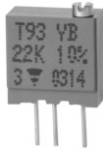


3/8" Square Multi-Turn Cermet Trimmers



FEATURES

- Industrial Grade
- 0.5 W at 70 °C
- Tests according to CECC 41 000
- Contact resistance variation < 1 %
- Lead (Pb)-free and RoHS compliant

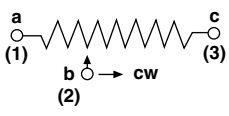
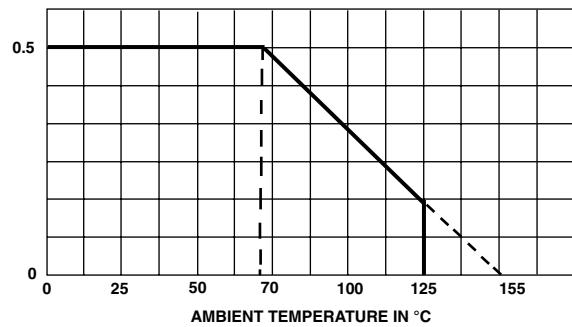

RoHS
COMPLIANT

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.

DIMENSIONS in millimeters (± 0.5 mm)			
T93XA 		Terminal Spacing on a 2.54 PCB	
T93XB 		Terminal Spacing on a 2.54 PCB	
T93YA 		Terminal Spacing on a 2.54 PCB	
T93YB 		Terminal Spacing on a 2.54 PCB	
T93Z 		Terminal Spacing on a 2.54 PCB	

Note

* to be measured at base level

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> 	
		
Temperature Coefficient	see Standard Resistance Element Table	
Limiting Element Voltage (Linear Law)	250 V	
Contact Resistance Variation	2 % R _n or 2 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
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH WIPER	
Ω	W	V	mA	ppm/°C
10	0.5 ↓ 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		224	2.2	
220K		250	1.1	
470K	0.13	250	0.53	
1M	0.06	250	0.25	
2.2M	0.028	250	0.11	

MARKING
<ul style="list-style-type: none"> • VISHAY trademark • Model • Style • Ohmic value (in Ω, kΩ, MΩ) • Tolerance (in %) • Manufacturing date • Marking of terminal 3

PACKAGING
<ul style="list-style-type: none"> • In magazine pack by 50 pieces (tube) code TU50

PERFORMANCES			
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS	
		$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)
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	± 0.5 % Dielectric strength: 1000 V _{RMS} Insulation resistance: > 10 ⁴ MΩ	± 1 %
Rapid Temperature Change	5 cycles - 55 °C at + 125 °C	± 0.5 %	$\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 1 \%$
Shock	50 g at 11 ms 3 successive shocks in 3 directions	± 0.1 %	± 0.2 %
Vibration	10 to 55 Hz 0.75 mm or 10 g during 6 h	± 0.1 %	$\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 0.2 \%$
Rotational Life	200 cycles	± 4 % Contact res. variation: < 1 % Rn	-



SAP ORDERING INFORMATION (Part Number 15 digits)														
T	9	3	X	A	2	2	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 224 = 220 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)						
T93	XA	220K	10 %		TU50	e3
MODEL	VERSION	VALUE	TOLERANCE	SPECIAL	PACKAGING	LEAD (Pb)-FREE



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