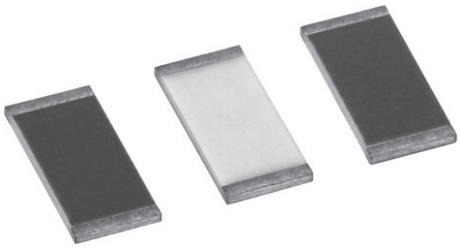
# Precision Low TCR High Temperature Thin Film Resistor, Surface Mount Chip, ± 5 ppm/°C TCR, 0.02 % Tolerance

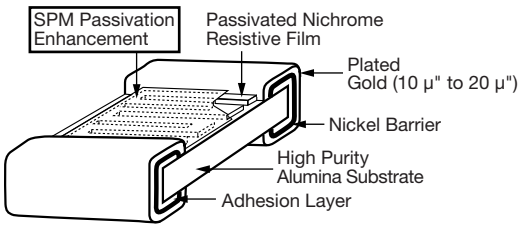


## LINKS TO ADDITIONAL RESOURCES

Infographics | Product Page | Packages | Footprints | Order Samples

Vishay's proven precision thin film wraparound resistors will meet your exact requirements. These resistors are ideal for use in oil industry precision applications requiring low noise, long term stability under high temperature, ultra low temperature coefficient of resistance, and low voltage coefficient. The chip resistors are available in any resistance ohmic value in the range specified below.

## CONSTRUCTION




**ATTENTION!**
**Observe Precautions for Handling Electrostatic Sensitive Devices!**

## FEATURES

- PLTT0603 case size is qualified to AEC-Q200 for automotive applications
- -55 °C to 215 °C operating temperature range
- TCR of ± 5 ppm/°C standard
- Tolerances to ± 0.02 %
- Anti corrosion resistant film with (SPM) special passivation method
- Stable film and performance characteristics
- 0.5 % max. at 2000 h, 215 °C, 25 % rated power
- Non-standard resistance values available
- Very low noise and voltage coefficient (< -30 dB, 0.1 ppm/V)
- UL 94 V-0 flame resistant
- Gold terminations (10 µ" to 20 µ")
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free Available

RoHS* Available

HALOGEN FREE

## TYPICAL PERFORMANCE

| | ABSOLUTE |
|---|---|
| TCR | 5 |
| TOL. | 0.02 |

## STANDARD ELECTRICAL SPECIFICATIONS

| TEST | SPECIFICATIONS | CONDITIONS |
|---|---|---|
| **Material** | Passivated nichrome | - |
| **Resistance Range** | 75 Ω to 3 MΩ | - |
| **TCR: Absolute** | ± 5 ppm/°C | -55 °C to +215 °C |
| **Tolerance: Absolute** | ± 0.1 % to ± 0.02 % | +25 °C |
| **Stability: Absolute** | Δ*R* ± 0.5 % | 2000 h at 215 °C, 25 % rated power |
| **Stability: Ratio** | - | - |
| **Voltage Coefficient** | ± 0.1 ppm/V (typical) | - |
| **Working Voltage** | 100 V to 200 V | - |
| **Operating Temperature Range** | -55 °C to +215 °C | - |
| **Storage Temperature Range** | -55 °C to +215 °C | - |
| **Noise** | < -35 dB (typical) | - |
| **Shelf Life Stability: Absolute** | Δ*R* ± 0.01 % | 1 year at +25 °C |



For technical questions, contact: thinfilm@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

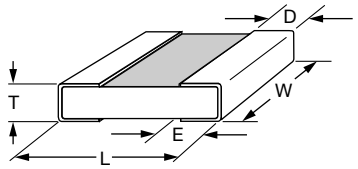
Downloaded from Arrow.com.

## COMPONENT RATINGS

| CASE SIZE | POWER RATING AT 70 °C (mW) | WORKING VOLTAGE (V) | RESISTANCE RANGE (Ω) |
|---|---|---|---|
| 0603 | 150 | 75 | 75 to 130K |
| 0805 | 250 | 100 | 250 to 260K |
| 1206 | 400 | 200 | 500 to 775K |
| 2010 | 800 | 200 | 500 to 2M |
| 2512 | 1000 | 200 | 500 to 3M |

**Note**
- Consult factory for additional case size

## DIMENSIONS in inches




| CASE SIZE | TERM | L | W | T | D | E |
|---|---|---|---|---|---|---|
| 0603 | G | 0.064 ± 0.006 | 0.032 ± 0.005 | 0.015 to 0.033 | 0.012 ± 0.005 | 0.015 ± 0.005 |
| 0805 | G | 0.080 ± 0.006 | 0.050 ± 0.005 | 0.015 to 0.033 | 0.016 ± 0.008 | 0.015 ± 0.005 |
| 1206 | G | 0.126 ± 0.008 | 0.063 ± 0.005 | 0.015 to 0.033 | 0.020 + 0.005/- 0.010 | 0.020 + 0.005/- 0.010 |
| 2010 | G | 0.209 ± 0.009 | 0.098 ± 0.005 | 0.015 to 0.033 | 0.020 ± 0.005 | 0.020 ± 0.005 |
| 2512 | G | 0.259 ± 0.009 | 0.124 ± 0.005 | 0.015 to 0.033 | 0.020 ± 0.005 | 0.020 ± 0.005 |

## ENVIRONMENTAL TESTS - MIL-PRF-55342

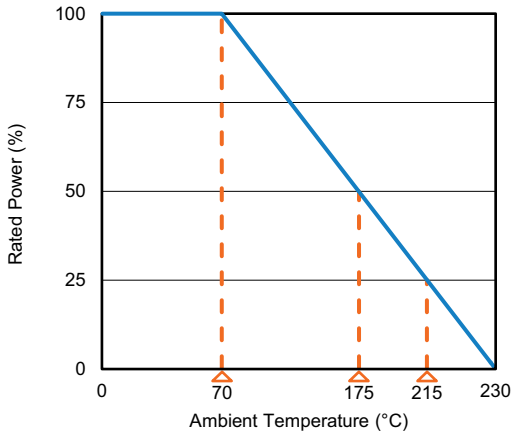
| ENVIRONMENTAL TEST | CONDITIONS | TYPICAL VISHAY PERFORMANCE |
|---|---|---|
| Thermal Shock | MIL-STD-202 method 107 cond F, -65 °C to +150 °C | ± 0.02 % |
| Short Time Overload | MIL-PRF-55342 para 4.8.6, 2.5 x rated working voltage | ± 0.01 % |
| Low Temperature Operation | MIL-PRF-55342 para 4.8.5, -65 °C | ± 0.01 % |
| Resistance to Soldering Heat | MIL-STD-202 method 210 | ± 0.01 % |
| Moisture Resistance | MIL-STD-202 method 106, no power applied | ± 0.02 % |
| High Temperature Exposure | MIL-PRF-55342 para 4.8.7, at 150 °C for 100 h | ± 0.02 % |
| Life | MIL-STD-202 method 108, 25 % rated power for 2000 h at 215 °C | ± 0.50 % |
| TCR | MIL-STD-202 method 304 | ± 5 ppm/°C |

## ENVIRONMENTAL TESTS - AEC-Q200 PLTT0603 Case Size Only

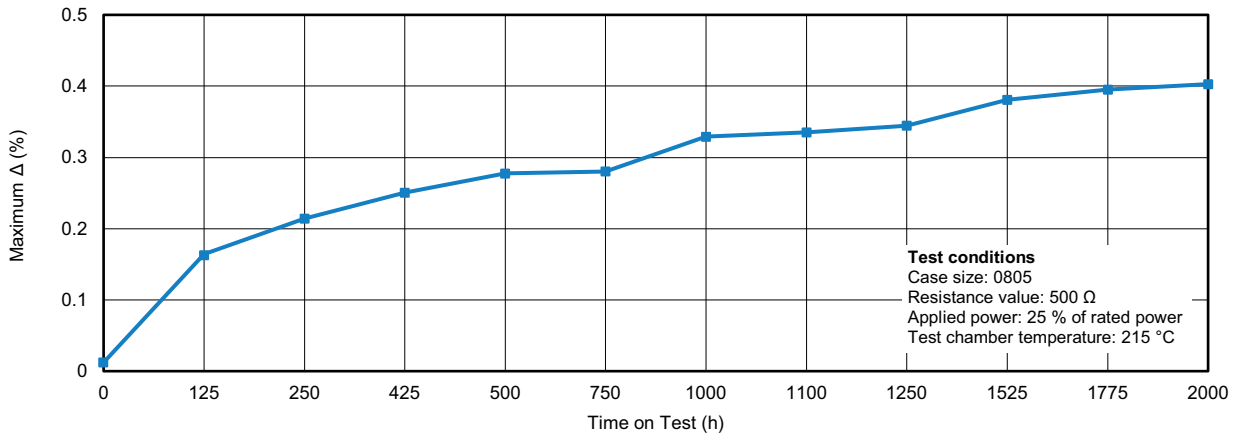
| ENVIRONMENTAL TEST | CONDITIONS | TYPICAL VISHAY PERFORMANCE |
|---|---|---|
| High temperature storage | MIL-STD-202 method 108, 1000 h at 125 °C | ± 0.10 % |
| Temperature cycling | JESD22 method JA-104, 1000 cycles, -55 °C to +155 °C | ± 0.25 % |
| Moisture resistance | MIL-STD-202 method 106, no power applied | ± 0.10 % |
| Biased humidity | MIL-STD-202 method 103, 1000 h at 85 °C, 85 % RH, 10 % rated power | ± 0.20 % |
| Life | MIL-STD-202 method 108, 1000 h at 175 °C, 50 % rated power | ± 0.50 % |
| Mechanical shock | MIL-STD-202 method 213, condition C | ± 0.02 % |
| Vibration | MIL-STD-202 method 204, 10 Hz to 2 kHz | ± 0.02 % |
| Resistance to soldering heat | MIL-STD-202 method 210, condition B | ± 0.02 % |
| Electrostatic discharge | AEC-Q200-002, human body (< 1 kΩ: 1 kV; > 1 kΩ: 2 kV) | < 1 kΩ: 1 kV; > 1 kΩ: 2 kV |
| Solderability | MIL-STD-883 method 2003 para 2.3.1 and J-STD-002 | Pass |
| TCR | MIL-STD-202 method 304 | ± 5 ppm /°C |
| Die shear | MIL-PRF-55342, 0.5 kg for 30 s minimun | Pass |
| Flame retardance | AEC-Q200-001 para 4.0 | Pass |


For technical questions, contact: thinfilm@vishay.com
THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000
Downloaded from Arrow.com.

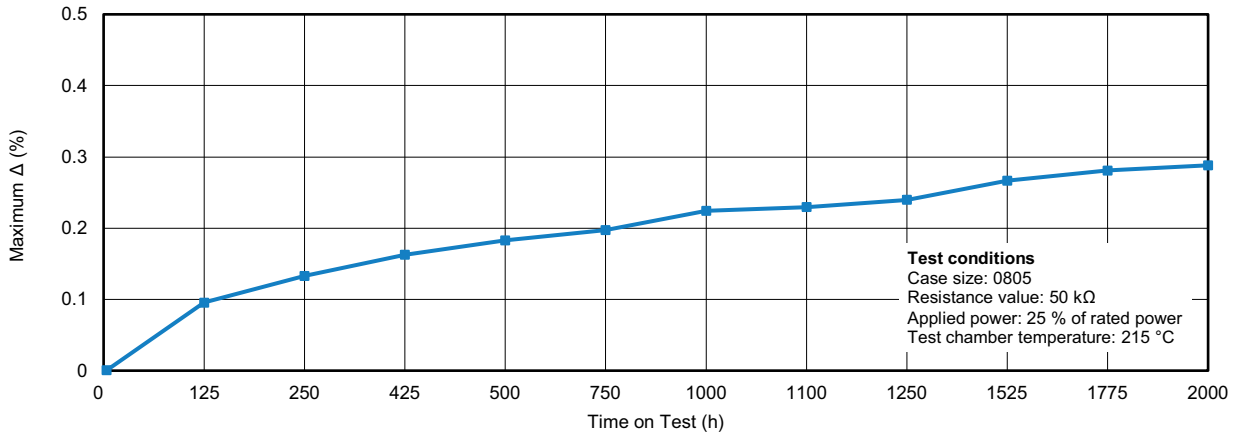
## DERATING CURVE




## PLTT0805 500 Ω STABILITY TEST RESULTS




## PLTT0805 50 kΩ STABILITY TEST RESULTS




**Note**

- Performance obtained with following mounting conditions
  PCB: Polymide IPC-7831A STD land patterns
  Solder paste: PbSnAg (93.5/5/1.5)



For technical questions, contact: thinfilm@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Downloaded from Arrow.com.

## GLOBAL PART NUMBER INFORMATION

| P | L | T | T | 0 | 8 | 0 | 5 | Z | 1 | 0 | 0 | 1 | Q | G | T | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| GLOBAL MODEL | CASE SIZE | TCR CHARACTERISTIC | RESISTANCE | TOLERANCE | TERMINATION | PACKAGING |
|---|---|---|---|---|---|---|
| **PLTT** | **0603**<br>**0805**<br>**1206**<br>**2010**<br>**2512** | **Z** = ± 5 ppm/°C | The first 3 digits are significant figures and the last digit specifies the number of zeros to follow. "R" designates the decimal point.<br><br>Example:<br>**1001** = 1 kΩ<br>**2500** = 250 Ω<br><br>Special values with more than 4 significant figures, use a R for value below 1 kΩ and a K for values greater than 1 kΩ to signify a decimal point.<br><br>**982R6** = 982.6 Ω<br>**532R41** = 532.41 Ω | **Q** = ± 0.02 % (1)<br>**A** = ± 0.05 %<br>**B** = ± 0.1 %<br>**D** = ± 0.5 %<br>**F** = ± 1 %<br>**G** = ± 2 % | **G** = wraparound gold over Ni barrier (10 µ" min. Au) | **WS** = WAFFLE<br>**WI** = 100 min., 1 mult. (item single lot date code)<br>**WP** = 100 min., 1 mult. (package unit single lot date code)<br><br>TAPE AND REEL<br>**T0** = 100 min., 100 mult.<br>**T1** = 1000 min., 1000 mult.<br>**T5** = 500 min., 500 mult.<br>**TF** = full reel<br>**TS** = 100 min., 1 mult.<br>**TI** = 100 min., 1 mult. (item single lot date code)<br>**TP** = 100 min., 1 mult. (package unit single lot date code) |

**Note**

(1) Q tolerances are available only for resistance values ≥ 250 Ω



For technical questions, contact: thinfilm@vishay.com

THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Downloaded from Arrow.com.

# 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.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. 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.

*© 2026 VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED*



THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE. THE PRODUCTS DESCRIBED HEREIN AND THIS DOCUMENT ARE SUBJECT TO SPECIFIC DISCLAIMERS, SET FORTH AT www.vishay.com/doc?91000

Downloaded from Arrow.com.