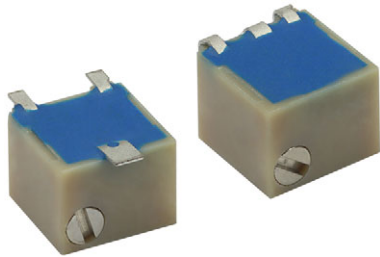


3 mm Surface-Mount Miniature Trimmers Multi-Turn Cermet Sealed



FEATURES

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


RoHS
COMPLIANT

LINKS TO ADDITIONAL RESOURCES



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)
<p>Electrical adjustment slot 0.38 wide x 0.30 deep (0.014) (0.011)</p>	<p>Electrical adjustment slot 0.38 wide x 0.30 deep (0.014) (0.011)</p>	<p>Electrical adjustment slot 0.38 wide x 0.30 deep (0.014) (0.011) 2 places</p>
RECOMMENDED SOLDERING AREA		
<p>Lead footprint ref.</p>	<p>Lead footprint ref.</p>	<p>Lead footprint ref.</p>

ELECTRICAL SPECIFICATIONS	
Resistive element	Cermet
Electrical travel	11 turns \pm 2
Resistance range	10 Ω to 2 M Ω (see "Standard Resistance Element Data" table)
Standard series	1 - 2 - 5
Tolerance standard	\pm 20 %
Circuit diagram	
Power rating	Linear 0.125 W at +70 °C
Temperature coefficient	\pm 100 ppm/°C
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 M Ω 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

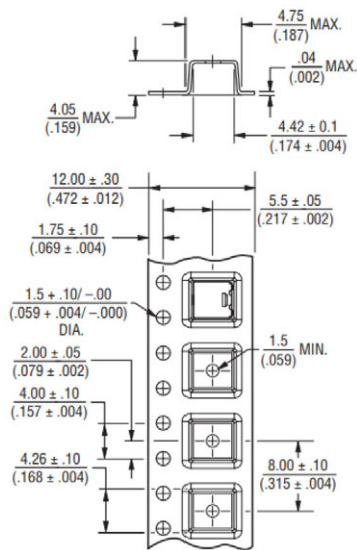
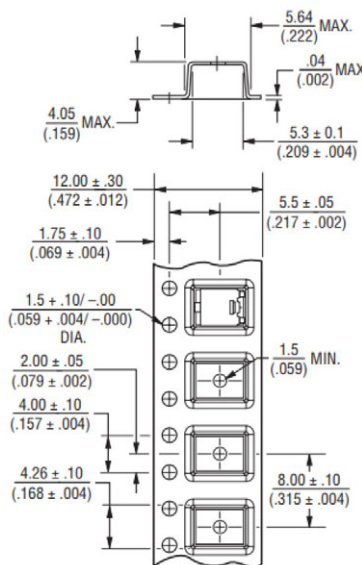
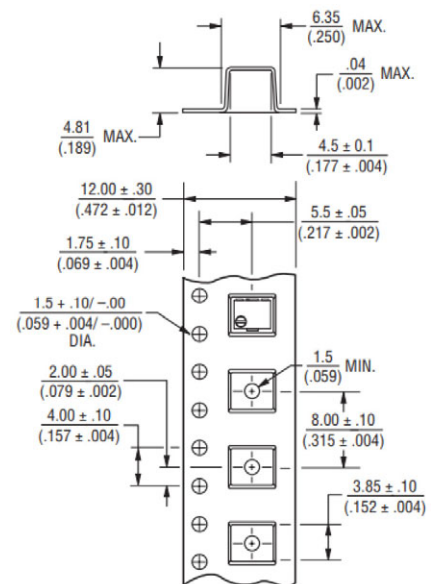
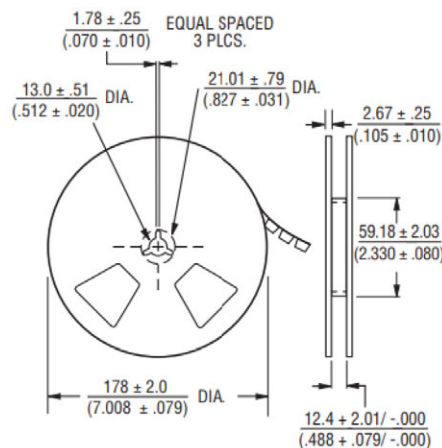
STANDARD RESISTANCE ELEMENT DATA					
RESISTANCE CODE	STANDARD RESISTANCE VALUES	LINEAR LAW			TYPICAL TCR -55 °C +125 °C ppm/°C
		MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CURRENT THROUGH WIPER	
		W	V	mA	
100	10	0.125	1.12	111.8	± 100
200	20	0.125	1.58	79.1	
500	50	0.125	2.50	50.0	
101	100	0.125	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	
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 = tape and 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



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.