# TS53Y

# Vishay Sfernice



## Surface Mount Miniature Trimmers Single-Turn Cermet Sealed

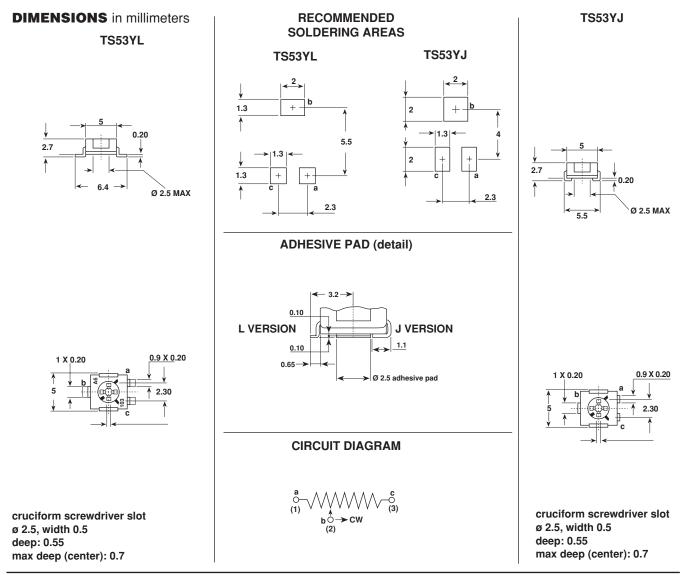


The TS53 trimming potentiometer has been designed for surface mount applications and offers volumetric efficiency (5 x 5 x 2.7 mm) with high performance and stability.

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

### FEATURES

- 0.20 Watt at  $85^{\circ}C$
- 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



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**TS53Y** 

ELECTRICAL SPECIFICATIONS				
Resistive Element	Cermet			
Electrical Travel	220° ± 15°			
Resistance Range	$10\Omega$ to $1M\Omega$			
Standard Series	1 - 2 - 5			
Tolerance Standard	± 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 $\Omega$			
End Resistance (Typical)	0.1% or 3Ω			
Dielectric Strength (RMS)	1000V			
Insulation Resistance	10 <sup>6</sup> ΜΩ			

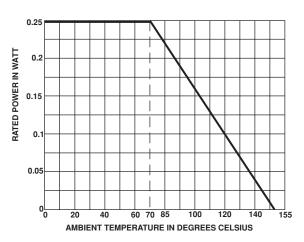
#### **MECHANICAL SPECIFICATIONS**

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 Climatic Category Sealing - 55°C to + 125°C 55 / 125 / 56 sealed container solder immersion IP67

#### **POWER RATING CHART**



PERFORMANCE							
		TYPICAL VALUES AND DRIFTS					
TESTS	CONDITIONS	<u>∆RT</u> RT (%)	<u>∆R1-2</u> (%)				
Load Life	1000 hours at rated power	± 2%	± 3 %				
	90'/30' - ambient temperature + 85°C	Contact resistance variation: $\Delta R < 1\% Rn$					
Moisture Resistance	MIL STD 202 Method 106	± 2 %	± 3 %				
	10 cycles of 24 hours constituted with damp heat - cold - vibrations	Dielectric strength: 1000 V RMS Insulation resistance: > $10^4 M\Omega$					
Long Term Damp Heat	Temperature 40°C - RH 93 % 56 days	± 2 %	±3%				
		Dielectric strength: 1000 V RMS Insulation resistance: > $10^4 M\Omega$					
Thermal Shock	55°C to + 125°C - 5 cycles ± 1 %		$\frac{\Delta V_{1\text{-}2}}{V_{1\text{-}3}} \leq \pm 2\%$				
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 %	$\frac{\Delta V_{1-2}}{V_{1-3}} \le \pm 1\%$				
Vibration	MIL STD 202 Method 204/D 20 g - 12 hours	± 1 %	$\frac{\Delta V_{1\text{-}2}}{V_{1\text{-}3}} \le \pm 1\%$				

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STANDARD RESISTANCE ELEMENT DATA						
STANDARD	LINEAR LAW			T.C.		
RESISTANCE	MAX. POWER AT 85°C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH ELEMENT	-55°C +125°C		
Ω	W	V	mA	ppm/°C		
10	0.20	1.41	141			
20		2	100	0		
50		3.16	63	+ 200		
100		4.47	45			
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	± 100		
50k	0.2	100	2			
100k	0.2	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:  $100 = 10\Omega$ 

 $100 = 10\Omega$   $101 = 100\Omega$   $102 = 1000\Omega$  $503 = 50000\Omega$ 

#### **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 3 solts - width 2 to 120° - ø ext. 23 Ø 12.7 <u>Ø</u>178 <sup>± 2</sup> 0.3 -> || -Cover tape panel strength specifications EIA 481 A and CEI 60286-3. **ORDERING INFORMATION TS53** YL **500K**Ω ± 20% **TR500** SERIES STYLE OHMIC VALUE TOLERANCE PACKAGING TR: Tape and reel 500 pcs. on request: TR1: Tape and reel 2000 pcs. SAP PART NUMBERING GUIDELINES Т S 5 3 5 R 0 Υ L 0 4 Μ 1 MODEL STYLE OHMIC PACKAGING SPECIAL TOL CODE (IF APPLICABLE) VALUE See the end of this data book for conversion tables www.vishay.com For technical questions, contact: sfer@vishay.com Document Number: 51008 Revision: 19-Jan-04 20



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