 12 h	± 1 %	$\Delta V_{1-2}/V_{1-3} \leq \pm 1 \%$

**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 - 55 °C + 125 °C
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CURRENT	
Ω	W	V	mA	ppm/°C
10	0.25	1.58	158	± 100
20	0.25	2.24	112	
50	0.25	3.54	71	
100	0.25	5.00	50	
200	0.25	7.07	35	
500	0.25	11.2	22	
1K	0.25	15.8	16	
2K	0.25	22.4	11	
5K	0.25	35.4	7	
10K	0.25	50.0	5	
20K	0.25	70.7	3.5	
50K	0.25	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 (in  $\Omega$ , k $\Omega$ , M $\Omega$ ) is indicated by a three figure code, the first two are significant figures, the third one is a multiplier.  
Example: 100 = 10  $\Omega$   
101 = 100  $\Omega$   
102 = 1000  $\Omega$   
503 = 50 000  $\Omega$
- Manufacturing date is indicated by four digits, the first two for the year, the last for the week number.

**PACKAGING**

- In box of 250 pieces code B41 (B0250)

**ORDERING INFORMATION** (part number)

T	5	3	Y	5	0	4	M	B	4	1			
Model		STYLE		OHMIC VALUE			TOLERANCE		PACKAGING		SPECIAL NUMBER		
T53		Y		From 10 Ω to 1 MΩ 504 = 500 kΩ			20 % On request: ± 10 %		B41 = box 250 pieces		(If applicable) Given by Vishay for custom design		

**DESCRIPTION** (for information only)

T53	Y	500K	20 %		B0	e3
MODEL	STYLE	VALUE	TOLERANCE	SPECIAL	PACKAGING	LEAD FINISH

**RELATED DOCUMENTS****APPLICATION NOTES**

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>

**ACCESSORIES**

Screwdrivers (to order separately)	<a href="http://www.vishay.com/doc?57015">www.vishay.com/doc?57015</a>
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