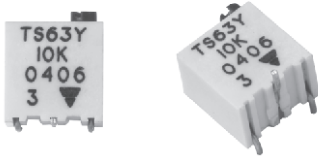


# Multi-Turn Surface Mount 1/4" Square Cermet Trimmers, Fully Sealed



## FEATURES

- 0.25 W at 70 °C
- Industrial grade
- Multi-turn operation
- A low contact resistance variation (down to 2 % R<sub>n</sub>)
- Low end contact resistance (1 Ω typical)
- Full sealing
- Tests according to CECC 41000 or IEC 60393-1
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

The TS63 multiturn 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 Ω to 2 MΩ.

DIMENSIONS in millimeters (± 0.5 mm)	
<p><b>TS63X</b></p>	<p><b>RECOMMENDED SOLDERING AREAS</b></p>
<p><b>TS63Z</b></p>	
<p><b>TS63Y</b></p>	

<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 <span style="float: right;"><math>\pm</math> 10 %</span>											
	On request <span style="float: right;"><math>\pm</math> 5 %</span>											
Circuit diagram												
Power rating	Linear <span style="float: right;">0.25 W at 70 °C</span>											
	<table border="1"> <caption>Power Rating vs Ambient Temperature</caption> <thead> <tr> <th>Ambient Temperature (°C)</th> <th>Rated Power (W)</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.25</td></tr> <tr><td>50</td><td>0.25</td></tr> <tr><td>70</td><td>0.25</td></tr> <tr><td>100</td><td>0.125</td></tr> <tr><td>155</td><td>0</td></tr> </tbody> </table>	Ambient Temperature (°C)	Rated Power (W)	0	0.25	50	0.25	70	0.25	100	0.125	155
Ambient Temperature (°C)	Rated Power (W)											
0	0.25											
50	0.25											
70	0.25											
100	0.125											
155	0											
Temperature coefficient	See Standard Resistance Element Data table											
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 <sup>6</sup> 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>	



PERFORMANCES				
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS		
		$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	OTHER
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**

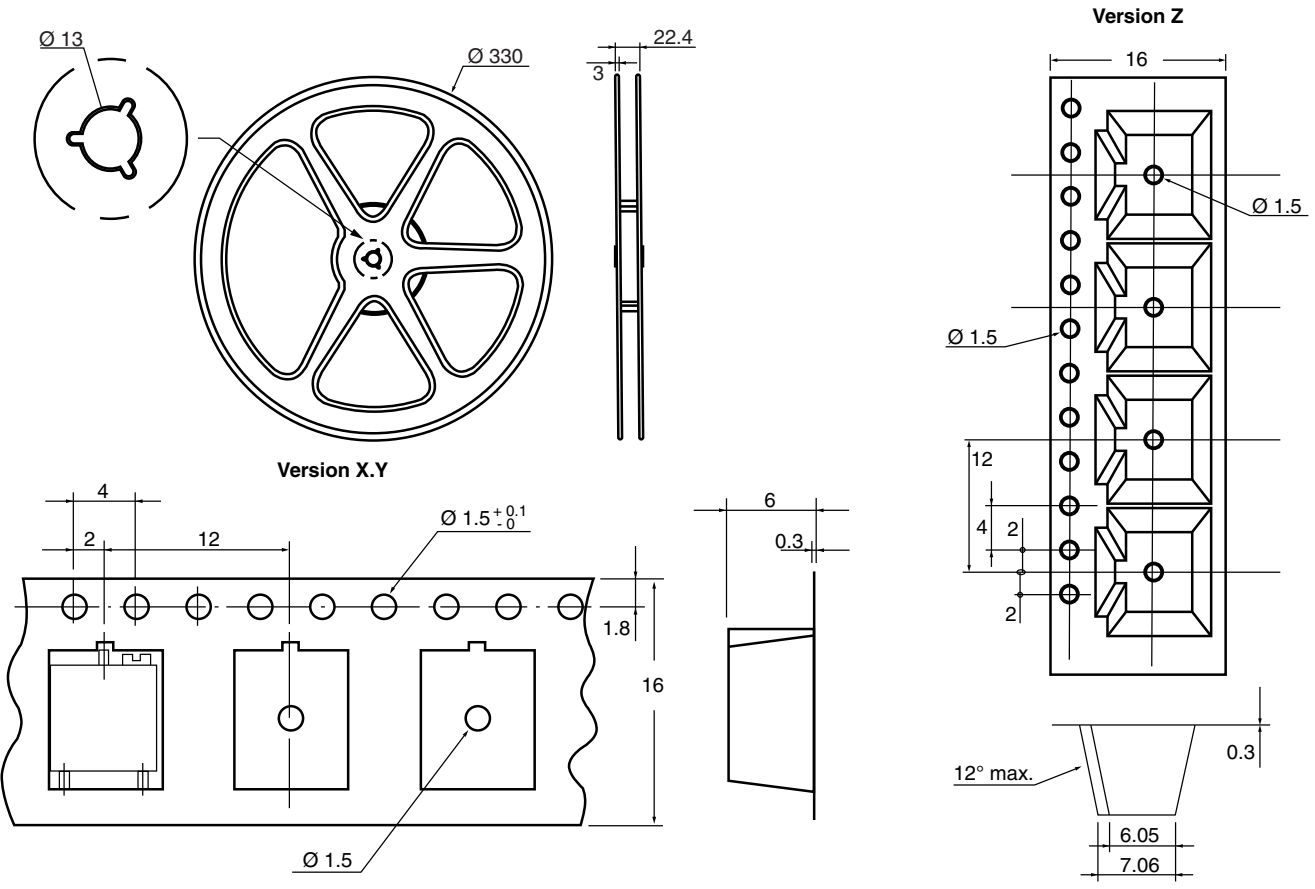
- Nothing stated herein shall be construed as a guarantee of quality or durability.

STANDARD RESISTANCE ELEMENT DATA				
STANDARD RESISTANCE VALUES	LINEAR LAW			TYPICAL TCR -55 °C +125 °C  ppm/°C
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. CURRENT THROUGH WIPER	
Ω	W	V	mA	
10	0.25	1.58	158	± 100
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	
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 Ω to 2 MΩ 504 = 500 kΩ	K = ± 10 % On request J = ± 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>



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