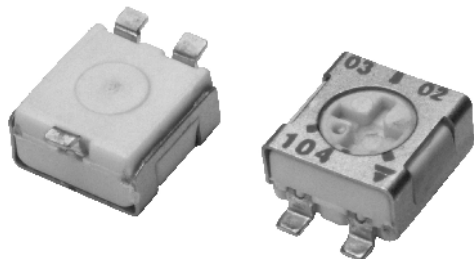


## Surface Mount Miniature Trimmers Single-Turn Cermet Sealed



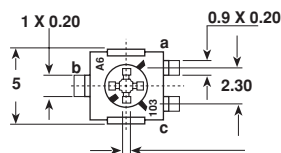
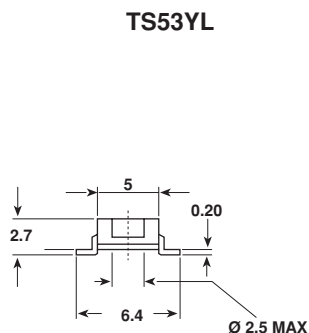
The TS53 trimming potentiometer has been designed for surface mount applications and offers volumetric efficiency (5 x 5 x 2.7 mm) with high performance and stability.

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

### FEATURES

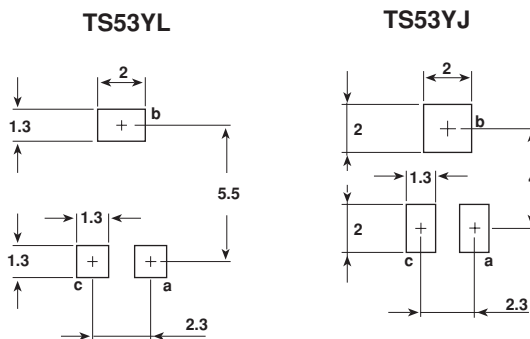
- 0.20 Watt at 85°C
- GAM T1
- For PCB version see T53Y series
- Excellent stability
- Wide ohmic range
- Low temperature coefficient
- Low contact resistance variation
- Small size for optimum packing density
- Suitable for both manual or automatic operation

### DIMENSIONS in millimeters

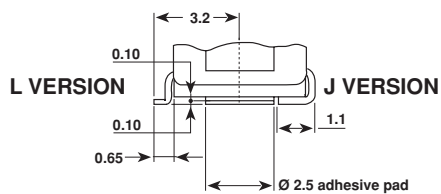


cruciform screwdriver slot  
 $\varnothing$  2.5, width 0.5  
 deep: 0.55  
 max deep (center): 0.7

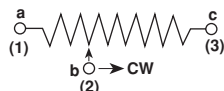
### RECOMMENDED SOLDERING AREAS



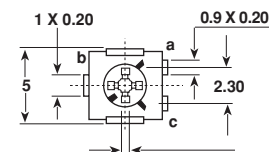
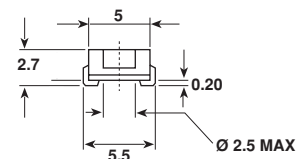
### ADHESIVE PAD (detail)



### CIRCUIT DIAGRAM



### TS53YJ



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



ELECTRICAL SPECIFICATIONS		
Resistive Element		Cermet
Electrical Travel		220° ± 15°
Resistance Range		10Ω to 1MΩ
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 3Ω
End Resistance (Typical)		0.1% or 3Ω
Dielectric Strength (RMS)		1000V
Insulation Resistance		10 <sup>6</sup> MΩ

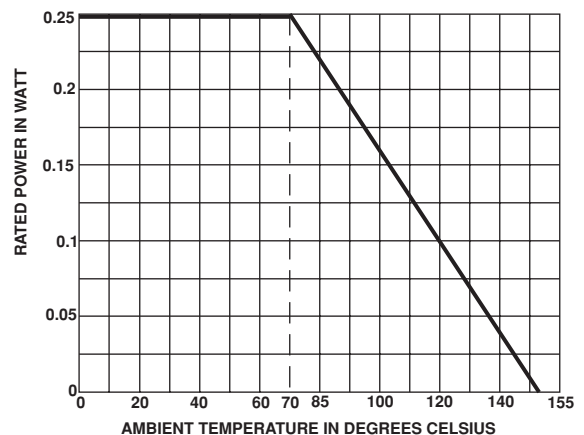
**MECHANICAL SPECIFICATIONS**

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 + 125°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	± 2%	± 3 % Contact resistance variation: $\Delta R < 1\% R_n$
Moisture Resistance	MIL STD 202 Method 106 10 cycles of 24 hours constituted with damp heat - cold - vibrations	± 2 %	± 3 % Dielectric strength: 1000 V RMS Insulation resistance: > 10 <sup>4</sup> MΩ
Long Term Damp Heat	Temperature 40°C - RH 93 % 56 days	± 2 %	± 3 % Dielectric strength: 1000 V RMS Insulation resistance: > 10 <sup>4</sup> MΩ
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			T.C. -55°C +125°C  ppm/°C
	MAX. POWER AT 85°C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH ELEMENT	
Ω	W	V	mA	
10	0.20	1.41	141	0 + 200
20	↓	2	100	
50		3.16	63	
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 = 10Ω  
 101 = 100Ω  
 102 = 1000Ω  
 503 = 50000Ω

### SOLDERING RECOMMENDATIONS

Vapor phase: 215°C/20 to 40 seconds.

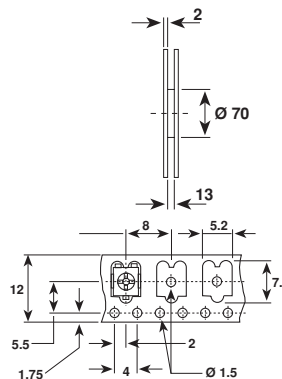
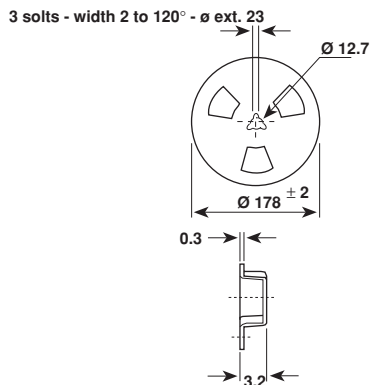
Reflow: 230°C/20 seconds.

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



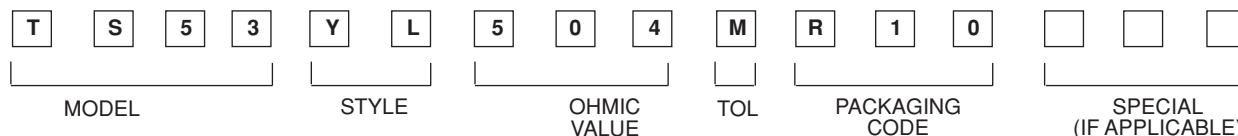
Cover tape panel strength specifications EIA 481 A and CEI 60286-3.

### ORDERING INFORMATION

TS53 SERIES	YL STYLE	500KΩ OHMIC VALUE	± 20% TOLERANCE	TR500 PACKAGING
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TR: Tape and reel 500 pcs.  
 on request: TR1: Tape and reel 2000 pcs.

### SAP PART NUMBERING GUIDELINES



See the end of this data book for conversion tables



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