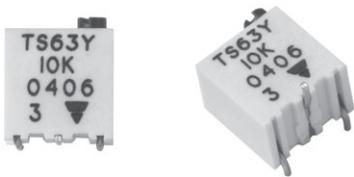


## Multi-Turn Surface Mount 1/4" Square Cermet Trimmers, Fully Sealed



### LINKS TO ADDITIONAL RESOURCES



The TS63 multi-turn trimmer has been designed for use in PCB surface mounting applications.

Three variations are available according to the positioning of the control screw and contact positions.

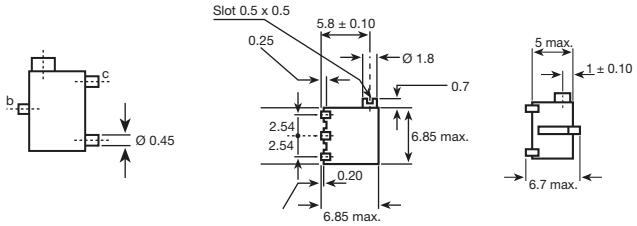
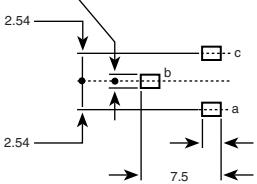
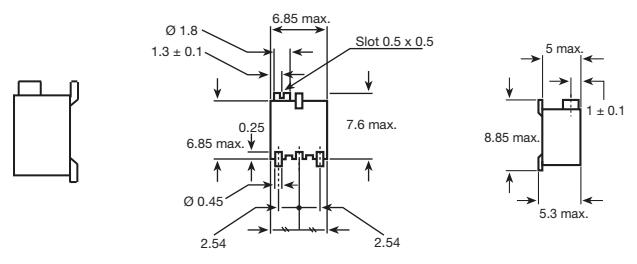
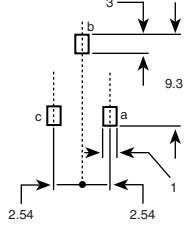
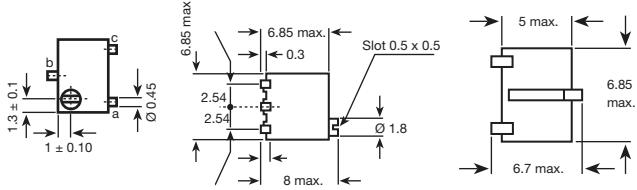
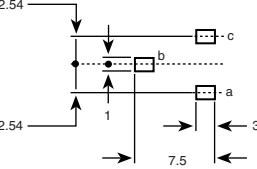
The cermet track gives a high stability performance with an extended ohmic capacity of  $10\ \Omega$  to  $2\ M\Omega$ .

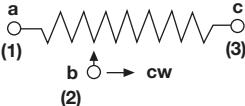
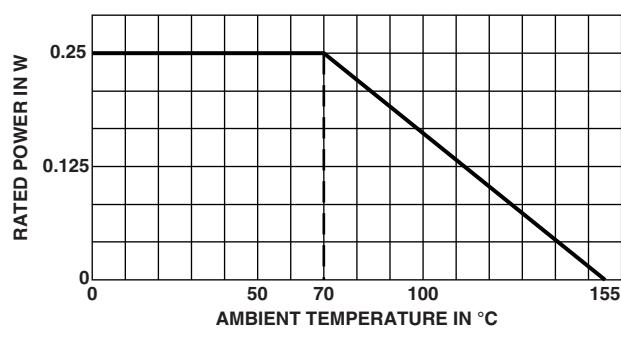
### FEATURES

- 0.25 W at  $70\ ^\circ\text{C}$
- Multi-turn operation
- A low contact resistance variation (down to 2 %  $R_n$ )
- Low end contact resistance ( $1\ \Omega$  typical)
- Tests according to CECC 41000 or IEC 60393-1
- Construction: fully sealed
- Industrial grade
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### DIMENSIONS in millimeters ( $\pm 0.5$ mm)

TS63X	RECOMMENDED SOLDERING AREAS
	
	
	

<b>ELECTRICAL SPECIFICATIONS</b>	
Resistive element	Cermet
Electrical travel	14 turns $\pm$ 2
Resistance range	10 $\Omega$ to 2 M $\Omega$
Standard series	1 - 2 - 5
Tolerance	Standard $\pm$ 10 % On request $\pm$ 5 %
Circuit diagram	
Power rating	Linear  <p>0.25 W at 70 °C</p>
Temperature coefficient	$\pm$ 100 ppm/°C
Limiting element voltage	250 V
Contact resistance variation (typical)	2 % Rn or 2 $\Omega$
End resistance (typical)	1 $\Omega$
Dielectric strength (RMS)	1000 V
Insulation resistance	$10^6$ M $\Omega$

<b>MECHANICAL SPECIFICATIONS</b>	
Mechanical travel	15 turns $\pm$ 5
Operating torque (max. Ncm)	1.5
End stop torque	Clutch action
Unit weight (max. g)	0.5
Wiper (actual travel)	Positioned at approx. 50 %

<b>ENVIRONMENTAL SPECIFICATIONS</b>	
Temperature range	-55 °C to +155 °C
Climatic category	55/125/56
Sealing	Sealed container IP67
MSL level	1

<b>SOLDERING RECOMMENDATIONS</b>	
Recommended reflow profile 2, see Application Note <a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a>	

<b>PERFORMANCES</b>				
<b>TESTS</b>	<b>CONDITIONS</b>	<b>TYPICAL VALUES AND DRIFTS</b>		
		$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	<b>OTHER</b>
Electrical endurance	1000 h at rated power 90'/30' - ambient temp. 70 °C	± 1 %	± 2 %	Contact res. variation: < 1 % Rn
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 %	
Damp heat steady state	40 °C 93 % RH 56 days	± 2 %	± 3 %	Dielectric strength: 1000 V <sub>RMS</sub> Insulation resistance: > 10 <sup>4</sup> MΩ
Charge of temperature	-55 °C to +125 °C 5 cycles	± 1 %		$\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 2 \%$
Mechanical endurance	200 cycles at rated power	± (2 % + 3 Ω)		Contact res. variation: < 3 % Rn
Shock	50 g's at 11 ms 3 successive shocks in 3 directions	± 1 %		$\Delta V_{1-2}/\Delta V_{1-3} \leq 1 \%$
Vibration	10 Hz to 55 Hz 0.75 mm or 10 g's for 6 h	± 1 %		$\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 2 \%$

**Note**

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

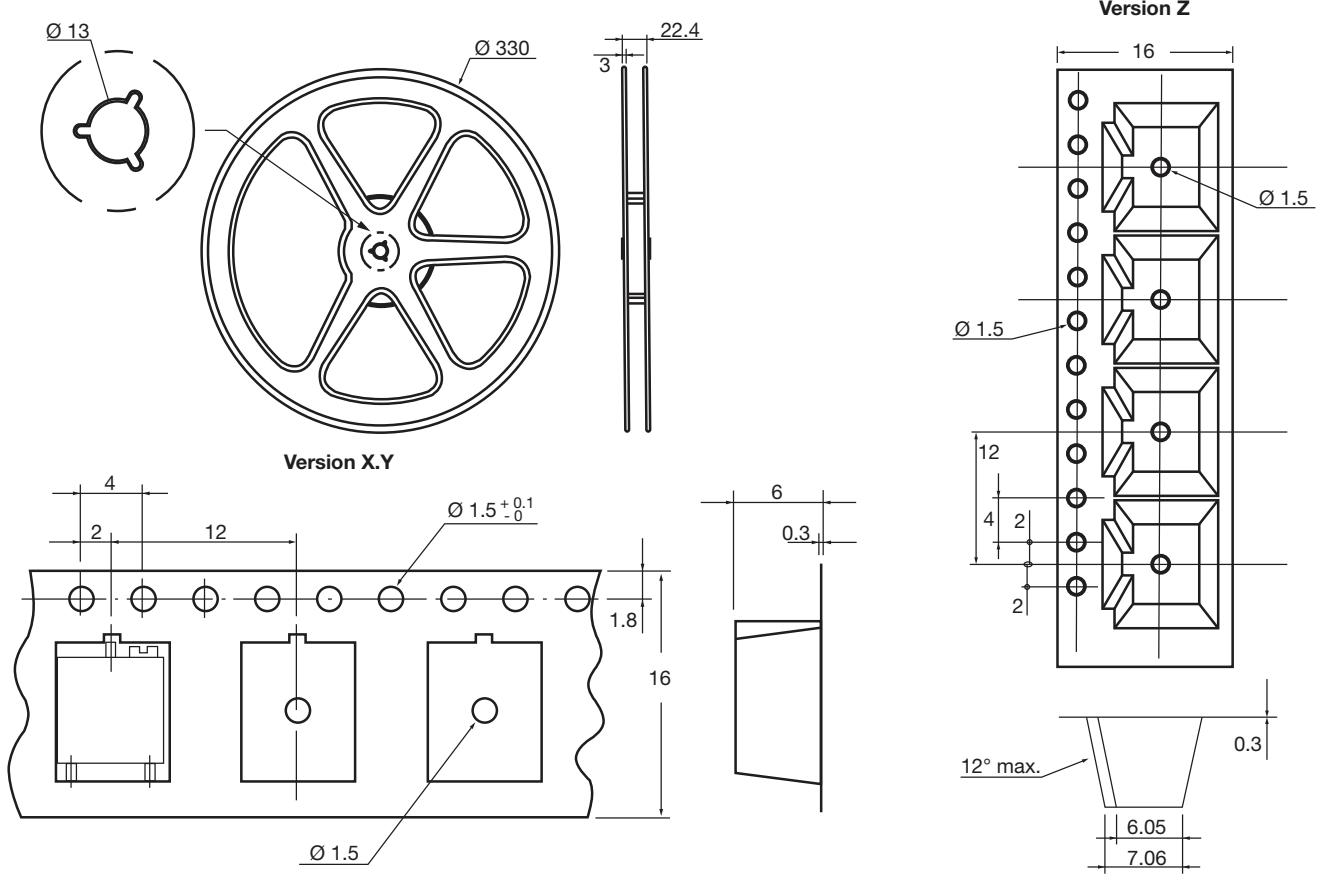
<b>STANDARD RESISTANCE ELEMENT DATA</b>				
<b>STANDARD RESISTANCE VALUES</b>	<b>LINEAR LAW</b>			<b>TYPICAL TCR -55 °C +125 °C</b>
	<b>MAX. POWER AT 70 °C</b>	<b>MAX. WORKING VOLTAGE</b>	<b>MAX. CURRENT THROUGH WIPER</b>	
<b>Ω</b>	<b>W</b>	<b>V</b>	<b>mA</b>	<b>ppm/°C</b>
10	0.25	1.58	158	
20	0.25	2.23	112	
50	0.25	3.53	77	
100	0.25	5.00	50	
200	0.25	7.07	35	
500	0.25	11.2	22	
1K	0.25	15.8	15.8	
2K	0.25	22.3	11.2	
5K	0.25	35.3	7.1	
10K	0.25	50.0	5.0	± 100
20K	0.25	70.7	3.5	
25K	0.25	79.0	3.2	
50K	0.25	112	2.2	
100K	0.25	158	1.6	
200K	0.25	224	1.1	
250K	0.25	250	1.1	
500K	0.13	250	0.50	
1M	0.06	250	0.25	
2M	0.03	200	0.125	

**MARKING**

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

**PACKAGING** in millimeters

- X, Y and Z types: on tape and reel (dia. 330 mm) of 500 pieces, code TR500
- On request in magazine pack by 50 pieces (Tube) code TU



## **ORDERING INFORMATION** (part number)

T	S	6	3	Y	5	0	4	K	R	1	0			
MODEL		STYLE		OHMIC VALUE		TOLERANCE		PACKAGING		SPECIAL NUMBER				
TS63		X	Y	Z	From 10 $\Omega$ to 2 M $\Omega$ 504 = 500 k $\Omega$	K = $\pm$ 10 % On request J = $\pm$ 5 %	R10 = reel 500 pieces On request T20 = tube 50 pieces	(If applicable) Given by Vishay for custom design						

**DESCRIPTION** (for information only)

TS63	Y	500K	10 %		TR	e3
MODEL	STYLE	VALUE	TOLERANCE	SPECIAL	PACKAGING	LEAD FINISH

**RELATED DOCUMENTS****APPLICATION NOTES**

Potentiometers and Trimmers	<a href="http://www.vishay.com/doc?51001">www.vishay.com/doc?51001</a>
Guidelines for Vishay Sfernice Resistive and Inductive Components	<a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a>
Selector guide	<a href="http://www.vishay.com/doc?49286">www.vishay.com/doc?49286</a>

**ACCESSORIES**

Screwdrivers (to order separately)	<a href="http://www.vishay.com/doc?57015">www.vishay.com/doc?57015</a>
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