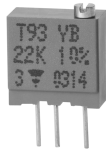


# 3/8" Square Multi-Turn Cermet Trimmers



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.

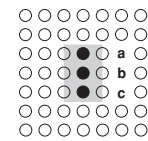
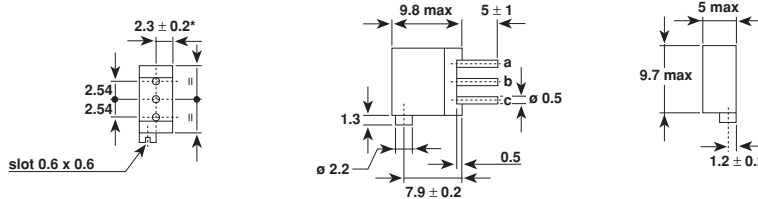
## DIMENSIONS in millimeters

## FEATURES

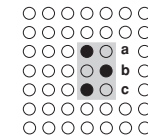
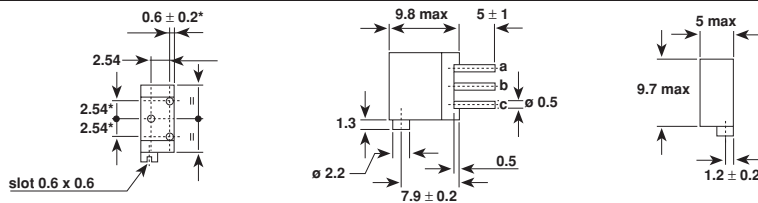
- Industrial Grade
- 0.5 Watt at 70°C
- CECC 41 100
- MIL-R-22097
- Good stability
- Contact resistance variation < 1% typical
- Meet MIL-R-22097 specifications

## Terminal Spacing on a 2.54 PCB

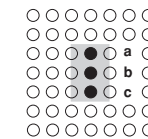
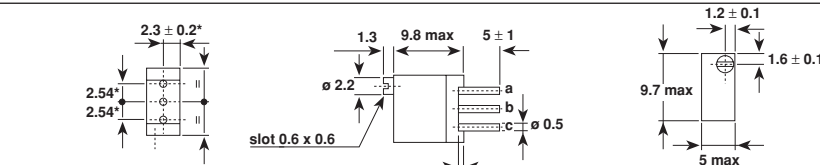
### T93XA



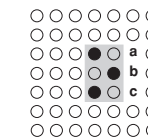
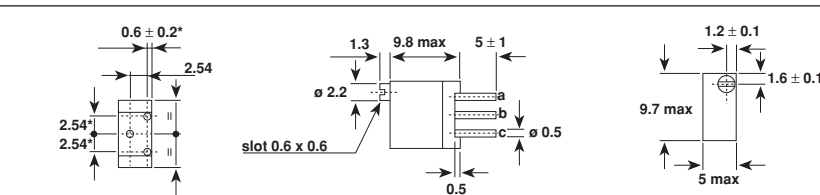
### T93XB



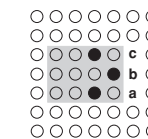
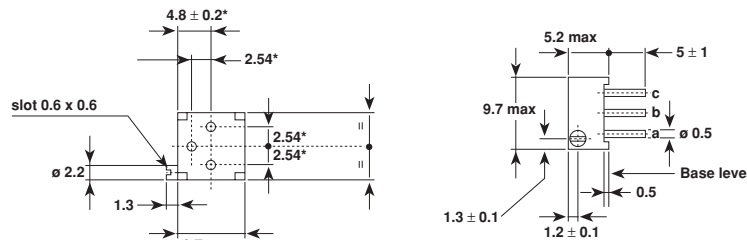
### T93YA



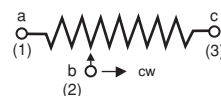
### T93YB



### T93Z



## CIRCUIT DIAGRAM



\* to be measured at base level



ELECTRICAL SPECIFICATIONS		
Resistive Element		cermet
Electrical Travel		19 turns $\pm$ 2
Resistance Range		10 $\Omega$ to 2.2M $\Omega$
Standard series E3		1 - 2.2 - 4.7 and on request 1 - 2 - 5
Tolerance	Standard	$\pm$ 10%
	On Request	$\pm$ 5%
Power Rating	Linear	0.5W at + 70°C
	Logarithmic	not applicable
Temperature Coefficient		See Standard Resistance Element Table
Limiting Element Voltage (Linear Law)		250V
Contact Resistance Variation		2% R <sub>n</sub> or 2 $\Omega$
End Resistance (Typical)		1 $\Omega$
Dielectric Strength (RMS)		1000V
Insulation Resistance (500VDC)		10 <sup>6</sup> M $\Omega$

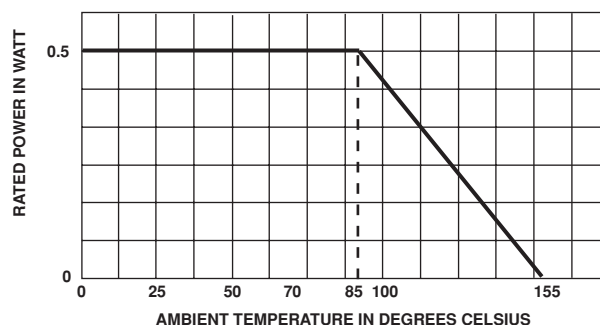
### MECHANICAL SPECIFICATIONS

Mechanical Travel	22 turns $\pm$ 5
Operating Torque (max. Ncm)	1.5
End Stop Torque	clutch action
Unit Weight (max. g)	1.2

### 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	$\pm$ 1% Contact res. variation: < 1% R <sub>n</sub>	$\pm$ 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	$\pm$ 0.5%	$\pm$ 1%
Long Term Damp Heat	56 days	$\pm$ 0.5% Dielectric strength: 1000V RMS Insulation resistance: > 10 <sup>4</sup> M $\Omega$	$\pm$ 1%
Rapid Temperature Change	5 cycles - 55°C at + 125°C	$\pm$ 0.5%	$\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 1\%$
Shock	50 g at 11m secs 3 successive shocks in 3 directions	$\pm$ 0.1%	$\pm 0.2\%$
Vibration	10-55 Hz 0.75mm or 10 g during 6 hours	$\pm$ 0.1%	$\frac{\Delta V_{1-2}}{V_{1-3}} \leq \pm 0.2\%$
Rotational Life	200 cycles	$\pm$ 2% Contact res. variation: < 1% R <sub>n</sub>	



STANDARD RESISTANCE ELEMENT DATA				
STANDARD RESISTANCE VALUES	LINEAR LAW			T.C. -55°C +125°C
	MAX. POWER AT 85°C	MAX. WORKING VOLTAGE	MAX. CUR. THROUGH ELEMENT	
Ω	W	V	mA	ppm/°C
10	0.5	2.2	224	0 +200
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	± 100
47k	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	

**MARKING**

- Printed:
- VISHAY trademark
  - series
  - 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 SERIES	XA VERSION	220kΩ OHMIC VALUE	± 10% TOLERANCE	TU50 PACKAGING
				TU50 : Tube

NB. On delivery the wiper is positioned at mid-level.

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														