



Product Family: Precision Chip Resistor

Part Number Series: RR Series



Construction:

- High Purity Alumina Substrate
- Ni alloy thin-film resistive element
- Wrap around electrodes
- 100% matte tin over Ni terminations (RoHS compliant and Pb Free)

Features:

- 0201, 0402, 0603, 0805, 1206 and 1210 sizes
- TCR's down to ± 5 ppm/ $^{\circ}$ C
- Resistance down to 10 Ω available
- High volume production suitable for commercial and special applications

Description:

These precision chip resistors offer excellent performance and tolerance in TCR, current noise, and linearity for high frequency circuit applications and other applications requiring precision and stability. High volume manufacturing allows for lower costs for the customer.

Product Dimensions:

| | Dimension | RR0306 (0201) | RR0510 (0402) | RR0816 (0603) | RR1220 (0805) | RR1632 (1206) | RR2632 (1210) |
|--|-----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | L | 0.024 ± 0.002 | 0.039 ± 0.002 | 0.063 ± 0.008 | 0.079 ± 0.008 | 0.126 ± 0.008 | 0.126 ± 0.008 |
| | W | 0.012 ± 0.002 | 0.020 ± 0.002 | 0.031 ± 0.008 | 0.049 ± 0.008 | 0.063 ± 0.008 | 0.102 ± 0.008 |
| | H | 0.009 ± 0.001 | 0.014 ± 0.002 | 0.016 ± 0.004 | 0.016 ± 0.004 | 0.016 ± 0.004 | 0.016 ± 0.004 |
| | T1 | 0.005 ± 0.002 | 0.010 ± 0.002 | 0.012 ± 0.008 | 0.016 ± 0.008 | 0.018 ± 0.008 | 0.018 ± 0.008 |
| | T2 | 0.005 ± 0.002 | 0.008 ± 0.004 | 0.012 ± 0.008 | 0.016 ± 0.008 | 0.020 ± 0.008 | 0.020 ± 0.008 |

All dimensions are shown in inches, but use metric size when ordering as shown in the part numbering section. English case sizes are shown in parenthesis.

Part Numbering: Ex: RR0816P203D-*

| Product Designator | Size W x L (Metric) | Temp. Coefficient of Resistance (TCR) | Resistance Value | Resistance Tolerance | T&R Packaging Quantity |
|--------------------|--|--|--|--|--|
| RR | 0306 0510 0816 1220 1632 2632 | V = ± 5 ppm/ $^{\circ}$ C N = ± 10 ppm/ $^{\circ}$ C P = ± 25 ppm/ $^{\circ}$ C Q = ± 50 ppm/ $^{\circ}$ C R = ± 100 ppm/ $^{\circ}$ C | For 1632 & 2632 sizes, use 4 digit code for all values. For all other sizes, use 3 digit code for E24 values and 4 digit code for E-96 values. "R" denotes decimal position as necessary | B = $\pm 0.10\%$ D = $\pm 0.50\%$ F = $\pm 1.00\%$ | Only applies to RR1632 and RR2632 products in 5K reels. No other products in this series use T&R indicators in the part numbers. -T5 = 5,000 (see note) |

* Note 1: Tape quantity codes can be left off when ordering or requesting quote. These will be assigned by us based on part/quantity ordered.
 * Note 2: All part numbers will automatically have a "-C" or a "-LF" appended to the end of them to indicate RoHS compliance/Pb Free (RoHS 6/6). The RR1632 and RR2632 will use the "-LF" and all other part sizes will use the "-C". This will be automatically assigned by TFT. This part series is no longer available in non-RoHS.

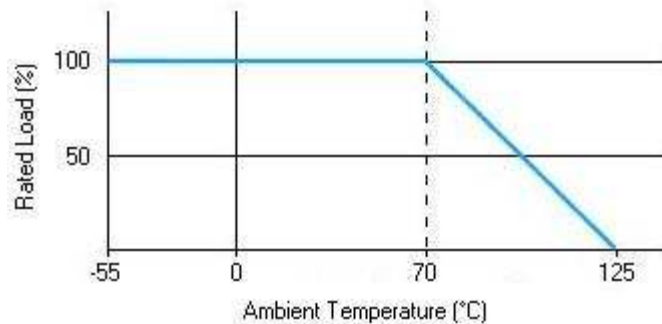
Examples:

| Part Number | Size (English) | TCR | Resistance (ohms) | Tolerance | Tape Qty |
|----------------|----------------|--------------------------------|------------------------------|-------------|---------------|
| RR0816P203D-C | 0816 (0603) | ± 25 ppm/ $^{\circ}$ C (P) | 20,000 (203) E-24=3 digit | $\pm 0.5\%$ | 5,000 |
| RR1220Q49R9D-C | 1220 (0805) | ± 50 ppm/ $^{\circ}$ C (Q) | 49.9 (49R9) E-96=4 digit | $\pm 0.5\%$ | 5,000 |
| RR1632V2002B-* | 1632 (1206) | ± 5 ppm/ $^{\circ}$ C (V) | 20,000 (2002) 4 digit | $\pm 0.1\%$ | 1,000 / 5,000 |

Electrical Specifications:

| Type | RR0306 | | RR0510 | | RR0816 | | RR1220 | |
|-----------------------|----------------|---------|-------------------|----------|----------------|----------|----------------|---------|
| English Size | 0201 | | 0402 | | 0603 | | 0805 | |
| Power | 1/20 Watt | | 1/16 Watt | | 1/16 Watt | | 1/10 Watt | |
| Tolerance% (code) | ±1.0(F) | ±0.5(D) | ±0.5(D) | | ±0.5(D) | | ±0.5(D) | |
| Resistance Range (Ω) | 10~30 | 33~22k | 10~97.6 | 100~100k | 10~97.6 | 100~360k | 10~97.6 | 100~1M |
| Resistance Offering | E-24 Values | | E-24, E-96 Values | | | | | |
| TCR ppm/°C (code) | ±100 (R) | ±25 (P) | ±100 (R) | ±25 (P) | ±50 (Q) | ±25 (P) | 50 (Q) | ±25 (P) |
| Max Operating Voltage | 15 V | | 25 V | | 75 V | | 100 V | |
| Operating Temp. Range | -55°C ~ 125°C | | | | | | | |
| Packaging | 5,000 pcs/reel | | 10,000 pcs/reel | | 5,000 pcs/reel | | 5,000 pcs/reel | |

| Type | RR1632 | | | | RR2632 | | | |
|-----------------------|--------------------------------|---------|-------------------|---------|--------------------------------|---------|-------------------|---------|
| English Size | 1206 | | | | 1210 | | | |
| Power | 1/8 Watt | | | | 1/4 Watt | | | |
| Tolerance% (code) | ±0.5(D), ±0.1(B) | | | | ±0.5(D), ±0.1(B) | | | |
| Resistance Range (Ω) | 10~49.9 | 51~1M | 100~200k | 51~1M | 10~49.9 | 51~2M | 100~330k | 51~2M |
| Resistance Offering | E-24, E-96 Values | | | | | | | |
| TCR ppm/°C (code) | ±50 (Q) | ±25 (P) | ±5 (V) ±10 (N) | ±25 (P) | ±50 (Q) | ±25 (P) | ±5 (V) ±10 (N) | ±25 (P) |
| Max Operating Voltage | 150 V | | | | 200 V | | | |
| Operating Temp. Range | -55°C ~ 125°C | | | | | | | |
| Packaging | 1,000pcs/reel or 5,000pcs/reel | | | | 1,000pcs/reel or 5,000pcs/reel | | | |

Power Derating Curve:**Reliability Specifications:**

| Test | Test Method | Specification |
|---------------------|---|---------------|
| Short Time Overload | Applied voltage: 2.5X rated voltage or 2X maximum operating voltage, whichever is less. Test duration: 5 seconds | ±0.5% +0.05Ω |
| Load Life | Test Temperature: 70°C Applied voltage: rated voltage Test period: 1000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF, | ±0.5% +0.05Ω |
| Moisture Load Life | Test Condition: 40°C/95% RH Applied voltage: rated voltage Test period: 1000 hours with power cycling as follows: 90 min. power ON/30 min. power OFF | ±0.5% +0.05Ω |
| Temperature Cycle | Repeat 5 cycles as follows: -55°C(30 min.) / Room temp (2 min) / +125°C(30 min.) / Room temp (2 min) | ±0.5% +0.05Ω |