

## 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.

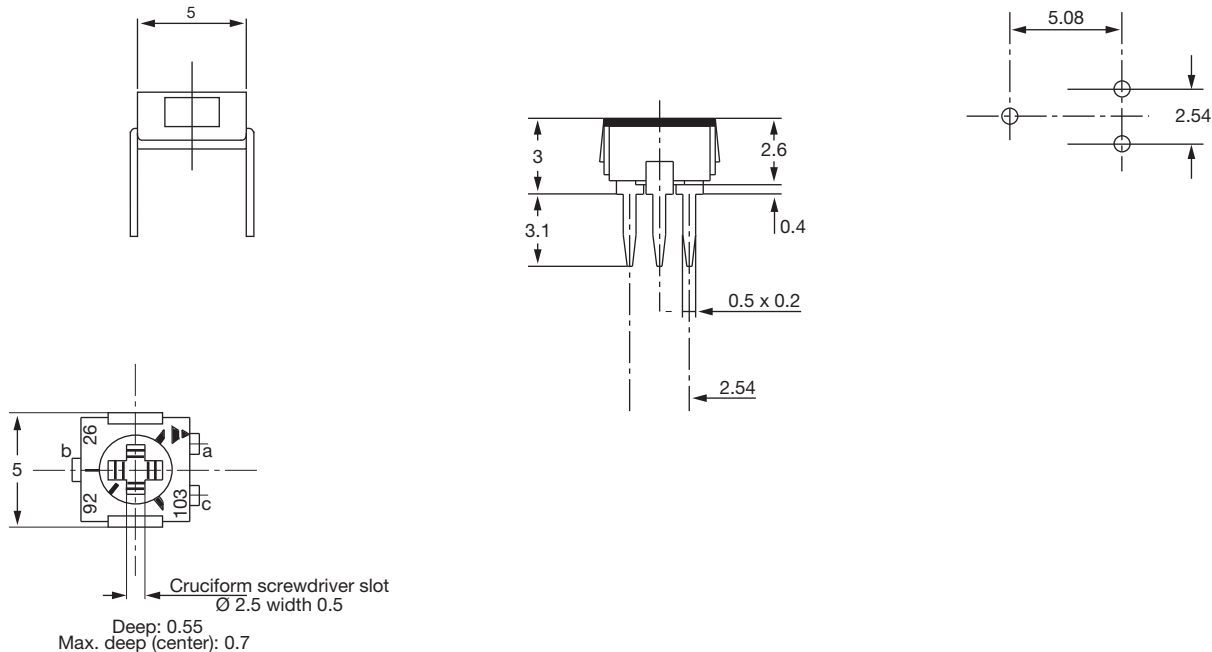
### FEATURES

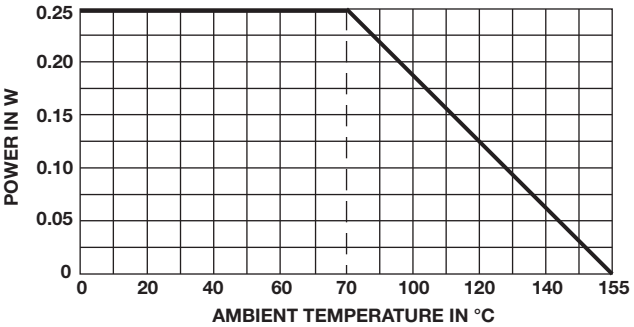
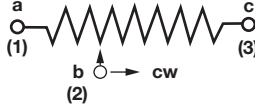
- Fully sealed
- 0.25 W at 70 °C
- Wide ohmic range (10 Ω to 1 MΩ)
- Low contact resistance variation (2 % or 3 Ω)
- Small size for optimum packaging density
- Suitable for both manual or automatic operation
- For SMD version see TS53Y series
- Tests according to CECC 41000 or IEC 60393-1
- Material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



**RoHS**  
COMPLIANT

### DIMENSIONS in millimeters (± 0.25 mm)



<b>ELECTRICAL SPECIFICATIONS</b>		
Resistive element	Cermet	
Electrical travel	220° ± 15°	
Resistance range	10 Ω to 1 MΩ	
Standard series	1 - 2 - 5	
Tolerance	Standard	± 20 %
	On request	± 10 %
Power rating	Linear 0.25 W at +70 °C 	
Circuit diagram		
Temperature coefficient	See Standard Resistance Element Data table	
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	

<b>MECHANICAL SPECIFICATIONS</b>	
Mechanical travel	270 ° ± 10°
Operating torque (max. Ncm)	1.5
End stop torque (max. Ncm)	3.5
Unit weight (max. g)	0.15
Terminals	Pure Sn (code e3)

<b>ENVIRONMENTAL SPECIFICATIONS</b>	
Temperature range	-55 °C to +155 °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 <sup>4</sup> 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 <sup>4</sup> 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 $\Omega$ )	
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	
$\Omega$	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	



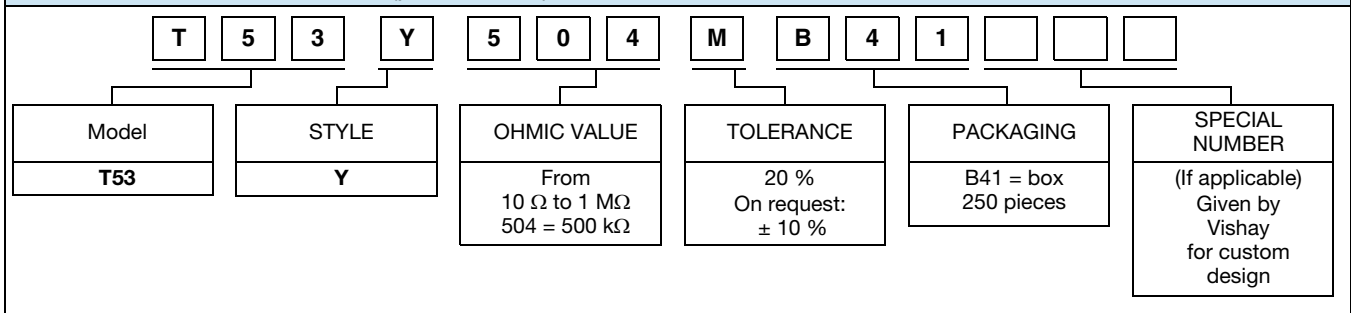
**MARKING**

- 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)**



**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>
Selector guide	<a href="http://www.vishay.com/doc?49286">www.vishay.com/doc?49286</a>

**ACCESSORIES**

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



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.