

3/8" Square Multi-Turn Cermet Trimmer



The T93 is a small size trimmer - 3/8" x 3/8" x 3/16" - answering PC board mounting requirements.

Five versions are available which differ by the position of the control screw in relation to the PC board plane and by the spacing of the terminals.

Excellent operational stability is provided by the use of a cermet element.

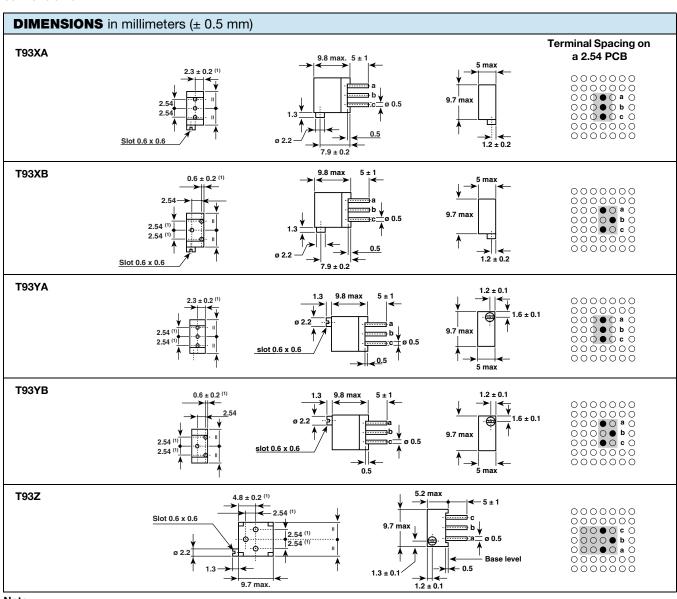
FEATURES

- Industrial grade
- 0.5 W at 70 °C



RoHS

- Tests according to CECC 41000 or IEC 60393-1
- Contact resistance variation < 2 %
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>





(1) To be measured at base level

Resistive element	Cermet		
Electrical travel	21 turns ± 2		
Resistance range	10 Ω to 2.2 M Ω		
Standard series E3	1 - 2.2 - 4.7 and on request 1 - 2 - 5		
Standard	10 %		
Tolerance On request	5 %		
linear	0.5 W at +70 °C		
Power rating	0.5 N I H J J J J J J J J J J J J J J J J J J		
Circuit diagram	$ \begin{array}{c} a \\ \bigcirc \longrightarrow \bigvee \bigvee \bigvee \bigvee \bigcirc \bigcirc \bigcirc \\ (1) \\ b \stackrel{A}{\bigcirc} \longrightarrow cw $ (2)		
Temperature coefficient	See Standard Resistance Element table		
Limiting element voltage (linear law)	250 V		
Contact resistance variation	2 % Rn or 2 Ω		
End resistance (typical)	1 Ω		
Dielectric strength (RMS)	1000 V		
Insulation resistance (500 V _{DC})	$10^6\mathrm{M}\Omega$		

MECHANICAL SPECIFICATIONS			
Mechanical travel	23 turns ± 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 %		
Terminals	Pure Sn (code e3)		

ENVIRONMENTAL SPECIFICATIONS		
Temperature range	-55 °C to +155 °C	
Climatic category	55/125/56	
Sealing	Fully sealed - IP67	



STANDARD		LINEAR LAW		
RESISTANCE VALUES	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CURRENT THROUGH WIPER	TCR -55 °C +125 °C
Ω	W	٧	mA	ppm/°C
10	0.5	2.2	224	
22	0.5	3.3	150	
47	0.5	4.8	103	
100	0.5	7	70	
220	0.5	10.5	47	
470	0.5	15.3	32	
1K	0.5	22.4	22	
2.2K	0.5	33.2	15	
4.7K	0.5	48.5	10	± 100
10K	0.5	70.7	7	
22K	0.5	105	4.8	
47K	0.5	153	3.2	
100K	0.5	224	2.2	
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	

PERFORMANCES				
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS		
	CONDITIONS	ΔR _T /R _T (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	
Load life	1000 h at rated power 90'/30' - ambient temp. 70 °C	± 1 % Contact res. variation: < 1 % Rn	± 2 %	
Climatic sequence	Phase A dry heat 125 °C - 30 % Pr Phase B damp heat Phase C cold -55 °C Phase D damp heat 5 cycles	± 0.5 %	± 1 %	
Long term damp heat	56 days 40 °C, 93 % RH	$\pm~0.5~\%$ Dielectric strength: 1000 V _{RMS} Insulation resistance: $> 10^4~\text{M}\Omega$	± 1 %	
Rapid temperature change	5 cycles -55 °C to +125 °C	± 0.5 %	$\Delta V_{1-2}/V_{1-3} \le \pm 1 \%$	
Shock	50 g at 11 ms 3 successive shocks in 3 directions	± 0.1 %	± 0.2 %	
Vibration	10 Hz to 55 Hz 0.75 mm or 10 g during 6 h	± 0.1 %	$\Delta V_{1-2}/V_{1-3} \le \pm \ 0.2 \%$	
Rotational life	200 cycles	± 4 % Contact res. variation: < 1 % Rn	-	

Note

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

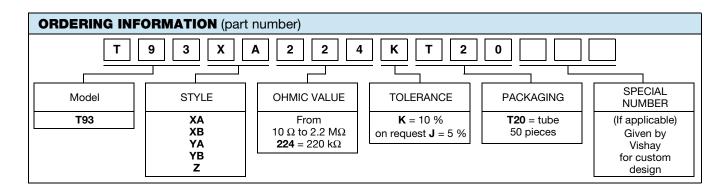
MARKING

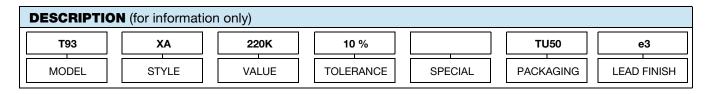
- Vishay trademark
- Model
- Style
- Ohmic value (in Ω , $k\Omega$, $M\Omega$)
- Tolerance (in %)
- Manufacturing date
- Marking of terminal 3

Vishay Sfernice

PACKAGING

• In tube of 50 pieces code T20 (TU50)





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	



Legal Disclaimer Notice

Vishay

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. 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.