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

FEATURES

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

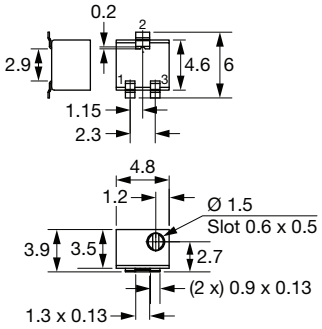
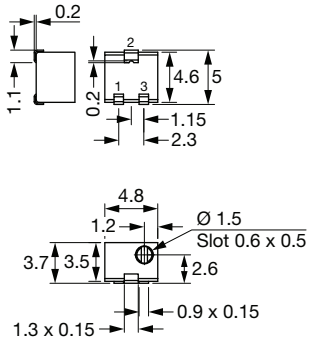
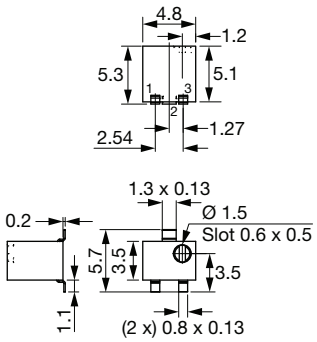
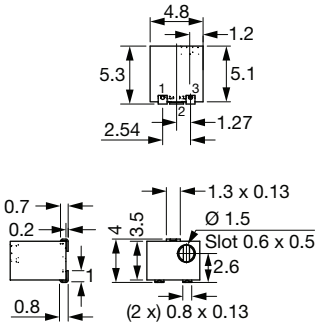
RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

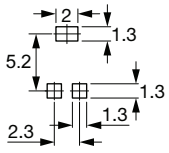
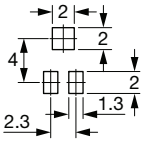
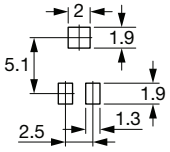
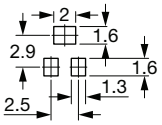
3D Models

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

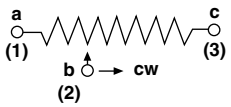
DIMENSIONS in millimeters (± 0.5 mm)

TSM41 ZL (SIDE ADJUST)	TSM41 ZJ (SIDE ADJUST)	TSM41 YL (TOP ADJUST)	TSM41 YJ (TOP ADJUST)
			

RECOMMENDED SOLDERING AREAS

For technical questions, contact: sferpottrimmers@vishay.com

ELECTRICAL SPECIFICATIONS	
Electrical travel adjustment angle	12 turns nom.
Resistance range	10 Ω to 1 MΩ
Tolerance standard	± 10 %
Power rating (300 V max.) Linear	0.25 W at 85 °C 0 W at 150 °C
Circuit diagram	
Temperature coefficient	See Standard Resistance Element table
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 MΩ

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 = ± 3 Ω or ± 3 % whichever is greater
Humidity	MIL-STD-202 method 106	Total resistance shift = ± 2 % Insulation resistance = 10 MΩ
Thermal shock	5 cycles	Total resistance shift = ± 2 % Voltage resistance shift = ± 1 %
Rotational cycling	200 cycles	Total resistance shift = ± 3 Ω or ± 3 % whichever is greater
Shock	100 *g*	Total resistance shift = ± 1 % Voltage resistance shift = ± 1 %
Vibration	20 *g*	Total resistance shift = ± 1 % Voltage resistance shift = ± 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	

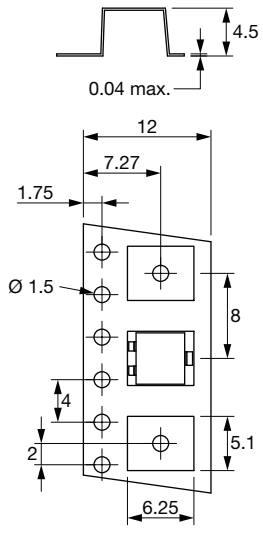
MARKING

Vishay trademark, ohmic value, manufacturing date

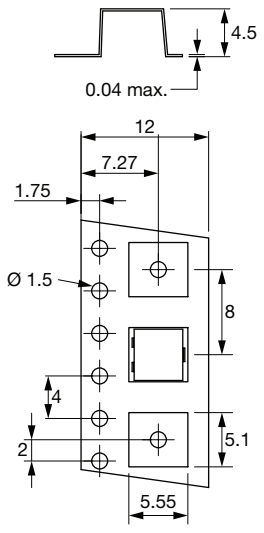
PACKAGING in millimeters

On tape and reel, by 500 pieces for Z version, 250 pieces for YJ version: code TR250, or 200 pieces for YL version.

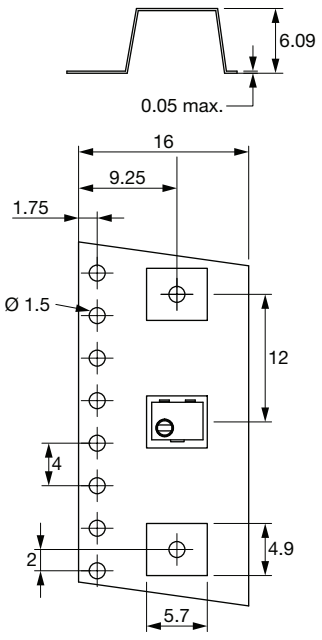
TSM41 ZL



TSM41 ZJ

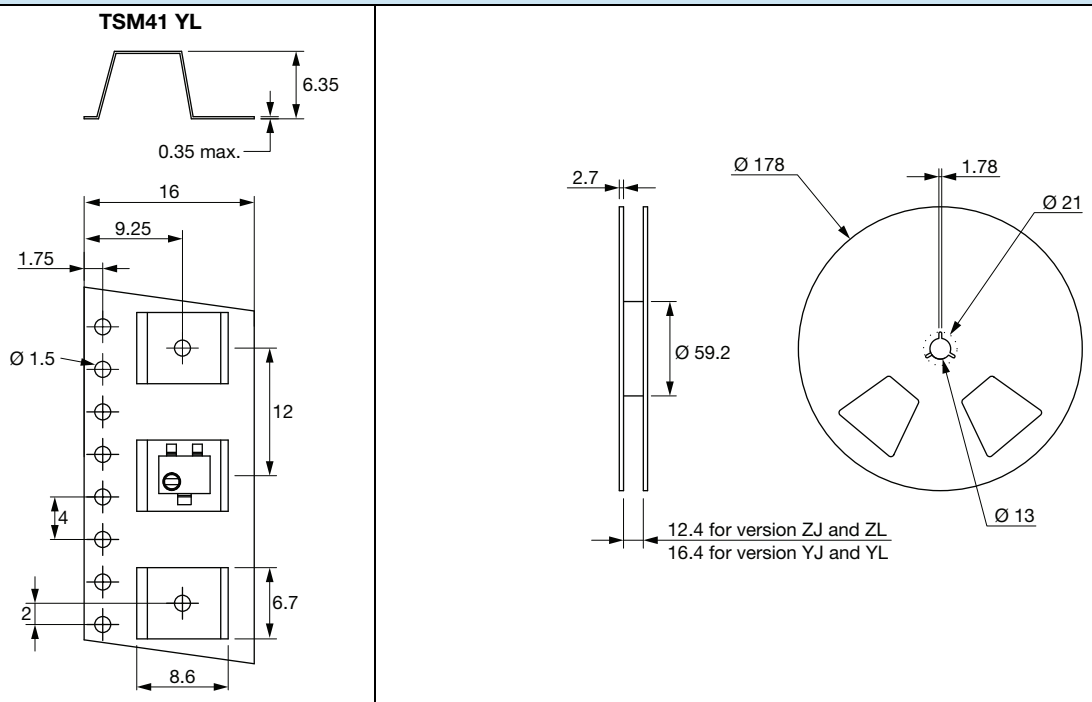


TSM41 YJ



PACKAGING in millimeters

TSM41 YL



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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