

## Miniature Trimmer Single-Turn Cermet



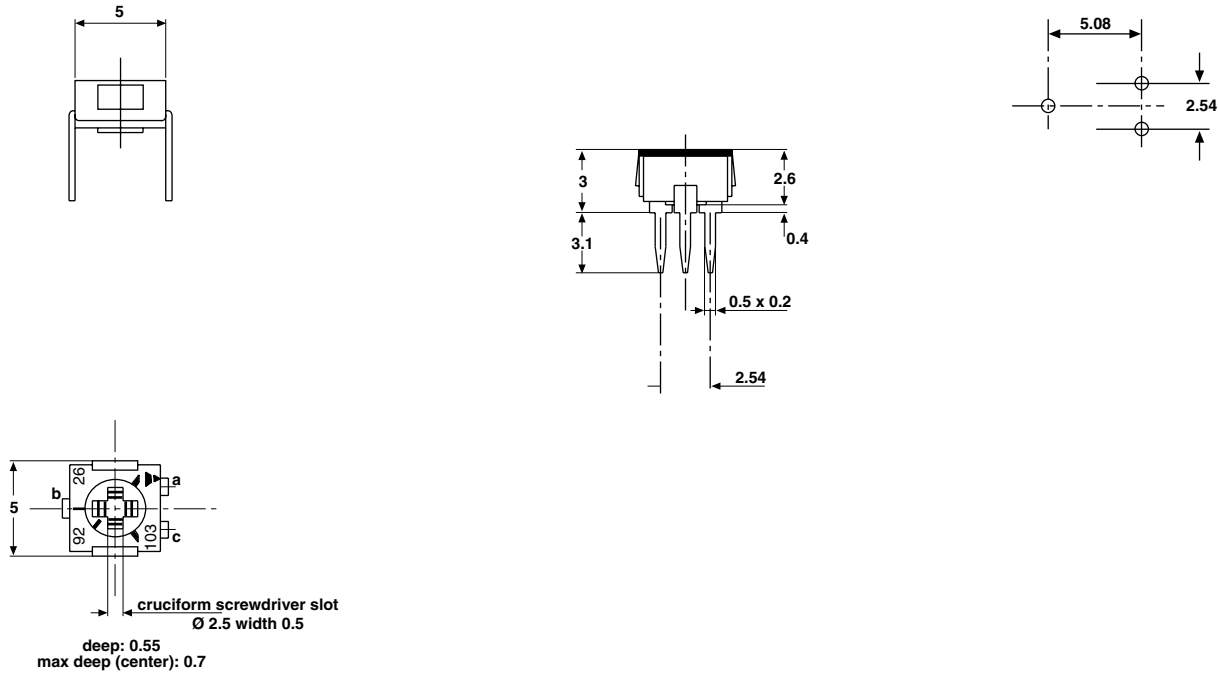
The T53 trimming potentiometer volumetric efficiency (5 x 5 x 2.7 mm) with high performance and stability. The T53 design is suitable for both manual or automatic operation.

### FEATURES

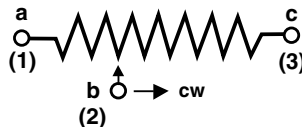
- Fully sealed
- 0.25 Watt at 70 °C
- Wide ohmic range (10 Ω to 1 MΩ)
- Low contact resistance variation (2 % or 3 Ω)
- Small size for optimum packing density
- Suitable for both manual or automatic operation
- For SMD version see TS53Y series



### DIMENSIONS in millimeters



### CIRCUIT DIAGRAM



Tolerances unless otherwise specified ± 0.25

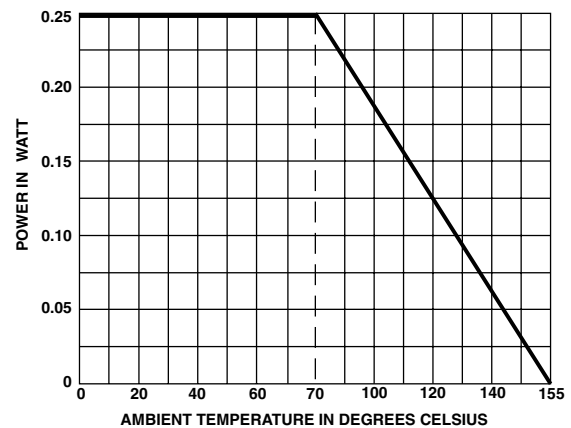
ELECTRICAL SPECIFICATIONS		
Resistive Element		Cermet
Electrical Travel		220° ± 15°
Resistance Range		10 Ω to 1 MΩ
Standard Series		1 - 2 - 5
Tolerance Standard		± 20 %
Power Rating	Linear	0.25 W at 70 °C
	Logarithmic	not applicable
Temperature Coefficient		See Standard Resistance Element Data
Limiting 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 <sup>6</sup> 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 <sup>4</sup> MΩ	± 3 %
Long Term Damp Heat	Temperature 40 °C - RH 93 % 56 days	± 2 % Dielectric strength: 1000 V RMS Insulation resistance: > 10 <sup>4</sup> 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
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CUR.	
Ω	W	V	mA	ppm/°C
10	0.25	1.58	158	0 + 200
20	↓	2.24	112	
50		3.54	71	
100		5.00	50	
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	± 100
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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