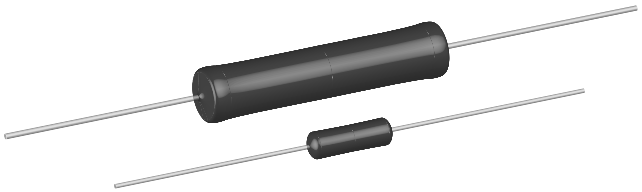
# Wirewound Resistors, Military, MIL-PRF-26 Qualified, Type RW, Precision Power, Silicone Coated, Axial Lead



## FEATURES

- High temperature coating (> 350 °C)
- Complete welded construction
- Qualified to MIL-PRF-26
- Excellent stability in operation (typical resistance shift < 0.5 %)

## STANDARD ELECTRICAL SPECIFICATIONS

| MILITARY MODEL | VISHAY REFERENCE MODEL | POWER RATING $P_{25\,°C}$ W CHARACTERISTIC U | POWER RATING $P_{25\,°C}$ W CHARACTERISTIC V | RESISTANCE RANGE Ω | TOLERANCE ± % | WEIGHT (typical) g |
|---|---|---|---|---|---|---|
| RW81 | G001...380 | 1.0 | - | 0.1 to 1K | 0.1, 0.5, 1 | 0.20 |
| RW70 | RS01A...300 | 1.0 | - | 0.1 to 2.74K | 0.1, 0.5, 1 | 0.34 |
| RW80 | G003...380 | 2.0 | - | 0.1 to 2.74K | 0.1, 0.5, 1 | 0.34 |
| RW79 | RS02B...300 | 3.0 | - | 0.1 to 6.49K | 0.1, 0.5, 1 | 0.70 |
| RW69 | RS02C...23 | - | 3.0 | 0.1 to 2.0K | 5, 10 | 1.6 |
| RW74 | RS005...69 | 5.0 | - | 0.1 to 24.3K | 0.1, 0.5, 1 | 4.2 |
| RW67 | RS005...70 | - | 6.5 | 0.1 to 8.2K | 5, 10 | 4.2 |
| RW78 | RS010...38 | 10.0 | - | 0.1 to 71.5K | 0.1, 0.5, 1 | 9.0 |
| RW68 | RS010...39 | - | 11.0 | 0.1 to 20K | 5, 10 | 9.0 |

**Note**

- RW67, RW68, RW69 available tolerance for these MIL parts is ± 5 % for 1 Ω and above, ± 10 % below 1 Ω

## TECHNICAL SPECIFICATIONS

| PARAMETER | UNIT | RW RESISTOR CHARACTERISTICS |
|---|---|---|
| Temperature Coefficient | ppm/°C | ± 20 for 10 Ω and above, ± 50 for 1 Ω to 9.9 Ω, ± 90 for below 1 Ω |
| Maximum Working Voltage | V | $(P \times R)^{1/2}$ |
| Insulation Resistance | Ω | 1000 MΩ minimum dry, 100 MΩ minimum after moisture test |
| Solderability | - | MIL-PRF-26 type - meets requirements of ANSI J-STD-002 |
| Operating Temperature Range | °C | Characterisitic U = - 65 to + 250, characteristic V = - 65 to + 350 |

## MILITARY PART NUMBER INFORMATION

**Military Part Numbering example: RW80U49R9FB12**

| R | W | 8 | 0 | U | 4 | 9 | R | 9 | F | B | 1 | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

**MIL TYPE**

**RW67**
**RW68**
**RW69**
**RW70**
**RW74**
**RW78**
**RW79**
**RW80**
**RW81**

**CHARACTERISTIC**

**U** = Max. hotspot 275 °C
**V** = Max. hotspot 350 °C

**RESISTANCE VALUE**

**U Characteristic**
3 digit significant figure, followed by a multiplier
**49R9** = 49.9 Ω
**1000** = 100 Ω
**1001** = 1000 Ω

**V Characteristic**
2 digit significant figure, followed by a multiplier
**4R7** = 4.7 Ω
**102** = 1000 Ω

**TOLERANCE CODE**

Tolerance for "**U**" Characteristic only
**B** = ± 0.1 %
**D** = ± 0.5 %
**F** = ± 1.0 %

Tolerance for "**V**" Characteristic is not listed and is as specified by MIL-PRF-26

**PACKAGING CODE**

**B12** = Bulk pack
**S70** = Tape/reel (smaller than 5 W)
**S73** = Tape/reel (5 W and higher)



For technical questions, contact: ww2bresistors@vishay.com

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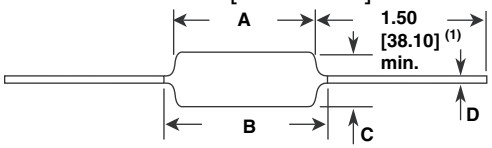
## DIMENSIONS in inches [millimeters]




**Note**

(1) On some standard reel pack methods, the leads may be trimmed to a shorter length than shown

| MILITARY MODEL | DIMENSIONS in inches [millimeters] | | | |
|---|---|---|---|---|
| | A | B (2) (max.) | C | D |
| RW81 | 0.250 ± 0.031 [6.35 ± 0.787] | 0.281 [7.14] | 0.085 ± 0.020 [2.16 ± 0.508] | 0.020 ± 0.002 [0.508 ± 0.051] |
| RW70 RW80 | 0.406 ± 0.031 [10.31 ± 0.787] | 0.437 [11.10] | 0.094 ± 0.031 [2.39 ± 0.787] | 0.020 ± 0.002 [0.508 ± 0.051] |
| RW79 | 0.560 ± 0.062 [14.22 ± 1.57] | 0.622 [15.80] | 0.187 ± 0.031 [4.75 ± 0.787] | 0.032 ± 0.002 [0.813 ± 0.051] |
| RW69 | 0.500 ± 0.062 [12.70 ± 1.57] | 0.593 [15.06] | 0.218 ± 0.031 [5.54 ± 0.787] | 0.032 ± 0.002 [0.813 ± 0.051] |
| RW74 RW67 | 0.875 ± 0.062 [22.23 ± 1.57] | 1.0 [25.4] | 0.312 ± 0.031 [7.92 ± 0.787] | 0.040 ± 0.002 [1.02 ± 0.051] |
| RW78 | 1.78 ± 0.062 [45.21 ± 1.57] | 1.87 [47.50] | 0.375 ± 0.031 [9.53 ± 0.787] | 0.040 ± 0.002 [1.02 ± 0.051] |
| RW68 | 1.875 + 0.063 - 0.125 [47.63 + 1.60 - 3.18] | 1.94 [49.28] | 0.344 ± 0.094 [8.74 ± 2.39] | 0.040 ± 0.002 [1.02 ± 0.051] |

**Note**

(2) B (max.) dimension is clean lead to clean lead

## MATERIAL SPECIFICATIONS

**Element:** Copper-nickel alloy or nickel-chrome alloy, depending on resistance value

**Core:** Ceramic, steatite or alumina, depending on physical size

**Coating:** Special high temperature silicone

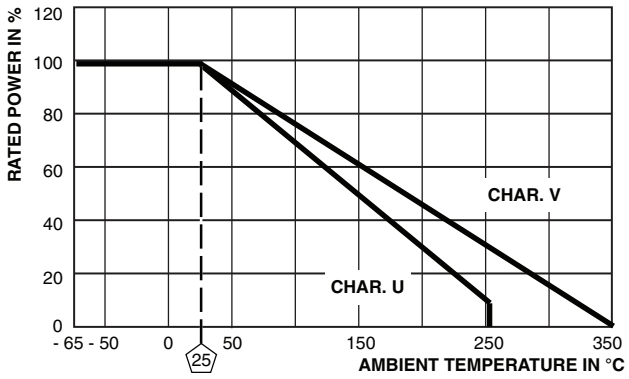
**Standard Terminals:** 60/40 Sn/Pb coated Copperweld®

**End Caps:** Stainless steel

## MARKING

| MODELS: RW70, RW74, RW78, RW79, RW80, RW81 | | MODELS: RW67, RW68, RW69 | |
|---|---|---|---|
| Characteristic U | | Characteristic V | |
| Tolerance code: B = 01 %, D = 0.5 %, F = 1 % | | Tolerance code: Not listed | |
| **Example** | | **Example** | |
| Dale | | Dale | |
| RW80U | Model | RW68 | Model |
| 1001F | Characteristic, value | V100 | Characteristic, value |
| 0703 | Date code | M0202 | Date code |

## DERATING




## PERFORMANCE

| TEST | CONDITIONS OF TEST | TEST LIMITS | |
|---|---|---|---|
| | | CHARACTERISTIC U | CHARACTERISTIC V |
| Thermal Shock | Rated power applied until thermally stable, then a minimum of 15 min at - 55 °C | ± (0.2 % + 0.05 Ω) Δ*R* | ± (2.0 % + 0.05 Ω) Δ*R* |
| Short Time Overload | 5 x rated power (3.75 W and smaller), 10 x rated power (4 W and larger) for 5 s | ± (0.2 % + 0.05 Ω) Δ*R* | ± (2.0 % + 0.05 Ω) Δ*R* |
| Dielectric Withstanding Voltage | 500 $V_{RMS}$ min. (RW70, RW80, RW81), 1000 $V_{RMS}$ for all others, duration of 1 min | ± (0.1 % + 0.05 Ω) Δ*R* | ± (0.1 % + 0.05 Ω) Δ*R* |
| Low Temperature Storage | - 65 °C for 24 h | ± (0.2 % + 0.05 Ω) Δ*R* | ± (2.0 % + 0.05 Ω) Δ*R* |
| High Temperature Exposure | 250 h at: U = + 250 °C, V = + 350 °C | ± (0.5 % + 0.05 Ω) Δ*R* | ± (2.0 % + 0.05 Ω) Δ*R* |
| Moisture Resistance | MIL-STD-202 Method 106, 7b not applicable | ± (0.2 % + 0.05 Ω) Δ*R* | ± (2.0 % + 0.05 Ω) Δ*R* |
| Shock, Specified Pulse | MIL-STD-202 Method 213, 100 *g*'s for 6 ms, 10 shocks | ± (0.1 % + 0.05 Ω) Δ*R* | ± (0.2 % + 0.05 Ω) Δ*R* |
| Vibration, High Frequency | Frequency varied 10 Hz to 2000 Hz, 20 *g* peak, 2 directions 6 h each | ± (0.1 % + 0.05 Ω) Δ*R* | ± (0.2 % + 0.05 Ω) Δ*R* |
| Load Life | 2000 h at rated power, + 25 °C, 1.5 h "ON", 0.5 h "OFF" | ± (0.5 % + 0.05 Ω) Δ*R* | ± (3.0 % + 0.05 Ω) Δ*R* |
| Terminal Strength | Pull test 5 s to 10 s, 5 lb (RW70, RW80, RW81), 10 lb for all others; torsion test - 3 alternating directions, 360° each | ± (0.1 % + 0.05 Ω) Δ*R* | ± (1.0 % + 0.05 Ω) Δ*R* |



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