

## 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 % Rn)
- Low end contact resistance (1 Ω typical)
- Full sealing
- Tests according to CECC 41000 or IEC 60393-1
- Compliant to RoHS Directive 2002/95/EC



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	$\pm$ 10 %
	On Request	$\pm$ 5 %
Circuit Diagram		
Power Rating	Linear 0.25 W at 70 °C 	
Temperature Coefficient	See Standard Resistance Element Data table	
Limiting Element Voltage	250 V	
Contact Resistance Variation (Typical)	2 % R <sub>n</sub> 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 %		$\Delta V_{1-2}/\Delta V_{1-3} \leq \pm 2 \%$

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 2000 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



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.

