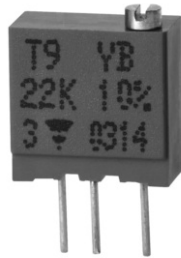


3/8" Square Multi-Turn Fully Sealed Container Cermet Trimmers



FEATURES

- Military and Professional Grade
- 0.5 W at 70 °C
- CECC 41 101-004 (A, B, C, D, E)
- Tests according to CECC 41 000
- GAM T1
- Fully sealed
- Operating temperature range - 55 °C to + 155 °C
- Wide ohmic range from 10 Ω to 2M2 Ω
- Lead (Pb)-free and RoHS compliant



DIMENSIONS in millimeters (± 0.5 mm)			
T9XA (PM81A) A			Terminal Spacing on a 2.54 PCB
T9XB (PM81B) C			
T9YA (PM82A) B			
T9YB (PM82B) D			
T9Z (PM83) E			

Note

* to be measured at base level

Undergoes European Quality Assurance System (CECC)

ELECTRICAL SPECIFICATIONS																	
Resistive Element	Cermet																
Electrical Travel	21 turns \pm 2																
Resistance Range	10 Ω to 2.2 M Ω																
Standard Series E3	1 - 2.2 - 4.7 and on request 1 - 2 - 5																
Tolerance	standard	10 %															
	on request	5 %															
Power Rating	linear	0.5 W at + 70 °C															
	logarithmic	not applicable															
	<p>CIRCUIT DIAGRAM</p>																
<table border="1"> <caption>Power Rating vs Ambient Temperature</caption> <thead> <tr> <th>Ambient Temperature (°C)</th> <th>Power Rating (W)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.5</td></tr> <tr><td>25</td><td>0.5</td></tr> <tr><td>50</td><td>0.5</td></tr> <tr><td>70</td><td>0.5</td></tr> <tr><td>100</td><td>0.25</td></tr> <tr><td>125</td><td>0.125</td></tr> <tr><td>155</td><td>0</td></tr> </tbody> </table>		Ambient Temperature (°C)	Power Rating (W)	0	0.5	25	0.5	50	0.5	70	0.5	100	0.25	125	0.125	155	0
Ambient Temperature (°C)	Power Rating (W)																
0	0.5																
25	0.5																
50	0.5																
70	0.5																
100	0.25																
125	0.125																
155	0																
Temperature Coefficient	see Standard Resistance Element Table																
Limiting Element Voltage (Linear Law)	250 V																
Contact Resistance Variation	2 % R _n or 1 Ω																
End Resistance (Typical)	1 Ω																
Dielectric Strength (RMS)	1000 V																
Insulation Resistance (500 VDC)	10 ⁶ M Ω																

MECHANICAL SPECIFICATIONS	
Mechanical Travel	23 turns \pm 5
Operating Torque (Max. Ncm)	1.5
End Stop Torque	Clutch action
Net Weight	Approx. 0.82 g
Wiper (Actual Travel)	Positioned at approx. 50 %

ENVIRONMENTAL SPECIFICATIONS	
Temperature Range	- 55 °C to + 155 °C
Climatic Category	55/125/56
Sealing	Fully sealed - Container IP67



STANDARD RESISTANCE ELEMENT DATA				
STANDARD RESISTANCE VALUES	LINEAR LAW			TYPICAL TCR - 55 °C + 125 °C ppm/°C
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH WIPER	
Ω	W	V	mA	
10	0.5	2.2	224	± 100
22	↓	3.3	150	
47		4.8	103	
100		7	70	
220		10.5	47	
470		15.3	32	
1K		22.4	22	
2.2K		33.2	15	
4.7K		48.5	10	
10K		70.7	7	
22K		105	4.8	
47K		153	3.2	
100K		0.5	224	
220K	0.28	250	1.1	
470K	0.13	250	0.53	
1M	0.06	250	0.25	
2.2M	0.028	250	0.11	

MARKING

Printed:

- VISHAY trademark
- Model
- Style
- Ohmic value (in Ω, kΩ, MΩ)
- Tolerance (in %)
- Manufacturing date
- Marking of terminal C

PACKAGING

- In magazine pack by 50 pieces (tube) code TU50



3/8" Square Multi-Turn Fully Sealed Container
Cermet Trimmers

Vishay Sfernice

PERFORMANCES					
CECC 41100		REQUIREMENTS		TYPICAL VALUES AND DRIFTS	
TESTS	CONDITIONS	$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)
Climatic Sequence	Phase A dry heat 125 °C Phase B damp heat Phase C cold - 55 °C Phase D damp heat 5 cycles	± 2 %	± 3 %	± 0.5 %	± 1 %
Long Term Damp Heat	56 days 40 °C, 93 % RH	± 2 % Dielectric strength: 700 V Insulation resistance: > 100 MΩ	± 3 %	± 0.5 % Dielectric strength: 1000 V Insulation resistance: > 10 ⁴ MΩ	± 1 %
Rotational Life	200 cycles	± 2 % Contact res. variation: < 3 % Rn	-	± 2 % Contact res. variation: < 1 % Rn	-
Load Life	1000 h at rated power 90°/30° - ambient temp. 70 °C	± 2 % Contact res. variation: < 3 % Rn	± 3 %	± 1 % Contact res. variation: < 1 % Rn	± 2 %
Rapid Temperature Change	5 cycles - 55 °C to + 125 °C	± 1.5 %	$\Delta V_{1-2}/\Delta V_{1-3}$ ± 1 %	± 0.5 %	$\Delta V_{1-2}/\Delta V_{1-3}$ < ± 1 %
Shocks	50 g at 11 ms 3 successive shocks in 3 directions	± 1 %	± 2 %	± 0.1 %	± 0.2 %
Vibrations	10 to 55 Hz 0.75 mm or 10 g during 6 h	± 1 %	$\Delta V_{1-2}/\Delta V_{1-3}$ ± 2 %	± 0.1 %	$\Delta V_{1-2}/\Delta V_{1-3}$ < ± 0.2 %

SAP ORDERING INFORMATION (Part Number 15 digits)													
T	9	X	A	4	7	4	K	T	2	0			
MODEL	STYLE	OHMIC VALUE		TOLERANCE		PACKAGING		SPECIAL NUMBER					
	XA XB YA YB Z	From 10 Ω to 2.2 MΩ 474 = 470 kΩ		K = 10 % on request J = 5 %		T20 = Tube 50 pieces		(if applicable) Given by VISHAY for custom design					

PART NUMBER DESCRIPTION (for information only)							
T9	XA	470K	± 10 %		TU		e3
MODEL	STYLE	VALUE	TOLERANCE	SPECIAL	PACKAGING	SPECIAL	LEAD (Pb)-FREE



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.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk and agree to fully indemnify and hold Vishay and its distributors harmless from and against any and all claims, liabilities, expenses and damages arising or resulting in connection with such use or sale, including attorneys fees, even if such claim alleges that Vishay or its distributor was negligent regarding the design or manufacture of the part. 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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.