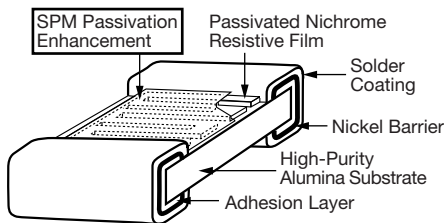


Ultra Precision Low TCR Thin Film Resistor, Surface Mount Chip, ± 2 ppm/°C TCR, 0.01 % Tolerance


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



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

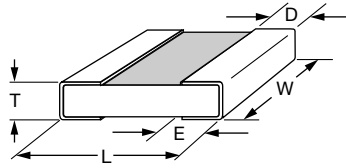
| | ABSOLUTE |
|------|----------|
| ■ | |
| TCR | 2 |
| TOL. | 0.01 |

STANDARD ELECTRICAL SPECIFICATIONS

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

COMPONENT RATINGS

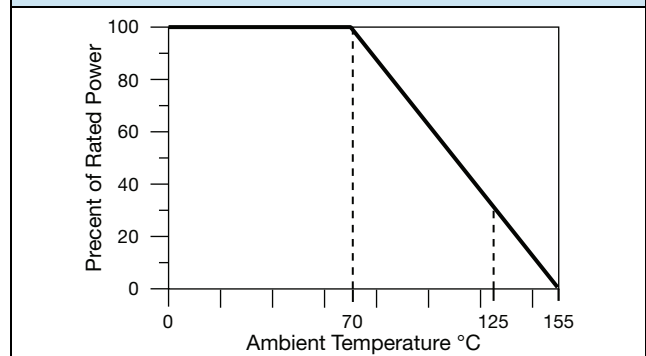
| CASE SIZE | POWER RATING (mW) | WORKING VOLTAGE (V) | RESISTANCE RANGE (Ω) |
|-----------|-------------------|---------------------|----------------------|
| 0603 | 150 | 75 | 100 to 130K |
| 0805 | 250 | 100 | 100 to 260K |
| 1206 | 400 | 200 | 100 to 775K |
| 2010 | 800 | 200 | 150 to 2M |
| 2512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

DIMENSIONS in inches


| CASE SIZE | L | W | T | D | E |
|-----------|---------------|---------------|----------------|-------------------------|-------------------------|
| 0603 | 0.064 ± 0.006 | 0.032 ± 0.005 | 0.020 max. | 0.012 ± 0.005 | 0.015 ± 0.005 |
| 0805 | 0.080 ± 0.006 | 0.050 ± 0.005 | 0.015 to 0.033 | 0.016 ± 0.008 | 0.015 ± 0.005 |
| 1206 | 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 | 0.209 ± 0.009 | 0.098 ± 0.005 | 0.015 to 0.033 | 0.020 ± 0.005 | 0.020 ± 0.005 |
| 2512 | 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 | L = ± 0.01 % ⁽²⁾ Q = ± 0.02 % A = ± 0.05 % B = ± 0.1 % D = ± 0.5 % F = ± 1 % | B = wraparound Sn/Pb solder w/Ni barrier (63 % Sn/37 % Pb w/nickel barrier) S = wraparound lead (Pb)-free solder 96.5 % Sn/3.0 % Ag/0.5 % Cu RoHS-compliant - e1 | WS = WAFFLE PACK W1 = 100 min., 1 mult. (item single lot date code) WP = 100 min., 1 mult. (package unit single lot date code) TAPE AND REEL T0 = 100 min., 100 mult. T1 = 1000 min., 1000 mult. ⁽¹⁾ T3 = 300 min., 300 mult. T5 = 500 min., 500 mult. TF = Full reel TS = 100 min., 1 mult. TI = 100 min., 1 mult. (item single lot date code) TP = 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



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