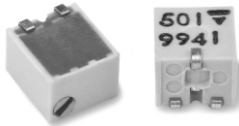


Surface Mount Miniature Trimmers Multiturn Cermet Sealed



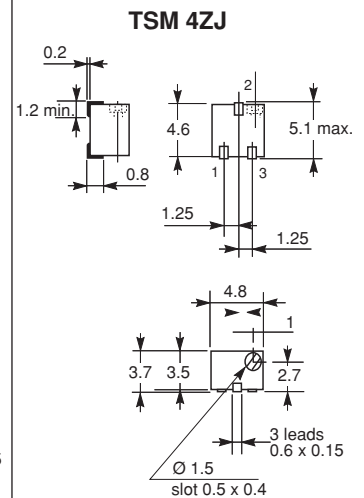
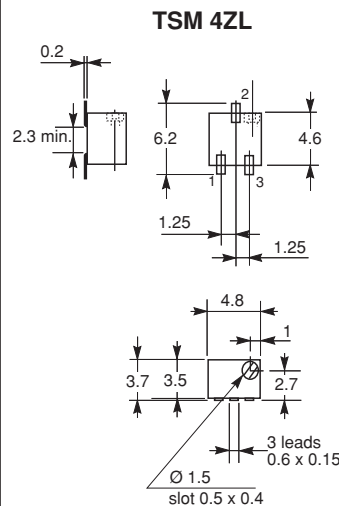
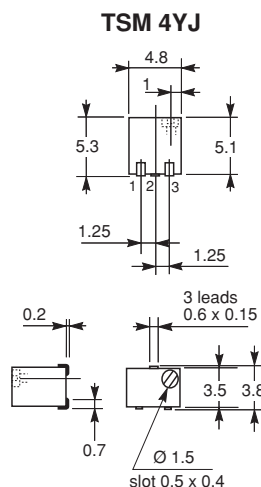
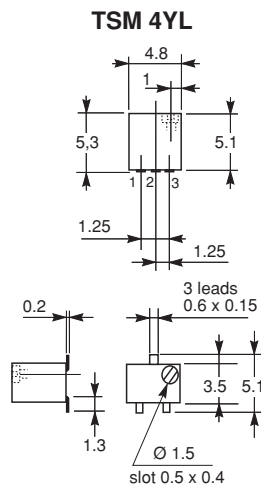
The TSM4 trimming potentiometer has been designed for surface mount applications and offers volumetric efficiency $5 \times 5 \times 3.7 \text{ mm}^3$ with high performance and stability.

The TSM4 design is suitable for both manual or automatic operation, and can withstand vapor phase and reflow soldering techniques.

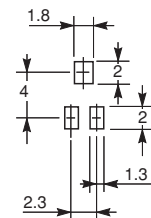
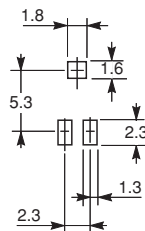
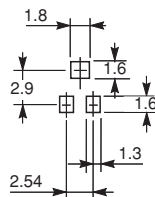
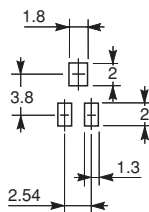
FEATURES

- 0.25 Watt at 85°C
- Professional grade
- Excellent stability
- Wide ohmic range
- Low contact resistance variation
- Small size for optimum packing density
- Suitable for both manual or automatic operation

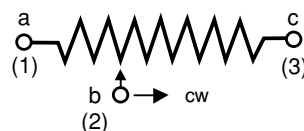
DIMENSIONS in millimeters



RECOMMENDED SOLDERING AREAS



CIRCUIT DIAGRAM



ELECTRICAL SPECIFICATIONS

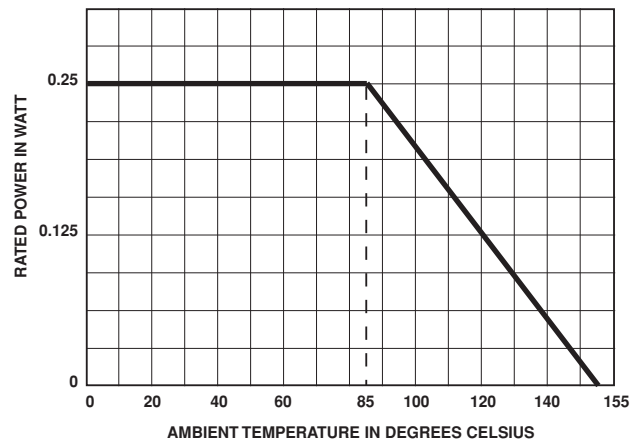
Resistive Element	Cermet
Electrical Travel	11 turns $\pm$ 2
Resistance Range	10 Ω to 1M Ω
Standard Series	1 - 2 - 5
Tolerance Standard	$\pm$ 10%
Power Rating	Linear 0.25W at + 85°C
	Logarithmic not applicable
Temperature Coefficient	See Standard Resistance Element Table
Limiting Element Voltage (Linear Law)	200V
Contact Resistance Variation	1% or 3 Ω
End Resistance (Typical)	1 Ω
Dielectric Strength (RMS)	600V
Insulation Resistance	10 ⁶ M Ω

MECHANICAL SPECIFICATIONS

Mechanical Travel	13 turns $\pm$ 2
Operating Torque (max. Ncm)	1
End Stop Torque (Ncm)	clutch action
Unit Weight (max. g.)	0.15

ENVIRONMENTAL SPECIFICATIONS

Temperature Range	- 55°C + 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	$\pm$ 2% Contact resistance variation : $\Delta > 1\%$ Rn	$\pm$ 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 : $> 10^4$ M Ω	$\pm$ 3 %
Long Term Damp Heat	Temperature 40°C - RH 93% 56 days	$\pm$ 2 % Dielectric strength : 1000 V _{RMS} Insulation resistance : $> 10^4$ M Ω	$\pm$ 3 %
Thermal Shock	- 55°C to + 125°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	0.25	1.58	158	0 + 200
20		2.23	112	
50		3.53	77	
100	↓	5	50	± 100
200		7.07	35	
500		11.2	22	
1k		15.8	15.8	
2k		22.3	11.2	
5k		35.3	7.1	
10k		50	5	
20k		70.7	3.5	
50k		112	2.2	
100k		158	1.6	
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 digits 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.

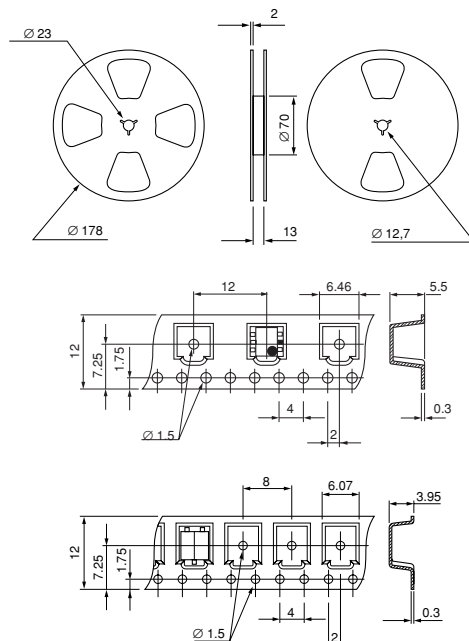
Reflow: 230°C/20 seconds

Do not exceed peak 260°C

PACKAGING

In bulk (plastic box of 50 pieces).

On tape and reel on request, by 500 pieces for Z version, or 250 pieces for Y version.



Version Y

Version Z

ORDERING INFORMATION

TSM4	YL	500KΩ	± 10%	BO50
SERIES	STYLE	OHMIC VALUE	TOLERANCE	PACKAGING
				On request Version Z: code TR500 Version Y: code TR250 BO50