

# 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)

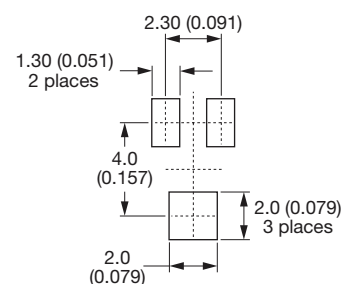
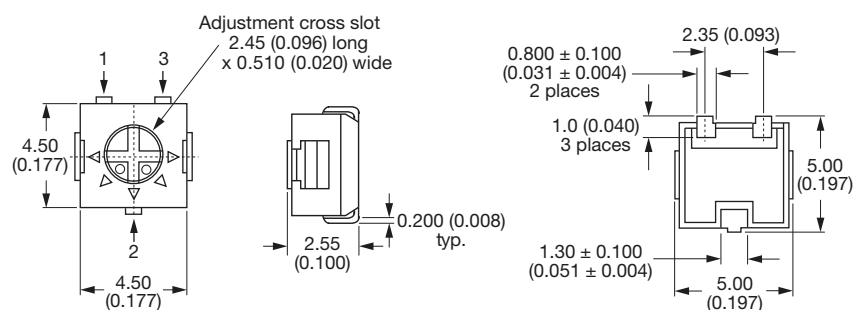

**RoHS**  
COMPLIANT

## LINKS TO ADDITIONAL RESOURCES



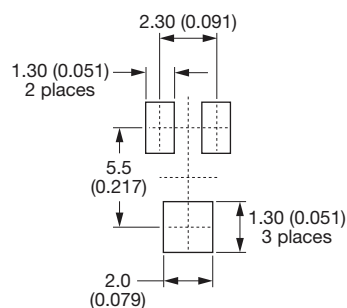
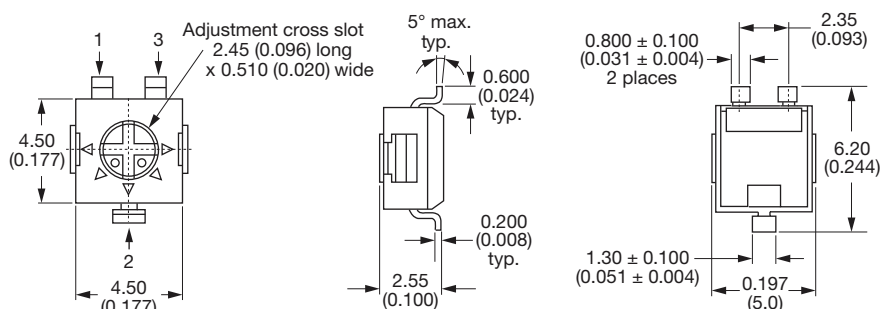
## DIMENSIONS in millimeters (inches) ± 0.25 mm (± 0.010")

### TS4YJ

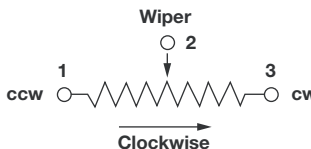


Recommended PCB footprint

### TS4YL



Recommended PCB footprint

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

| <b>MECHANICAL SPECIFICATIONS</b> |                            |
|----------------------------------|----------------------------|
| Mechanical angle                 | 240 $^{\circ}$ nominal     |
| Operating torque (typical)       | 1.8 Ncm                    |
| End stop torque (typical)        | 3.0 Ncm                    |
| Weight                           | Approximately 0.01 oz.     |
| Wiper                            | Positioned at approx. 50 % |

| <b>ENVIRONMENTAL SPECIFICATIONS</b> |                                       |
|-------------------------------------|---------------------------------------|
| Temperature range                   | -55 $^{\circ}$ C to +125 $^{\circ}$ C |
| MSL level                           | 1                                     |

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

**Note**

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

| <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> |

**TWO DIGIT DATE CODE**

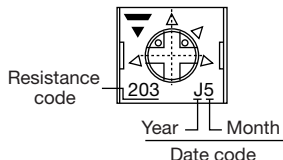
| YEAR     |   |           |   |      |   |
|----------|---|-----------|---|------|---|
| 1990     | A | 2000      | M | 2010 | A |
| 1991     | B | 2001      | N | 2011 | B |
| 1992     | C | 2002      | P | 2012 | C |
| 1993     | D | 2003      | R | 2013 | D |
| 1994     | E | 2004      | S | 2014 | 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**

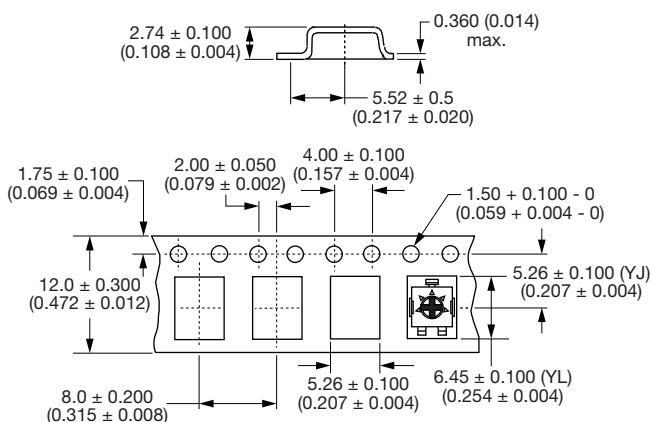
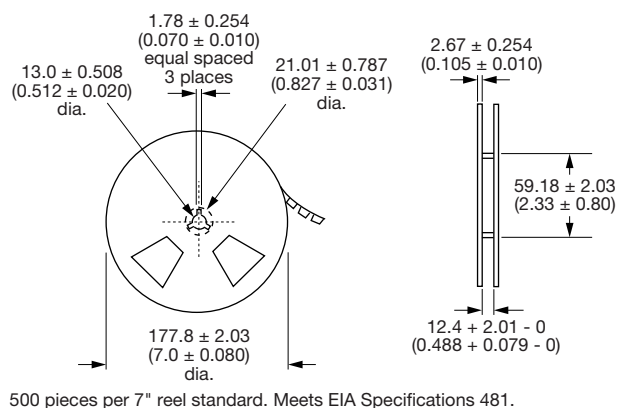
| RESISTANCE<br>$\Omega$ | RESISTANCE<br>CODE | TYPICAL TCR<br>(ppm/°C) |
|------------------------|--------------------|-------------------------|
| 10                     | 100                | $\pm 100$               |
| 20                     | 200                |                         |
| 50                     | 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**


- Manufacturers code
- Resistance code
- Date code

**PACKAGING in millimeters (inches)**
**TS4YJ, TS4YL  
Tape**

**TS4YJ, TS4YL  
Reel**




### ORDERING INFORMATION (part number)

|       |   |          |   |                                                        |   |   |                |   |                       |   |                                                         |  |  |  |  |
|-------|---|----------|---|--------------------------------------------------------|---|---|----------------|---|-----------------------|---|---------------------------------------------------------|--|--|--|--|
| T     | S | 4        | Y | L                                                      | 5 | 0 | 2              | M | R                     | 1 | 0                                                       |  |  |  |  |
| MODEL |   | STYLE    |   | OHMIC VALUE                                            |   |   | TOLERANCE      |   | PACKAGING             |   | SPECIAL NUMBER                                          |  |  |  |  |
| TS4   |   | YJ<br>YL |   | From 10 $\Omega$ to 2 M $\Omega$<br>502 = 5 k $\Omega$ |   |   | M = $\pm$ 20 % |   | R10 = reel 500 pieces |   | (If applicable)<br>Given by Vishay<br>for custom design |  |  |  |  |

### DESCRIPTION (for information only)

|       |       |       |           |         |           |             |
|-------|-------|-------|-----------|---------|-----------|-------------|
| TS4   | YL    | 5K    | 20 %      |         | 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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