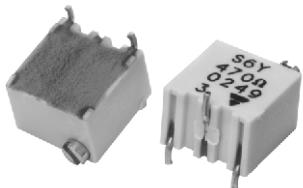


Multi-Turn Surface Mount 1/4" Square Cermet Trimmers, Fully Sealed



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

The TS6 multi-turn trimmer has been designed for use in PCB surface mounting applications.

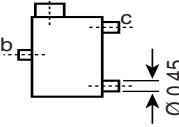
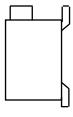
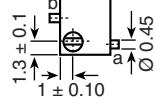
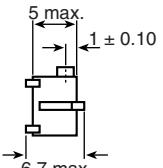
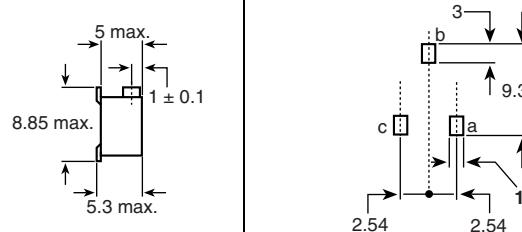
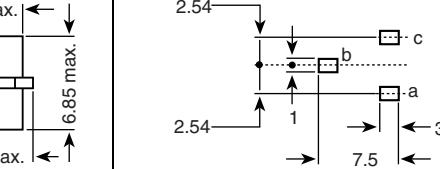
The cermet track gives a high stability performance with an extended ohmic capacity of $10\ \Omega$ to $2\ M\Omega$.

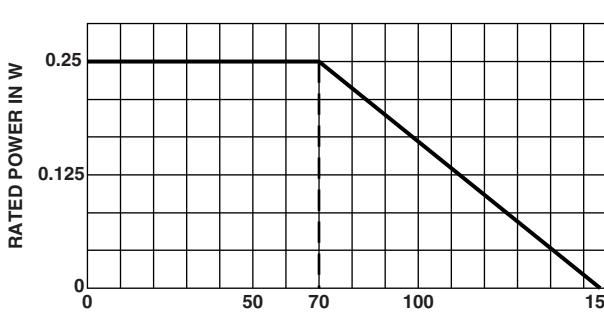
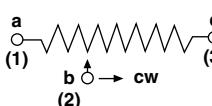
FEATURES

- 0.25 W at $70\ ^\circ\text{C}$
- Military and professional grade
- Multi-turn operation
- A low contact resistance variation (down to 2 % R_n)
- Low end contact resistance ($1\ \Omega$ 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



DIMENSIONS in millimeters ($\pm 0.5\ \text{mm}$)

TS6X	RECOMMENDED SOLDERING AREAS
 <p>Slot 0.5 x 0.5 0.25 5.8 \pm 0.10 0.7 1.8 0.20 6.85 max. 6.85 max.</p>  <p>Slot 0.5 x 0.5 6.85 max. 0.25 1.3 \pm 0.1 7.6 max. 0.45 2.54</p>  <p>6.85 max. 0.3 Slot 0.5 x 0.5 0.25 8 max. 1.3 \pm 0.1 1 \pm 0.10 0.45 2.54</p>	  

ELECTRICAL SPECIFICATIONS													
Resistive element	Cermet												
Electrical travel	14 turns \pm 2												
Resistance range	10 Ω to 2 M Ω												
Standard series E3	1 - 2.2 - 4.7 and on request 1 - 2 - 5												
Tolerance	<table> <tr> <td>Standard</td><td>\pm 10 %</td></tr> <tr> <td>On request</td><td>\pm 5 %</td></tr> </table>	Standard	\pm 10 %	On request	\pm 5 %								
Standard	\pm 10 %												
On request	\pm 5 %												
Power rating	<p>Linear</p> <p>0.25 W at 70 °C</p>  <table border="1"> <caption>Estimated data points from the graph</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>0.0</td></tr> </tbody> </table>	Ambient Temperature (°C)	Rated Power (W)	0	0.25	50	0.25	70	0.25	100	0.125	155	0.0
Ambient Temperature (°C)	Rated Power (W)												
0	0.25												
50	0.25												
70	0.25												
100	0.125												
155	0.0												
Circuit diagram													
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	10 ⁶ M Ω												

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

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	-55 °C to +155 °C
Climatic category	55/125/56
Sealing	Fully sealed IP67
MSL level	1

SOLDERING RECOMMENDATIONS	
Recommended reflow profile 2, see Application Note www.vishay.com/doc?52029	

PERFORMANCES							
TESTS	CONDITIONS	REQUIREMENTS		OTHER	TYPICAL VALUES AND DRIFTS		
		$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)		$\Delta R_T/R_T$ (%)	$\Delta R_{1-2}/R_{1-2}$ (%)	OTHER
Electrical endurance	1000 h at rated power 90'/30' - ambient temp. 70 °C	± 2 %	± 4 %	Contact res. variation: < 3 % Rn	± 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 %		± 0.5 %	± 1 %	
Damp heat steady state	40 °C 93 % RH 56 days	± 2 %	± 3 %	Dielectric strength: 250 V _{RMS} Insulation resistance: > 100 MΩ	± 0.5 %	± 1 %	Dielectric strength: 1000 V _{RMS} Insulation resistance: > 10 ⁴ MΩ
Charge of temperature	-55 °C to +125 °C 5 cycles	± 1.5 %		$\Delta V_{1-2}/\Delta V_{1-3}$ $\leq \pm 2 \%$	± 0.5 %		$\Delta V_{1-2}/\Delta V_{1-3}$ $< \pm 1 \%$
Mechanical endurance	200 cycles at rated power	± 2 %		Contact res. variation: < 3 % Rn	± (2 % + 3 Ω)		Contact res. variation: < 1 % Rn
Shock	50 g at 11 ms 3 successive shocks in 3 directions	± 1 %		$\Delta V_{1-2}/\Delta V_{1-3}$ $\leq \pm 2 \%$	± 0.1 %		$\Delta V_{1-2}/\Delta V_{1-3}$ $\leq 0.2 \%$
Vibration	10 Hz to 55 Hz 0.75 mm or 10 g for 6 h	± 1 %		$\Delta V_{1-2}/\Delta V_{1-3}$ $\leq \pm 2 \%$	± 0.1 %		$\Delta V_{1-2}/\Delta V_{1-3}$ $\leq \pm 0.2 \%$

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
	MAX. POWER AT 70 °C	MAX. WORKING VOLTAGE	MAX. WIPER CURRENT	
Ω	W	V	mA	ppm/°C
10	0.25	158	158	
22	0.25	2.34	107	
47	0.25	3.43	73	
100	0.25	5.00	50	
220	0.25	7.42	34	
470	0.25	10.8	23	
1K	0.25	15.8	15.8	
2.2K	0.25	23.4	10.7	
4.7K	0.25	34.3	7.3	± 100
10K	0.25	50	5	
22K	0.25	74.2	3.37	
47K	0.25	108.4	2.31	
100K	0.25	158	1.58	
220K	0.25	234	1.97	
470K	0.13	250	0.53	
1M	0.06	250	0.25	
2M	0.03	250	0.125	

MARKING

Printed: Vishay trademark, model, style, ohmic value (in Ω , $k\Omega$, $M\Omega$), tolerance (in %) only if non standard, manufacturing date, marking of terminal 3.

PACKAGING

- In tube of 50 pieces code T20 (TU50)
- In reel of 500 pieces code R10 (TR500)

ORDERING INFORMATION (part number)

T	S	6	Y	4	7	4	K	R	1	0			
MODEL	STYLE	OHMIC VALUE		TOLERANCE		PACKAGING		SPECIAL NUMBER					
TS6	X Y Z	From 10 Ω to 2 $M\Omega$ 474 = 470 $k\Omega$		K = 10 % On request J = 5 %		T20 = tube 50 pieces On request R10 = reel 500 pieces		(If applicable) Given by Vishay for custom design					

DESCRIPTION (for information only)

TS6	Y	470K	10 %		TU	e3
MODEL	STYLE	VALUE	TOLERANCE	SPECIAL	PACKAGING	LEAD FINISH

RELATED DOCUMENTS
APPLICATION NOTES

Potentiometers and Trimmers	www.vishay.com/doc?51001
Guidelines for Vishay Sfernice Resistive and Inductive Components	www.vishay.com/doc?52029

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