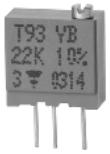
3/8" Square Multi-Turn Cermet Trimmers



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.

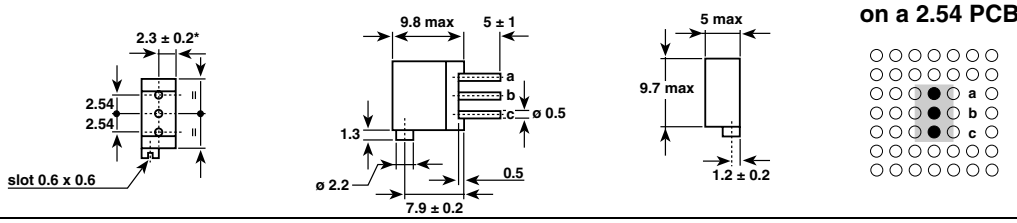
FEATURES

- Industrial Grade
- 0.5 Watt at 70 °C
- Tests according to CECC 41 000
- Good stability
- Contact resistance variation < 1 % typical
- Meet MIL-R-22097 specifications
- Lead (Pb)-free and RoHS compliant

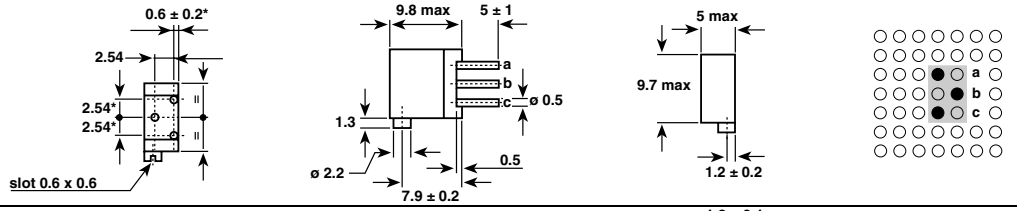
RoHS COMPLIANT

DIMENSIONS in millimeters

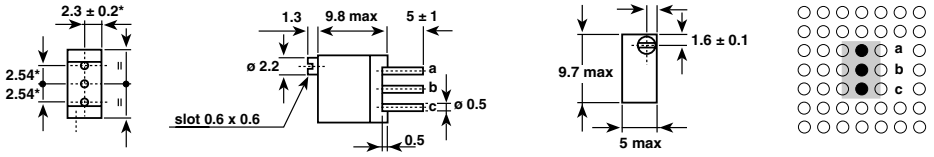
T93XA



T93XB



T93YA



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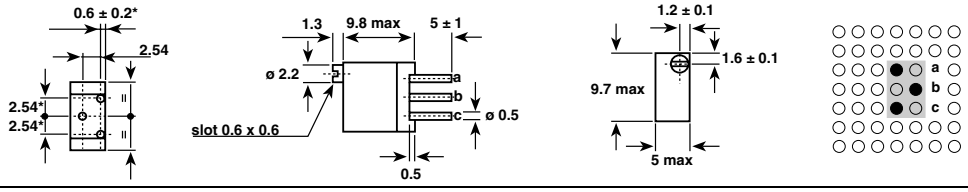
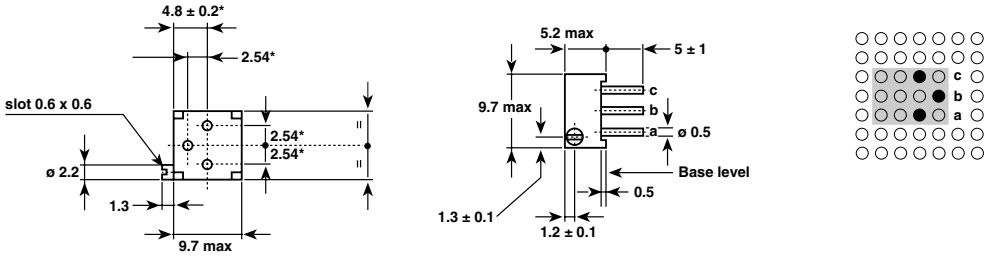
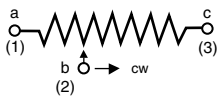


T93Z



CIRCUIT DIAGRAM



* to be measured at base level

Tolerance unless otherwise specified ±0.5

ELECTRICAL SPECIFICATIONS		
Resistive Element		cermet
Electrical Travel		21 turns ± 2
Resistance Range		10 Ω to 2.2 MΩ
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
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 VDC)		10^6 MΩ

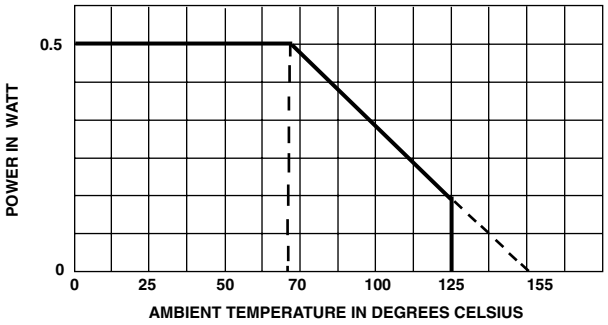
MECHANICAL SPECIFICATIONS

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 %

ENVIRONMENTAL SPECIFICATIONS

Temperature Range	- 55 °C to + 155 °C
Climatic Category	55/125/56
Sealing	fully sealed container IP67

POWER RATING CHART



PERFORMANCE			
TESTS	**CONDITIONS**	**TYPICAL VALUES AND DRIFTS**	
		$\frac{\Delta RT}{RT}$ **(%)**	$\frac{\Delta R_{1-2}}{R_{1-2}}$ **(%)**
Load Life	1000 hours 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 %	$\frac{\Delta V_{1-2}}{V_{1-3}}$ ≤ ± 1 %
Shock	50 g at 11 m secs 3 successive shocks in 3 directions	± 0.1 %	± 0.2 %
Vibration	10 - 55 Hz 0.75 mm or 10 g during 6 hours	± 0.1 %	$\frac{\Delta V_{1-2}}{V_{1-3}}$ ≤ ± 0.2 %
Rotational Life	200 cycles	± 4 % Contact res. variation: < 1% Rn	

STANDARD RESISTANCE ELEMENT DATA

STANDARD RESISTANCE VALUES	LINEAR LAW			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	2.2	224	
22		3.3	150	0
47		4.8	103	+ 200
100		7	70	
220		10.5	47	
470		15.3	32	
1 k		22.4	22	
2.2 k		33.2	15	
4.7 k		48.5	10	
10 k		70.7	7	
22 k		105	4.8	± 100
47 k		153	3.2	
100 k	0.5	224	2.2	
220 k	0.28	250	1.1	
470 k	0.13	250	0.53	
1 M	0.06	250	0.25	
2.2 M	0.028	250	0.11	

MARKING

Printed:
- VISHAY trademark
- model
- style
- ohmic value (in Ω, kΩ, MΩ)
- tolerance (in %)
- manufacturing date
- marking of terminal 3

PACKAGING

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

ORDERING INFORMATION

T93	XA	220 kΩ	± 10 %	TU50	e3
MODEL	VERSION	OHMIC VALUE	TOLERANCE	PACKAGING	LEAD FINISH
				TU50 : Tube	e3: pure Sn

SAP PART NUMBERING GUIDELINES

T	9	3	X	A	2	2	4	K	T	2	0			
MODEL			STYLE		OHMIC VALUE			TOL	PACKAGING CODE			SPECIAL (IF APPLICABLE)		

See the end of this data book for conversion tables

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