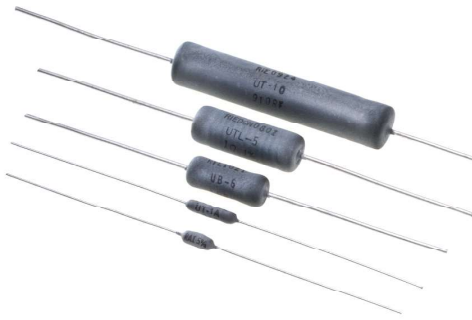


# UT Series

High Temperature Power Resistors



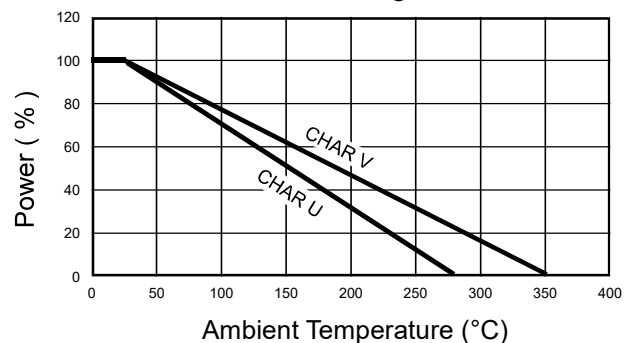
- Resistances from 0.02 to 320kOhms
- Excellent Pulse Handling
- High Temperature: -55°C to +350°C (“V” Rating )
- Power Rating 0.1 to 13Watts
- Resistance Tolerances to  $\pm 0.01\%$
- Low TCR:  $\pm 20\text{ppm/K}$  Standard
- Silicone Coated Power Resistor
- MIL-R-26 / MIL-R-39007 Power Ratings
- Non-Inductive Windings Available



## SPECIFICATIONS

| Specification                              | Value                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|--------------------------|--------------------------|------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Tolerances                                 | $\pm 0.01\%$ to $\pm 10\%$ ( 1% Standard )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Temperature Coefficient                    | >10 $\Omega$ : $\pm 20\text{ppm/K}$<br>1 $\Omega$ to 10 $\Omega$ : $\pm 50\text{ppm/K}$<br><1 $\Omega$ : Call Factory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Temperature Range                          | -55°C to +275°C : Characteristic U<br>-55°C to +350°C : Characteristic V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Dielectric Strength                        | 500 VAC : UT-1 / UT-1/2A / UT-1/2 / UT-1A<br>1000 VAC : All Others                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Constuction                                | Centerless ground ceramic core<br>Matte Tin over Copper<br>Flame Resistant / High temperature / trivalent / inorganic Silicone coating<br>All welded terminations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Environmental Performance<br>(MIL-STD 202) | $\Delta R$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
|                                            | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Characteristic U</th> <th style="width: 50%; text-align: center;">Characteristic V</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 1\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 3\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 2\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 2\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 2\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 2\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 0.1\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> </tr> <tr> <td style="text-align: center;"><math>\pm 0.1\% + 0.05\Omega</math></td> <td style="text-align: center;"><math>\pm 0.2\% + 0.05\Omega</math></td> </tr> </tbody> </table> | Characteristic U | Characteristic V | $\pm 0.2\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ | $\pm 1\% + 0.05\Omega$ | $\pm 3\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ | $\pm 2\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ | $\pm 2\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ | $\pm 2\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ | $\pm 2\% + 0.05\Omega$ | $\pm 0.1\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ | $\pm 0.1\% + 0.05\Omega$ | $\pm 0.2\% + 0.05\Omega$ |
| Characteristic U                           | Characteristic V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.2\% + 0.05\Omega$                   | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 1\% + 0.05\Omega$                     | $\pm 3\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.2\% + 0.05\Omega$                   | $\pm 2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.2\% + 0.05\Omega$                   | $\pm 2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.2\% + 0.05\Omega$                   | $\pm 2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.2\% + 0.05\Omega$                   | $\pm 2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.1\% + 0.05\Omega$                   | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| $\pm 0.1\% + 0.05\Omega$                   | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Dielectric                                 | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Load Life                                  | $\pm 1\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Storage                                    | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Moisture Resistance                        | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Thermal Shock                              | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| 5X Overload ( 5s )                         | $\pm 0.2\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Shock                                      | $\pm 0.1\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |
| Vibration                                  | $\pm 0.1\% + 0.05\Omega$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                  |                          |                          |                        |                        |                          |                        |                          |                        |                          |                        |                          |                        |                          |                          |                          |                          |

Power Derating Curve

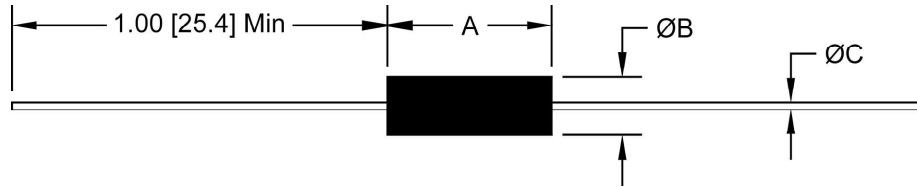


# UT Series

Silicone Coated Power Resistors



## SPECIFICATIONS (continued)



| Type    | Wattage Rating ( Watts ) |      | Maximum Ohms <sup>2</sup> | Dimensions               |                                       |                                        | Maximum Working Voltage | MIL-R-26 / MIL-R-39007 Style |
|---------|--------------------------|------|---------------------------|--------------------------|---------------------------------------|----------------------------------------|-------------------------|------------------------------|
|         | U                        | V    |                           | A<br>±0.062"<br>[±1.6mm] | B <sup>3</sup><br>±0.031"<br>[±0.8mm] | C <sup>1</sup><br>±0.002"<br>[±0.05mm] |                         |                              |
| UT-1    | 0.1                      | 0.25 | 500                       | 0.150 [3.8]              | 0.078 [2.0]                           | 0.018 [0.46]                           | 8.5                     |                              |
| UT-1/2A | 0.4                      | 0.5  | 2.5k                      | 0.250 [6.4]              | 0.094 [2.4]                           | <b>0.020 [0.5]</b><br>0.025 [0.6]      | 20                      |                              |
| UT-1/2  | 0.75                     | 0.9  | 7.5k                      | 0.330 [8.4]              | 0.094 [2.4]                           | <b>0.020 [0.5]</b><br>0.025 [0.6]      | 29                      |                              |
| UT-1A   | 1.0                      | 1.5  | 10k                       | 0.406 [10.3]             | 0.094 [2.4]                           | <b>0.020 [0.5]</b><br>0.025 [0.6]      | 52                      | RW-70                        |
| UT-2    | 1.5                      | 2.0  | 12.5k                     | 0.350 [8.9]              | 0.156 [4.0]                           | <b>0.032 [0.8]</b>                     | 60                      |                              |
| UT-2A   | 2.5                      | 3.0  | 22k                       | 0.500 [12.7]             | 0.187 [4.7]                           | 0.032 [0.8]                            | 130                     | RW-69                        |
| UT-2B   | 3.0                      | 3.75 | 22k                       | 0.560 [14.2]             | 0.187 [4.7]                           | 0.032 [0.8]                            | 140                     | RW-79                        |
| UT-2C   | 3.0                      | 4.0  | 40k                       | 0.500 [12.7]             | 0.250 [6.4]                           | <b>0.040 [1.0]</b><br>0.032 [0.8]      | 140                     |                              |
| UT-2E   | 3.0                      | 3.5  | 30k                       | 0.500 [12.7]             | 0.200 [5.1]                           | 0.032 [0.8]                            | 140                     |                              |
| UT-3    | 4.0                      | 5.5  | 45k                       | 0.675 [17.1]             | 0.270 [6.9]                           | <b>0.040 [1.0]</b><br>0.032 [0.8]      | 210                     |                              |
| UT-5    | 5.0                      | 6.5  | 91k                       | 0.875 [22.2]             | 0.312 [7.9]                           | 0.040 [1.0]                            | 360                     | RW-74                        |
| UT-5A   | 5.0                      | 6.5  | 65k                       | 0.970 [24.6]             | 0.250 [5.2]                           | 0.032 [0.8]                            | 390                     |                              |
| UT-6    | 5.0                      | 6.5  | 95k                       | 1.025 [26.0]             | 0.312 [7.9]                           | 0.040 [1.0]                            | 504                     | RW-67                        |
| UT-7A   | 7.0                      | 9.0  | 150k                      | 1.375 [35.0]             | 0.375 [9.5]                           | 0.040 [1.0]                            | 650                     |                              |
| UT-7B   | 7.0                      | 9.0  | 100k                      | 1.400 [35.6]             | 0.312 [7.9]                           | 0.032 [0.8]                            | 590                     |                              |
| UT-7C   | 7.0                      | 9.0  | 154k                      | 1.220 [31.0]             | 0.312 [7.9]                           | 0.040 [1.0]                            | 620                     |                              |
| UT-10   | 10                       | 13   | 260k                      | 1.780 [45.2]             | 0.375 [9.5]                           | 0.040 [1.0]                            | 850                     | RW-78                        |
| UT-15   | 15                       | -    | 320k                      | 1.810 [46.0]             | 0.510 [13.0]                          | 0.050 [1.5]                            | 1500                    |                              |

<sup>1</sup> Lead Diameter: 18 AWG = 0.040" / 20 AWG = 0.032" / 22 AWG = 0.025" / 24 AWG = 0.020" / 25 AWG = 0.018"

Where more than one lead is listed / the top value is Standard

<sup>2</sup> For non-inductive windings / divide maximum resistance by 2

<sup>3</sup> For non-inductive winding where R ≤ 0.10 Ohms, Tolerance is +0.063/-0.00 [+1.6/-0.0 mm]



| Standard Package Quantities |                   |          |          |          |
|-----------------------------|-------------------|----------|----------|----------|
|                             | Bulk              | 10" Reel | 12" Reel | 14" Reel |
| UT-1                        | Bulk Only, No T&R |          |          |          |
| UT-1/2A                     | 1000              | 2000     | 3000     | 5000     |
| UT-1/2                      | 1000              | 2000     | 3000     | 5000     |
| UT-1A                       | 1000              | 2000     | 3000     | 5000     |
| UT-2                        | 1000              | 2000     | 3000     | 5000     |
| UT-2A                       | 1000              | 500      | 1500     | 3000     |
| UT-2B                       | 1000              | 500      | 1500     | 3000     |
| UT-2C                       | 1000              | 500      | 1000     | 1500     |
| UT-2E                       | 1000              | 500      | 1000     | 1500     |
| UT-3                        | 1000              | N/A      | 500      | 1000     |
| UT-5                        | 1000              | N/A      | 500      | 1000     |
| UT-5A                       | 1000              | 500      | 1000     | 1500     |
| UT-6                        | 1000              | N/A      | 500      | 1000     |
| UT-7A                       | 1000              | N/A      | 500      | 750      |
| UT-7B                       | 1000              | N/A      | 500      | 750      |
| UT-7C                       | 1000              | N/A      | 500      | 750      |
| UT-10                       | 1000              | N/A      | 500      | 750      |

### Ordering Information

For Non-Inductive Windings / insert the letter "N" ( i.e. UTN-5 )  
 Part Description: Part Type - Resistance - Tolerance - TCR ( If not standard )  
 Example: UT-5 25 kOhms 0.1%