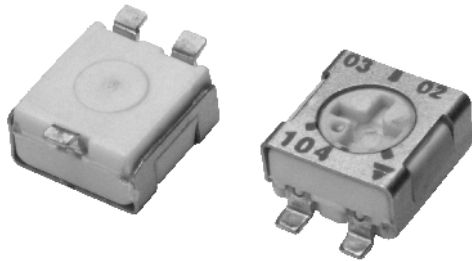


Surface Mount Miniature Trimmers Single-Turn Cermet Sealed



FEATURES

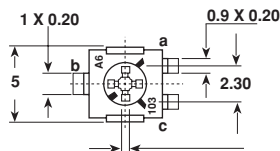
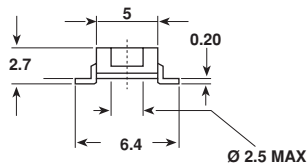
- 0.20 Watt at 85°C
- GAM T1
- For PCB version see T53Y series
- Excellent stability
- Wide ohmic range
- Low temperature coefficient
- Low contact resistance variation
- Small size for optimum packing density
- Suitable for both manual or automatic operation

The TS53 trimming potentiometer has been designed for surface mount applications and offers volumetric efficiency (5 x 5 x 2.7 mm) with high performance and stability.

The TS53 design is suitable for both manual or automatic operation, and can withstand waves, vapor phase and reflow soldering techniques.

DIMENSIONS in millimeters

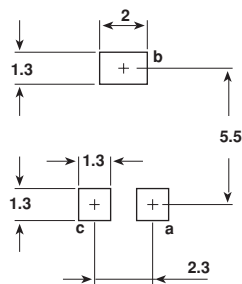
TS53YL



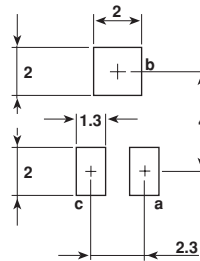
cruciform screwdriver slot
 \varnothing 2.5, width 0.5
 deep: 0.55
 max deep (center): 0.7

RECOMMENDED SOLDERING AREAS

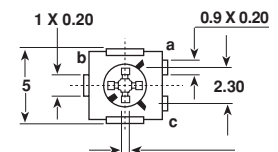
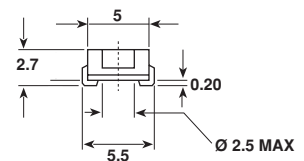
TS53YL



TS53YJ

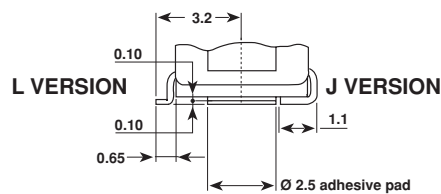


TS53YJ

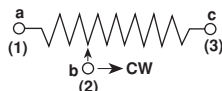


cruciform screwdriver slot
 \varnothing 2.5, width 0.5
 deep: 0.55
 max deep (center): 0.7

ADHESIVE PAD (detail)



CIRCUIT DIAGRAM



**ELECTRICAL SPECIFICATIONS**

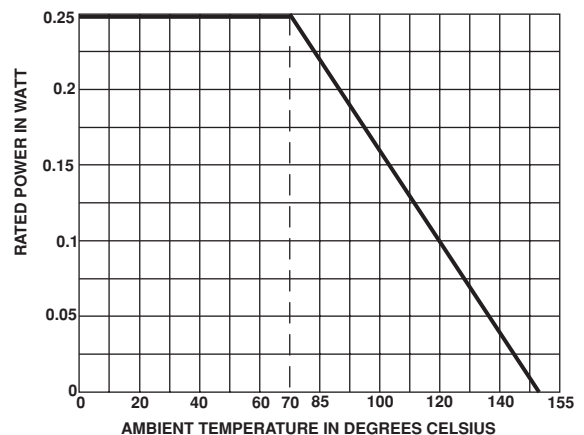
Resistive Element	Cermet	
Electrical Travel	$220^{\circ} \pm 15^{\circ}$	
Resistance Range	10 Ω to 1M Ω	
Standard Series	1 - 2 - 5	
Tolerance Standard	$\pm 20\%$	
Power Rating	Linear	0.25W at 70°C
	Logarithmic	not applicable
Temperature Coefficient	See Standard Resistance Element Data	
Limiting Element Voltage (Linear Law)	200V	
Contact Resistance Variation	1% or 3 Ω	
End Resistance (Typical)	0.1% or 3 Ω	
Dielectric Strength (RMS)	1000V	
Insulation Resistance	10 ⁶ M Ω	

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

ENVIRONMENTAL SPECIFICATIONS

Temperature Range	-55°C to $+125^{\circ}\text{C}$
Climatic Category	55 / 125 / 56
Sealing	sealed container solder immersion 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 + 85°C	$\pm 2\%$ Contact resistance variation: $\Delta R < 1\% R_n$	$\pm 3\%$
Moisture Resistance	MIL STD 202 Method 106 10 cycles of 24 hours constituted with damp heat - cold - vibrations	$\pm 2\%$ Dielectric strength: 1000 V RMS Insulation resistance: $> 10^4 \text{ M}\Omega$	$\pm 3\%$
Long Term Damp Heat	Temperature 40°C - RH 93 % 56 days	$\pm 2\%$ Dielectric strength: 1000 V RMS Insulation resistance: $> 10^4 \text{ M}\Omega$	$\pm 3\%$
Thermal Shock	55°C to $+125^{\circ}\text{C}$ - 5 cycles	$\pm 1\%$	$\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 2\%$
Rotational Life (Electrical and Mechanical)	100 cycles - rated power	$\pm 3\%$	
Shock	MIL STD 202 Method 213/1 100 g - 6 ms 3 successive shocks in 3 directions	$\pm 1\%$	$\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 1\%$
Vibration	MIL STD 202 Method 204/D 20 g - 12 hours	$\pm 1\%$	$\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 1\%$

STANDARD RESISTANCE ELEMENT DATA

STANDARD RESISTANCE VALUES	LINEAR LAW			T.C. -55°C +125°C
	MAX. POWER AT 85°C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH ELEMENT	
Ω	W	V	mA	ppm/°C
10	0.20	1.41	141	0 + 200
20	↓	2	100	
50		3.16	63	
100	↓	4.47	45	± 100
200		6.32	32	
500		10	20	
1k		14.1	14	
2k		20	10	
5k		31.6	6.3	
10k		44.7	4.5	
20k		63.2	3.2	
50k		100	2	
100k		141	1.4	
200k	0.2	200	1	
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 = 10Ω
 101 = 100Ω
 102 = 1000Ω
 503 = 50000Ω

SOLDERING RECOMMENDATIONS

Vapor phase: 215°C/20 to 40 seconds.

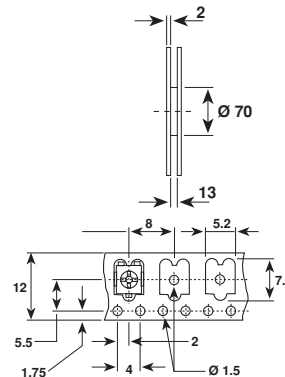
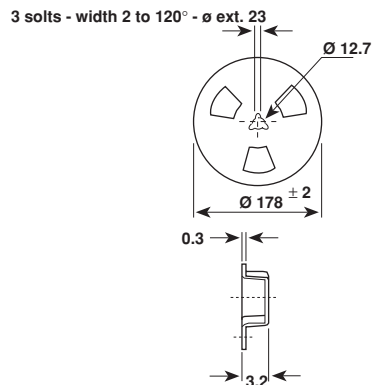
Reflow: 230°C/20 seconds.

Do not exceed peak 260°C or with an IRON 40W: 3 seconds at 350°C.

Soldering is possible by wave, reflow and vapor phase.

PACKAGING

On tape and reel of 500 pieces, code TR and 2000 pieces, code TR1



Cover tape panel strength specifications EIA 481 A and CEI 60286-3.

ORDERING INFORMATION

TS53
SERIES

YL
STYLE

500KΩ
OHMIC VALUE

± 20%
TOLERANCE

TR500
PACKAGING

TR: Tape and reel 500 pcs.
 on request: TR1: Tape and reel 2000 pcs.

SAP PART NUMBERING GUIDELINES

T	S	5	3	Y	L	5	0	4	M	R	1	0			
MODEL				STYLE		OHMIC VALUE			TOL	PACKAGING CODE			SPECIAL (IF APPLICABLE)		

See the end of this data book for conversion tables



Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.