

# Cermet Trimmers, Surface Mount, 4.0 mm Square, Single Turn, Industrial Grade


**FEATURES**

- 0.25 W at 70 °C
- Fully sealed to withstand board washing
- Compatible with popular vacuum pick-and-place equipment
- J-hook and gull-wing configurations
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

**DESIGN SUPPORT TOOLS**
[click logo to get started](#)
**3D**  
Models  
Available

DIMENSIONS in millimeters (inches) ± 0.25 mm (± 0.010")	
<b>TS4YJ</b> 	<p>Recommended PCB footprint</p>
<b>TS4YL</b> 	<p>Recommended PCB footprint</p>

ELECTRICAL SPECIFICATIONS	
<b>Resistance range</b>	10 Ω to 2 MΩ (see Standard Resistance table)
<b>Tolerance</b>	± 20 % standard
<b>End resistance</b>	1 % or 2 Ω maximum, whichever is greater
<b>Temperature coefficient</b>	± 100 ppm/°C
<b>Power rating</b>	0.25 W at +70 °C (300 V maximum), 0 W at +125 °C
<b>Circuit diagram</b>	
<b>Contact resistance variation (CRV)</b>	1 % or 3 Ω
<b>Resolution</b>	Infinite
<b>Insulation resistance (500 V<sub>DC</sub>)</b>	100 MΩ minimum
<b>Dielectric strength (RMS)</b>	Sea level 500 V <sub>AC</sub> (1 minute)
<b>Adjustment angle</b>	210° nominal



MECHANICAL SPECIFICATIONS	
Mechanical angle	240° nominal
Operating torque (typical)	1.8 Ncm
End stop torque (typical)	3.0 Ncm
Weight	Approximately 0.01 oz.
Wiper	Positioned at approx. 50 %

ENVIRONMENTAL SPECIFICATIONS	
Temperature range	-55 °C to +125 °C
MSL level	1

PERFORMANCES				
TESTS	CONDITIONS	TYPICAL VALUES AND DRIFTS		
		$\Delta R_T/R_T$ (%)	$\Delta V_{1-2}/V_{1-3}$ (%)	OTHER
Vibration	20 g's	± 1 %	± 1 %	-
Shock	100 g's	± 1 %	± 1 %	-
Electrical endurance	At 70 °C rated power 1000 h	± 3 %	-	-
Mechanical endurance	100 cycles	± 3 %	-	-
Change of temperature	5 cycles	± 2 %	± 1 %	-
Humidity	90 % to 98 % relative humidity 10 cycles, 240 h	± 2 %	-	Insulation resistance:10 MΩ

**Note**

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

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

TWO DIGIT DATE CODE					
YEAR					
1990	A	2000	M	2010	A
1991	B	2001	N	2011	B
1992	C	2002	P	2012	C
1993	D	2003	R	2013	D
1994	E	2004	S	2014	E
1995	F	2005	T	2015	F
1996	H	2006	U	2016	H
1997	J	2007	V	2017	J
1998	K	2008	W	2018	K
1999	L	2009	X	2019	L
MONTH					
January	1	July	7		
February	2	August	8		
March	3	September	9		
April	4	October	O		
May	5	November	N		
June	6	December	D		

STANDARD RESISTANCE ELEMENT DATA		
RESISTANCE Ω	RESISTANCE CODE	TYPICAL TCR (ppm/°C)
10	100	± 100
20	200	
50	500	
100	101	
200	201	
500	501	
1K	102	
2K	202	
5K	502	
10K	103	
20K	203	
50K	503	
100K	104	
200K	204	
500K	504	
1M	105	
2M	205	

**Note**

- Special resistance available

### PART MARKING

Resistance code: 203  
Year: J  
Month: 5  
Date code: J5

- Manufacturers code
- Resistance code
- Date code

### PACKAGING in millimeters (inches)

**TS4YJ, TS4YL Tape**

Dimensions for TS4YJ, TS4YL Tape:  
 $2.74 \pm 0.100$  (0.108 ± 0.004)  
 $0.360$  (0.014) max.  
 $5.52 \pm 0.5$  (0.217 ± 0.020)  
 $1.75 \pm 0.100$  (0.069 ± 0.004)  
 $2.00 \pm 0.050$  (0.079 ± 0.002)  
 $4.00 \pm 0.100$  (0.157 ± 0.004)  
 $1.50 \pm 0.100 - 0$  (0.059 ± 0.004 - 0)  
 $12.0 \pm 0.300$  (0.472 ± 0.012)  
 $5.26 \pm 0.100$  (YJ) (0.207 ± 0.004)  
 $8.0 \pm 0.200$  (0.315 ± 0.008)  
 $5.26 \pm 0.100$  (YL) (0.207 ± 0.004)  
 $6.45 \pm 0.100$  (YL) (0.254 ± 0.004)

**TS4YJ, TS4YL Reel**

Dimensions for TS4YJ, TS4YL Reel:  
 $1.78 \pm 0.254$  (0.070 ± 0.010) equal spaced 3 places  
 $13.0 \pm 0.508$  (0.512 ± 0.020) dia.  
 $21.01 \pm 0.787$  (0.827 ± 0.031) dia.  
 $2.67 \pm 0.254$  (0.105 ± 0.010)  
 $59.18 \pm 2.03$  (2.33 ± 0.80)  
 $177.8 \pm 2.03$  (7.0 ± 0.080) dia.  
 $12.4 \pm 2.01 - 0$  (0.488 ± 0.079 - 0)

500 pieces per 7" reel standard. Meets EIA Specifications 481.

### ORDERING INFORMATION (part number)

<b>T</b>	<b>S</b>	<b>4</b>	<b>Y</b>	<b>L</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>M</b>	<b>R</b>	<b>1</b>	<b>0</b>				
MODEL		STYLE			OHMIC VALUE			TOLERANCE		PACKAGING			SPECIAL NUMBER		
TS4		YJ YL			From 10 Ω to 2 MΩ 502 = 5 kΩ			M = ± 20 %		R10 = reel 500 pieces			(If applicable) Given by Vishay for custom design		

### DESCRIPTION (for information only)

<b>TS4</b>	<b>YL</b>	<b>5K</b>	<b>20 %</b>		<b>TR</b>	<b>e3</b>
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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