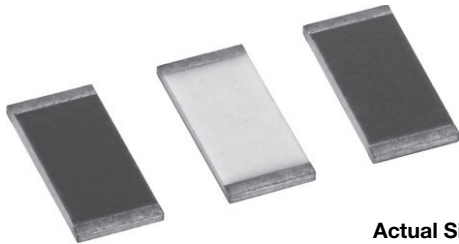
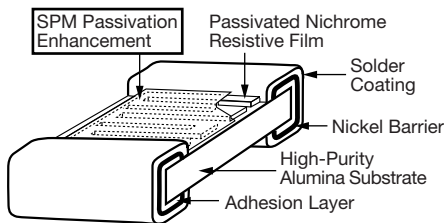


# Ultra Precision Low TCR Thin Film Resistor, Surface Mount Chip, ± 2 ppm/°C TCR, 0.01 % Tolerance


**Actual Size 0603**

Vishay's proven precision thin film wraparound resistors will meet your exact requirements. These resistors are ideal for precision applications requiring low noise, stability, 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



## FEATURES

- TCR of ± 2 ppm/°C standard
- Tolerances to ± 0.01 %
- Anti-corrosion resistant film with (SPM) special passivation method
- Stable film and performance characteristics ( $\Delta R \pm 0.04 \%$  at 70 °C, 10 000 h)
- Non-standard resistance values available
- Very low noise and voltage coefficient (< -30 dB, 0.1 ppm/V)
- UL 94 V-0 flame resistant
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## Note

\* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non-RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details.

## TYPICAL PERFORMANCE

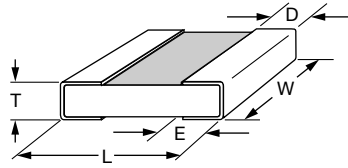
	ABSOLUTE
TCR	<b>2</b>
TOL.	<b>0.01</b>

## STANDARD ELECTRICAL SPECIFICATIONS

TEST	SPECIFICATIONS	CONDITIONS
<b>Material</b>	Passivated nichrome	-
<b>Resistance Range</b>	100 Ω to 3 MΩ	-
<b>TCR: Absolute</b>	± 2 ppm/°C	-55 °C to +125 °C
<b>Tolerance: Absolute</b>	± 0.1 % to ± 0.01 %	+25 °C
<b>Stability: Absolute</b>	$\Delta R \pm 0.02 \%$	2000 h at 70 °C
<b>Stability: Ratio</b>	-	-
<b>Voltage Coefficient</b>	± 0.1 ppm/V (typical)	-
<b>Working Voltage</b>	75 V to 200 V	-
<b>Operating Temperature Range</b>	-55 °C to +125 °C	-
<b>Storage Temperature Range</b>	-55 °C to +155 °C	-
<b>Noise</b>	< -35 dB (typical)	-
<b>Shelf Life Stability: Absolute</b>	$\Delta R \pm 0.01 \%$	1 year at +25 °C

## COMPONENT RATINGS

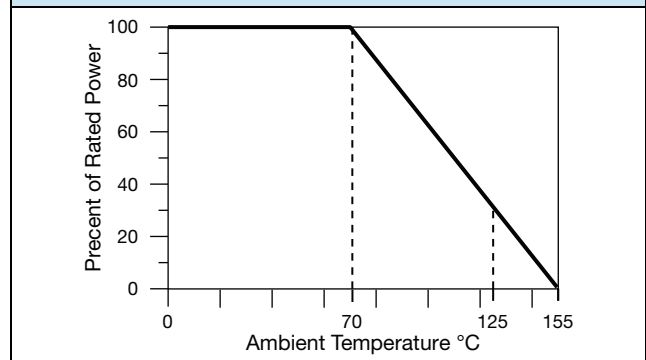
CASE SIZE	POWER RATING (mW)	WORKING VOLTAGE (V)	RESISTANCE RANGE (Ω)
0603	150	75	100 to 130K
0805	250	100	100 to 260K
1206	400	200	100 to 775K
2010	800	200	150 to 2M
2512	1000	200	200 to 3M

**DIMENSIONS** in inches


CASE SIZE	TERM	L	W	T	D	E
0603	B	0.064 ± 0.006	0.032 ± 0.005	0.020 max.	0.012 ± 0.005	0.015 ± 0.005
0805	B	0.080 ± 0.006	0.050 ± 0.005	0.015 to 0.033	0.016 ± 0.008	0.015 ± 0.005
1206	B	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 - TYPICAL**

ENVIRONMENTAL TEST	10 kΩ ΔR ± (%)	100 kΩ ΔR ± (%)
Thermal Shock	0.02	0.02
Short Time Overload	0.01	0.01
Low Temperature Operation	0.01	0.01
Resistance to Solder Heat	0.01	0.01
Moisture Resistance	0.02	0.02
High Temperature Exposure	0.02	0.02
Load Life (10 000 h, +70 °C)	0.04	0.04
TCR	± 2 ppm/°C	± 2 ppm/°C

**DERATING CURVE**

**GLOBAL PART NUMBER INFORMATION**

GLOBAL MODEL	CASE SIZE	TCR CHARACTERISTIC	RESISTANCE	TOLERANCE	TERMINATION	PACKAGING
PLTU	0603 0805 1206 2010 2512	U = ± 2 ppm/°C	First 3 digits are significant figures and the last digit specifies the number of zeros to follow.  Example: 1000 = 100 Ω 1001 = 1 kΩ  Use R to indicate decimal point for value below 1 kΩ (max. 5 digits). 982R6 = 982.6 Ω  Values above 1 kΩ (max. 4 digits). 1532 = 15.3 kΩ 1003 = 100 kΩ	<b>L</b> = ± 0.01 % <sup>(2)</sup> <b>Q</b> = ± 0.02 % <b>A</b> = ± 0.05 % <b>B</b> = ± 0.1 % <b>D</b> = ± 0.5 % <b>F</b> = ± 1 %	<b>B</b> = wraparound Sn/Pb solder w/Ni barrier (63 % Sn/37 % Pb w/nickel barrier)  <b>S</b> = wraparound lead (Pb)-free solder 96.5 % Sn/3.0 % Ag/0.5 % Cu RoHS-compliant - e1	<b>WS</b> = WAFFLE PACK <b>W1</b> = 100 min., 1 mult (item single lot date code) <b>WP</b> = 100 min., 1 mult (package unit single lot date code)  <b>TAPE AND REEL</b> <b>T0</b> = 100 min., 100 mult <b>T1</b> = 1000 min., 1000 mult <sup>(1)</sup> <b>T3</b> = 300 min., 300 mult <b>T5</b> = 500 min., 500 mult <b>TF</b> = Full reel <b>TS</b> = 100 min., 1 mult <b>TI</b> = 100 min., 1 mult (item single lot date code) <b>TP</b> = 100 min., 1 mult (package unit single lot date code)

**Notes**

- (1) Preferred packaging code
- (2) L and Q tolerances are available only for resistance values ≥ 250 Ω



## **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.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «**JONHON**», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «**FORSTAR**».



**JONHON**

«**JONHON**» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«**FORSTAR**» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А