

4 mm Square Surface-Mount Miniature Trimmers Multi-Turn Cermet Sealed, Industrial Grade


**RoHS
COMPLIANT**
FEATURES

- 0.25 W at 85 °C
- Wide ohmic range (10 Ω to 1 MΩ)
- Low contact resistance variation (2 % or 3 Ω)
- 4 mm design meets EIA SMD standard trimmer footprint
- Pick and place centering design, with flush adjustment
- Top and side adjust styles
- Construction: sealed (to withstand board wash processing)
- Industrial grade
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

LINKS TO ADDITIONAL RESOURCES


The TSM41 trimming potentiometer has been designed for surface mount applications and offers volumetric efficiency with high performance and stability.

DIMENSIONS in millimeters (± 0.5 mm)			
<p>TSM41 ZL (SIDE ADJUST)</p> <p>Top view dimensions: 2.9, 0.2, 2, 4.6, 6, 1.15, 2.3, 1.2, 4.8, 1.2, Ø 1.5, Slot 0.6 x 0.5, 3.9, 3.5, 2.7, 1.3 x 0.13, (2 x) 0.9 x 0.13</p> <p>Side view dimensions: 0.2, 1, 2, 4.6, 5, 1.15, 2.3, 4.8, Ø 1.5, Slot 0.6 x 0.5, 3.7, 3.5, 2.6, 1.3 x 0.15, 0.9 x 0.15</p>	<p>TSM41 ZJ (SIDE ADJUST)</p> <p>Top view dimensions: 0.2, 1, 2, 4.6, 5, 1.15, 2.3, 4.8, Ø 1.5, Slot 0.6 x 0.5, 3.7, 3.5, 2.6, 1.3 x 0.15, 0.9 x 0.15</p> <p>Side view dimensions: 0.2, 1, 2, 4.6, 5, 1.15, 2.3, 4.8, Ø 1.5, Slot 0.6 x 0.5, 3.7, 3.5, 2.6, 1.3 x 0.15, 0.9 x 0.15</p>	<p>TSM41 YL (TOP ADJUST)</p> <p>Top view dimensions: 4.8, 1.2, 5.3, 1, 3, 5.1, 2.54, 1.27, 1.3 x 0.13, Ø 1.5, Slot 0.6 x 0.5, 0.2, 5.7, 3.5, 3.5, 1.1, (2 x) 0.8 x 0.13</p> <p>Side view dimensions: 0.2, 1, 2, 4.6, 5, 1.15, 2.3, 4.8, Ø 1.5, Slot 0.6 x 0.5, 3.7, 3.5, 2.6, 1.3 x 0.15, 0.9 x 0.15</p>	<p>TSM41 YJ (TOP ADJUST)</p> <p>Top view dimensions: 4.8, 1.2, 5.3, 1, 3, 5.1, 2.54, 1.27, 1.3 x 0.13, Ø 1.5, Slot 0.6 x 0.5, 0.7, 0.2, 4, 3.5, 2.6, 0.8, (2 x) 0.8 x 0.13</p> <p>Side view dimensions: 0.2, 1, 2, 4.6, 5, 1.15, 2.3, 4.8, Ø 1.5, Slot 0.6 x 0.5, 3.7, 3.5, 2.6, 1.3 x 0.15, 0.9 x 0.15</p>
RECOMMENDED SOLDERING AREAS			
<p>Dimensions: 2, 1.3, 5.2, 1.3, 2.3, 1.3</p>	<p>Dimensions: 2, 2, 4, 2, 2.3, 1.3</p>	<p>Dimensions: 2, 1.9, 5.1, 1.9, 2.5, 1.3</p>	<p>Dimensions: 2, 1.6, 2.9, 1.6, 2.5, 1.3</p>



ELECTRICAL SPECIFICATIONS		
Electrical travel adjustment angle		12 turns nom.
Resistance range		10 Ω to 1 M Ω
Tolerance standard		$\pm 10\%$
Power rating (300 V max.)	Linear	0.25 W at 85 °C 0 W at 150 °C
Circuit diagram		
Temperature coefficient		± 100 ppm/°C
Contact resistance variation (typical)		2 % or 3 Ω
End resistance (typical)		1 Ω
Dielectric strength (RMS)		600 V (1 minute)
Insulation resistance (500 V _{DC})		100 M Ω

MECHANICAL SPECIFICATIONS	
Torque	1.8 cm/V max.
End stop	Clutch action (2 turns max.)
Unit weight	Approximately 0.28 g
Wiper	Positioned at approx. 50 % (actual TR)

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	-55 °C to +140 °C
Sealing	Sealed container IP67
MSL level	1

SOLDERING RECOMMENDATIONS
Recommended reflow profile 2, see Application Note www.vishay.com/doc?52029

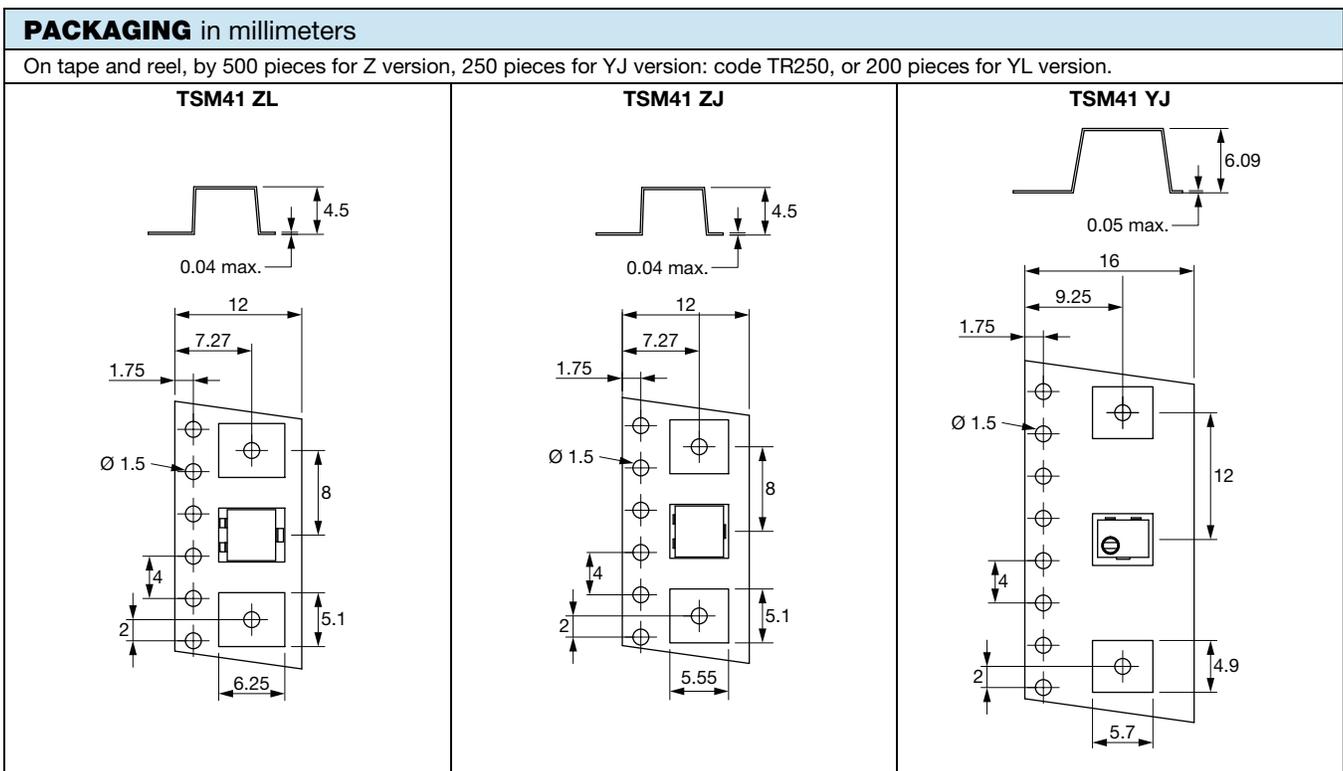
PERFORMANCES		
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS
Load life	1000 h at rated power 90°/30° - ambient temp. +85 °C	Total resistance shift = $\pm 3\%$ or $\pm 3\%$ whichever is greater
Humidity	MIL-STD-202 method 106	Total resistance shift = $\pm 2\%$ Insulation resistance = 10 M Ω
Thermal shock	5 cycles	Total resistance shift = $\pm 2\%$ Voltage resistance shift = $\pm 1\%$
Rotational cycling	200 cycles	Total resistance shift = $\pm 3\%$ or $\pm 3\%$ whichever is greater
Shock	100 g	Total resistance shift = $\pm 1\%$ Voltage resistance shift = $\pm 1\%$
Vibration	20 g	Total resistance shift = $\pm 1\%$ Voltage resistance shift = $\pm 1\%$

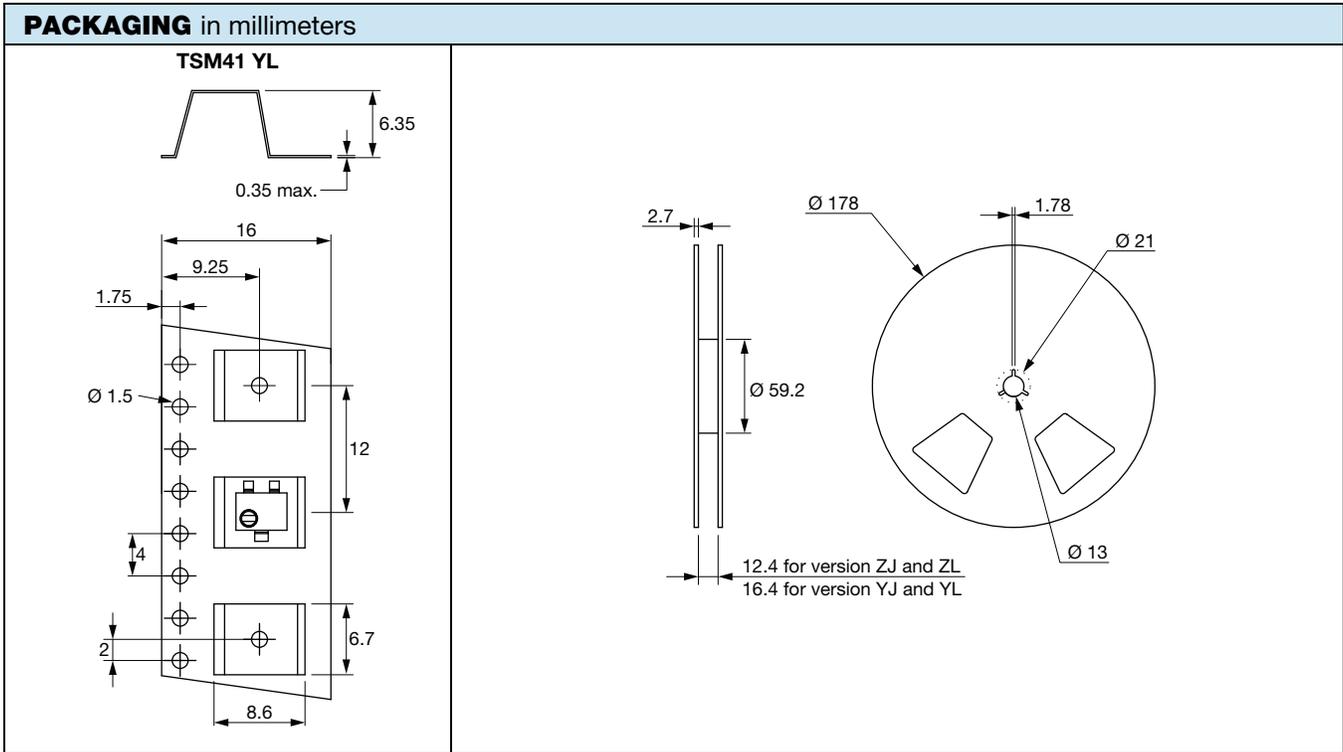
Note

- 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 85 °C	MAX. WORKING VOLTAGE	MAX. CURRENT THROUGH ELEMENT	
Ω	W	V	mA	ppm/°C
10	0.25	1.58	158	± 100
20	0.25	2.23	112	
50	0.25	3.53	77	
100	0.25	5.00	50	
200	0.25	7.07	35	
500	0.25	11.2	22	
1K	0.25	15.8	15.8	
2K	0.25	22.3	11.2	
5K	0.25	35.3	7.1	
10K	0.25	50.0	5.0	
20K	0.25	70.7	3.5	
50K	0.25	112	2.2	
100K	0.25	158	1.6	
200K	0.25	223	1.12	
500K	0.08	300	0.83	
1M	0.04	300	0.83	

MARKING
Vishay trademark, ohmic value, manufacturing date





ORDERING INFORMATION (part number)

T	S	M	4	1	Y	L	5	0	4	K	R	0	5				
MODEL		STYLE			OHMIC VALUE			TOLERANCE			PACKAGING			SPECIAL NUMBER			
TSM41		YJ YL ZJ ZL			From 10 Ω to 1 MΩ 504 = 500 kΩ			K = 10 %			R10 = reel 500 pieces for ZJ and ZL R05 = reel 250 pieces for YJ and 200 pieces for YL On request			(If applicable) Given by Vishay for custom design			

DESCRIPTION (for information only)

TSM41	YL	500K	10 %		TR	e3
MODEL	STYLE	VALUE	TOLERANCE	SPECIAL	PACKAGING	LEAD (Pb)-FREE

RELATED DOCUMENTS

APPLICATION NOTES

Potentiometers and Trimmers	www.vishay.com/doc?51001
Guidelines for Vishay Sfernice Resistive and Inductive Components	www.vishay.com/doc?52029



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