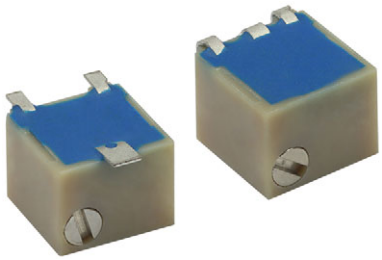
3 mm Surface-Mount Miniature Trimmers Multi-Turn Cermet Sealed



FEATURES

- 0.125 W at 70 °C
- Professional and industrial grade
- Wide ohmic range (10 Ω to 2 MΩ)
- Very small size for optimum packaging density
- Top and side adjust styles
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

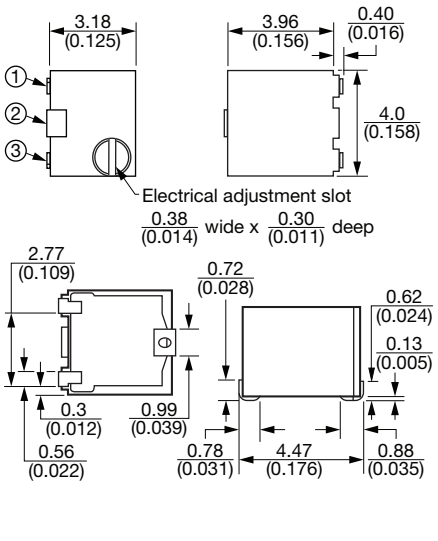
3D Models

The TSM3 trimming potentiometer has been designed for surface-mount applications, and fine-tuning offers volumetric efficiency 3 mm x 4 mm x 4 mm with high performance and stability.

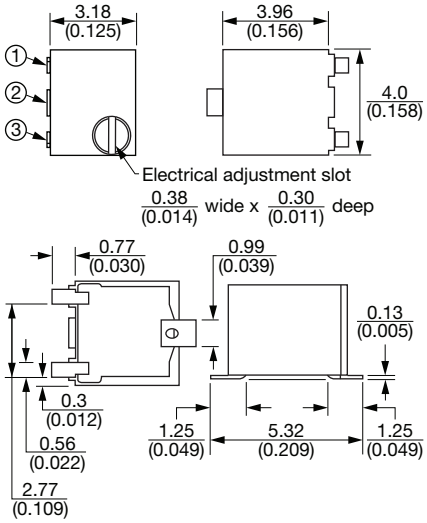
The TSM3 design is compact to save board space, sealed to withstand standard board wash processing, compatible with automated PCB assembly (pick and place), and withstands standard reflow soldering processes.

DIMENSIONS in millimeters (± 0.5 mm)

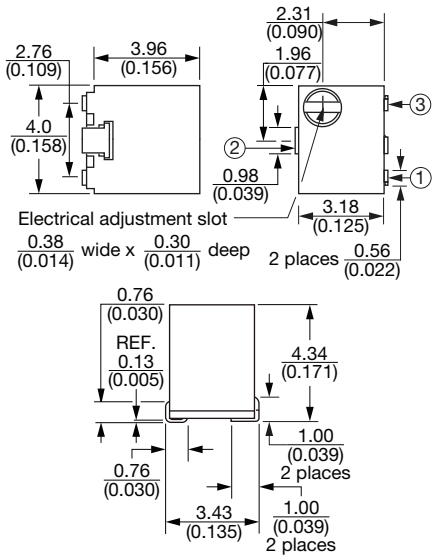
TSM3ZJ (SIDE ADJUST)



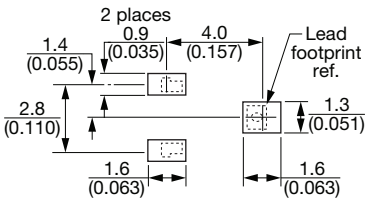
TSM3ZL (SIDE ADJUST)

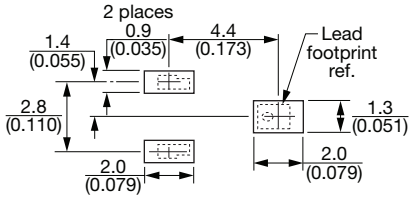


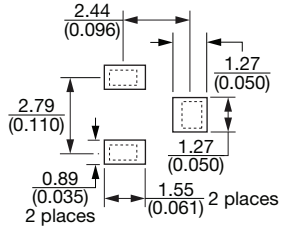
TSM3YJ (TOP ADJUST)

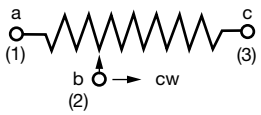
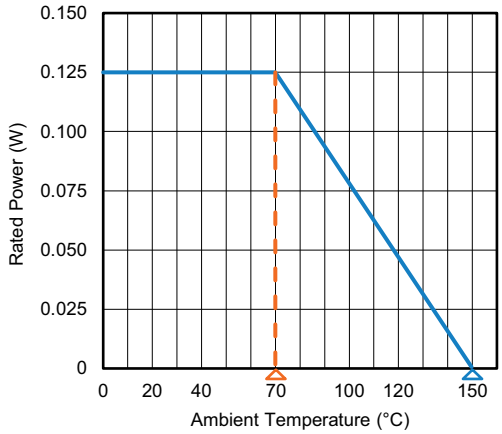


RECOMMENDED SOLDERING AREA







ELECTRICAL SPECIFICATIONS	
Resistive element	Cermet
Electrical travel	11 turns ± 2
Resistance range	10 Ω to 2 MΩ (see “Standard Resistance Element Data” table)
Standard series	1 - 2 - 5
Tolerance standard	± 20 %
Circuit diagram	
Power rating linear	0.125 W at +70 °C 
Temperature coefficient	See “Standard Resistance Element Data” table
Limiting element voltage	200 V
Contact resistance variation (typical)	3 % or 3 Ω max.
End resistance (typical)	1 % or 3 Ω max.
Dielectric strength (RMS)	600 V_{AC} (1 minute)
Insulation resistance	100 MΩ min. at 500 V_{DC}

MECHANICAL SPECIFICATIONS	
Operating torque (max. Ncm)	1.7
End stop torque	Clutch action (2 turns max.)
Unit weight (max. g)	0.28
Wiper (actual travel)	Positioned at approx. 50 %

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	-65 °C to +150 °C
Sealing	Sealed container. 85 °C Fluorinert / 60 s
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, ambient temperature +70 °C	Contact resistance variation = 4 Ω or ± 4 % whichever is greater
Humidity	MIL-STD-202 method 106	Total resistance shift = ± 3 % Insulation resistance = 10 MΩ
Thermal shock	5 cycles	Total resistance shift = ± 2 % Voltage ratio shift = ± 2 %
Rotational cycling	200 cycles	Contact resistance variation = 4 Ω or ± 4 % whichever is greater
Shock	100 *g*, 6 shocks in each axis, 3 in each direction	Total resistance shift = ± 1 % Voltage ratio shift = ± 1 %
Vibration	4 sweeps at 20 *g* in each of the three axis, 15 minutes per sweep	Total resistance shift = ± 1 % Voltage ratio shift = ± 1 %

Note

- Nothing stated herein shall be construed as a guarantee of quality or durability

STANDARD RESISTANCE ELEMENT DATA

RESISTANCE CODE	STANDARD RESISTANCE VALUES	LINEAR LAW			TYPICAL TCR -55 °C +125 °C
		MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CURRENT THROUGH WIPER	
	Ω	W	V	mA	ppm/°C
100	10	0.125	1.12	111.8	
200	20	0.125	1.58	79.1	
500	50	0.125	2.50	50.0	
101	100	0.125	3.54	35.4	
201	200	0.125	5.00	25.0	
501	500	0.125	7.91	15.8	
102	1K	0.125	11.18	11.2	
202	2K	0.125	15.81	7.9	
502	5K	0.125	25.00	5.0	± 100
103	10K	0.125	35.36	3.5	
203	20K	0.125	50.00	2.5	
503	50K	0.125	79.06	1.6	
104	100K	0.125	111.80	1.1	
204	200K	0.125	158.11	0.79	
504	500K	0.08	200.00	0.4	
105	1M	0.04	200.00	0.2	
205	2M	0.02	200.00	0.1	

MARKING

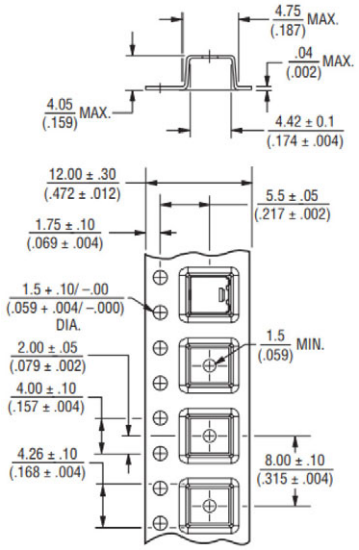
- Vishay trademark
- Model
- Ohmic value
- Manufacturing date

PACKAGING in millimeters (inches)

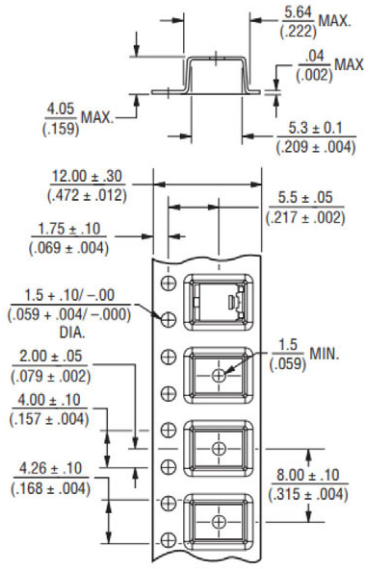
On tape and reel, by 500 pieces

TAPE

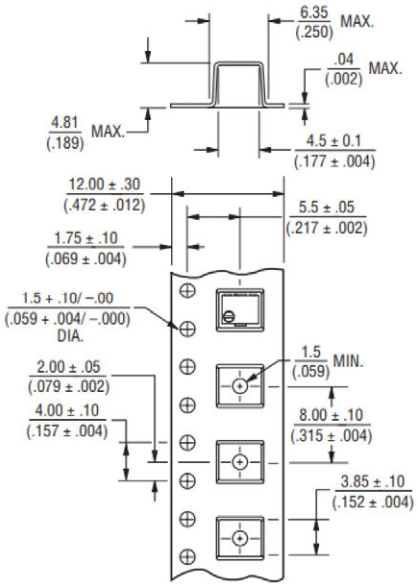
TSM3ZJ



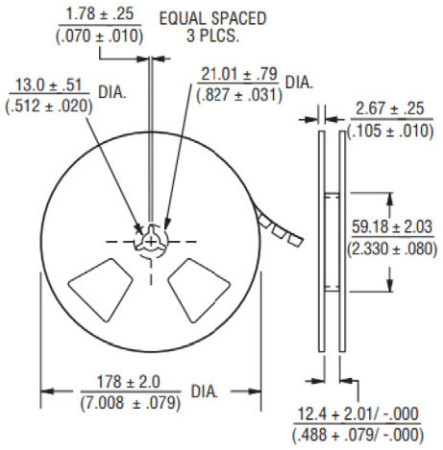
TSM3ZL



TSM3YJ



REEL



Note

- Cover tape peel strength: meets EIA specification 481

ORDERING INFORMATION (part number)

T	S	M	3	Y	J	1	0	3	M	R	1	0				

MODEL	STYLE	OHMIC VALUE	TOLERANCE	PACKAGING	SPECIAL NUMBER
TSM3	**YJ** **ZJ** **ZL**	From 10 Ω to 2 MΩ **103** = 10 kΩ	**M** = 20 %	**R10** = reel 500 pieces	(If applicable) Given by Vishay for custom design

DESCRIPTION (for information only)

TSM3	YJ	10K	20 %		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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