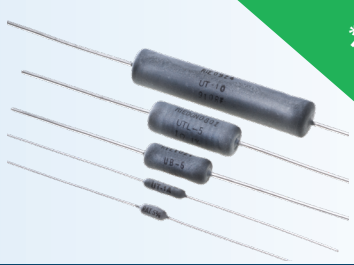
BOURNS®

UT-A SERIES

High Temperature Power Resistors



*RoHS COMPLIANT

Features

- Resistances from 10 Ω to 4.5K Ω
- Resistance tolerances as low as ±1 %
- Power rating: 1 to 10 watts
- Excellent pulse handling
- Low TCR: ±30 PPM/°C standard
- Silicone coated power resistor
- AEC-Q200 compliant
- RoHS compliant*

Applications

- Energy and storage
- Industrial power supplies
- Inverters and motor drives
- Capacitor recharge and discharge
- Voltage regulators
- Telecommunications

Sustainability

- High pallet density for lower $C0_2$
- Eco-logistics-friendly packing
- Recyclable ESD-safe packaging
- Corrosion-resistant for longevity

Product Overview

Bourns® UT-A Series high-temperature power resistors are AEC-Q200 compliant wirewound components designed to deliver stable, accurate performance in demanding power applications exposed to extreme thermal stress. With a wide power range, resistance values from 10 Ω to 4.5 kΩ, and an operating temperature range of –55 °C to +150 °C, the UT-A Series enables engineers to standardize on a single qualified resistor family across powertrain, braking, and power conversion systems. Built with a ceramic core and flame-resistant silicone coating, these resistors provide long-term reliability, tight tolerance options, and low TCR to support high-reliability, safety-critical designs.

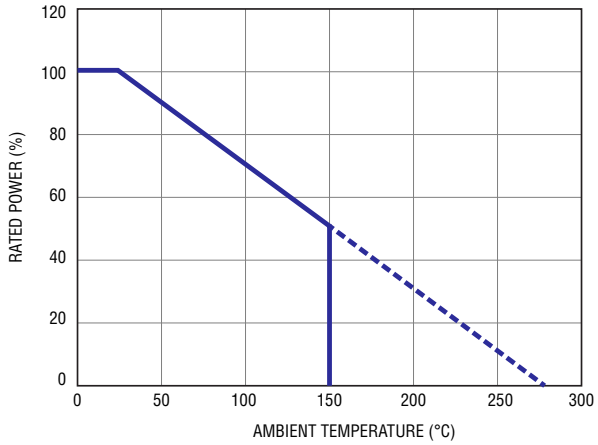
Specifications

Specification	Value
Tolerance	±1 % to ±10 % (1 % Standard)
Temperature Coefficient	±30 PPM/°C (Other TCR values available - Contact Bourns)
Resistance Range	10 Ω to 4.5K Ω (UT10-A: 1K Ω max.)
Operating Temperature Range	-55 °C to +150 °C
Maximum Working Voltage	√ (P * R)
Dielectric Strength	UT1A: 500 VAC Other models: 1000 VAC
Construction	• Centerless ground ceramic core, Matte tin over copper • Flame-resistant/high temperature/trivalent/ inorganic silicone coating • All welded terminations

Environmental Performance

Specification	ΔR
Short Time Overload	±1 %
High Temperature Exposure (Storage)	
Biased Humidity	
Operational Life	
Shock/Vibration	
Temperature Cycling	
Resistance to Soldering Heat	

Power Derating Curve



Contact Information

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* RoHS Directive 2015/863, Mar 31, 2015 and Annex.
Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

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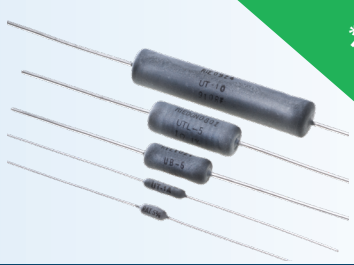

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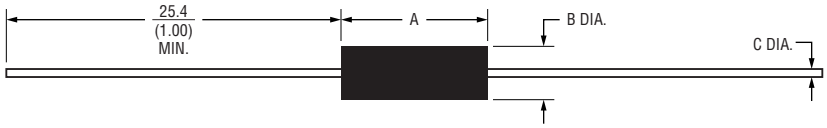
Specifications and Product Dimensions



Model	Power Rating (W)	Dimensions			Designed to Mil-R-26 / MIL-R-39007
		A	B[3]	C[1]	
UT1A	1.0	10.3 ± 1.6 (.406 ± .062)	2.4 ± 0.8 (.094 ± .031)	**0.5 ± 0.05** **(.020 ± .002)** 0.6 ± 0.05 (.025 ± .002)	RW-70
UT2	1.5	8.9 ± 1.6 (.350 ± .062)	4.0 ± 0.8 (.156 ± .031)	0.8 ± 0.05 (.032 ± .002)	—
UT2B	3.0	14.2 ± 1.6 (.560 ± .062)	4.7 ± 0.8 (.187 ± .031)		RW-79
UT2C	3.0	12.7 ± 1.6 (.500 ± .062)	6.4 ± 0.8 (.250 ± .031)	**1.0 ± 0.05** **(.040 ± .002)** 0.8 ± 0.05 (.032 ± .002)	—
UT3	4.0	17.1 ± 1.6 (.675 ± .062)	6.9 ± 0.8 (.270 ± .031)	**1.0 ± 0.05** **(.040 ± .002)** 0.8 ± 0.05 (.032 ± .002)	—
UT5	5.0	22.2 ± 1.6 (.875 ± .062)	7.9 ± 0.8 (.312 ± .031)	1.0 ± 0.05 (.040 ± .002)	RW-74
UT5A	5.0	24.6 ± 1.6 (.970 ± .062)	5.2 ± 0.8 (.250 ± .031)	0.8 ± 0.05 (.032 ± .002)	—
UT6	5.0	26.0 ± 1.6 (1.025 ± .062)	7.9 ± 0.8 (.312 ± .031)	1.0 ± 0.05 (.040 ± .002)	RW-67
UT7C	7.0	31.0 ± 1.6 (1.220 ± .062)	7.9 ± 0.8 (.312 ± .031)		—
UT10	10.0	45.2 ± 1.6 (1.780 ± .062)	9.5 ± 0.8 (.375 ± .031)		RW-78

Notes:
[1] 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 **bold** value is standard.
[2] For non-inductive windings, divide maximum resistance by 2.
[3] For non-inductive windings where R ≤ 0.10 ohms, tolerance is +1.6/-0.0 mm (+0.063/-0.00 ″).

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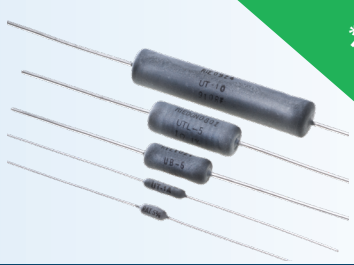

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How to Order

UT 5 - 25R F 1 - A - TR14

Model

Power Rating Code
(See Specifications and Dimensions Table)

Resistance Code
For values ≤10K Ω,
"R" represents decimal point (Example: 25R = 25 Ω)
For values >10K Ω,
"K" represents decimal point (Example 1K5 = 1.5K Ω)

Tolerance
F = ±1%**
G = ±2%
H = ±3%
J = ± 5%
K = ±10%

Internal Use

AEC-Q200 Compliant

Packaging Options
(Blank) = Bulk Packaging
-TR10 = Tape and Reel (10-inch Reel) *
-TR12 = Tape and Reel (12-inch Reel) *
-TR14 = Tape and Reel (14-inch Reel) *

* Please check the Standard Packaging Quantity Table for the correct reel size.

** Please Contact Bourns.

(Specific TCR values available on request.)

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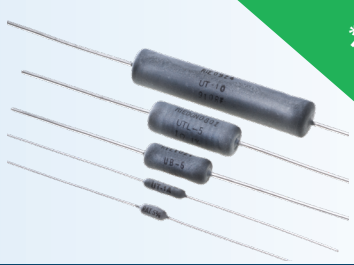

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Performance Characteristics (AEC-Q200)			
Test	Method	Procedure	Test Limits ΔR
Short Time Overload	IEC 60115-1 4.13	2.5 X rated voltage for 5 sec.	± 1 %
High Temperature Exposure (Storage)	AEC-Q200-REV E- Test 3 MIL-STD-202 Method 108	1000 hrs. @ T=150 °C. Unpowered. Measurement at 24 ±2 hours after test conclusion.	± 1 %
Biased Humidity	AEC-Q200-REV E- Test 7 MIL-STD-202 Method 103	1000 hours 85 °C / 85 % RH. TR Measurement at 250, 500, 750, and post 1000 hours.	± 1 %
Operational Life	AEC-Q200-REV E- Test 8 MIL-STD-202 Method 108	At rated power, 25 °C for 1000 hours. TR Measurement at 250, 500, 750, and post 1000 hours.	± 1 %
External Visual	AEC-Q200-REV E- Test 9 MIL-STD-883 Method 2009	Electrical test not required. Inspect device construction, marking, and workmanship.	Passed
Physical Dimensions	AEC-Q200-REV E- Test 10 JESD22 Method JB-100	Verify physical dimensions to the applicable device detail specifications. Note: User(s) and Suppliers spec. electrical test not required.	Passed
Resistance to Solvents	AEC-Q200-REV E- Test 12 MIL-STD-202 Method 215	In addition to the Method 215 solvents, add an aqueous wash chemical and follow chemical manufacturer's recommended parameters (i.e., solution temperature and immersion time).	Marking and protective layer cannot be detached
Shock/Vibration	AEC-Q200-REV E- Test MIL-STD-202 Method 213, Con C MIL-STD-202 Method 204	Shock: Figure 1 of Method 213. THT: Condition C. Vibration: 5 g for 20 minutes, 12 cycles 3e3ach of 3 orientations. Test from 10 Hz ~ 2000 Hz	± 1 %
Resistance to Soldering Heat	AEC-Q200-REV E- Test 15 MIL-STD-202 Method 210, Con C	Condition C: Immerse the specimens in an eutectic solder at 260 ±5 °C for 20 ±1 seconds.	± 1 %
Temperature Cycling	AEC-Q200-REV E- JESD22-A104	-55 °C / +150 °C. Note: Number of cycles = 1000	± 1 %
ESD	AEC-Q200-REV E-002	Verify the voltage setting at 500 V.	± 1 %
Solderability	AEC-Q200-REV E- Test 18 J-STD-002	Method A1, category 2 (steam aging 4 hours) at 245 °C . Lead-free solder bath at 245 ±3 °C. Dipping time: 3 ±0.5 seconds.	> 95 % area covered with tin
Flammability	AEC-Q200-REV E- Test 17 UL-94	V-0 or V-1 is acceptable. Electrical test not required.	V-0 or V-1
Terminal Strength (Leaded)	AEC-Q200-REV E MIL-STD-202 Method 211	20 N, 5-10 seconds.	Passed

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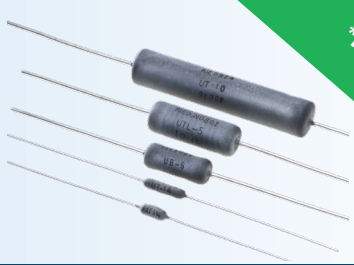

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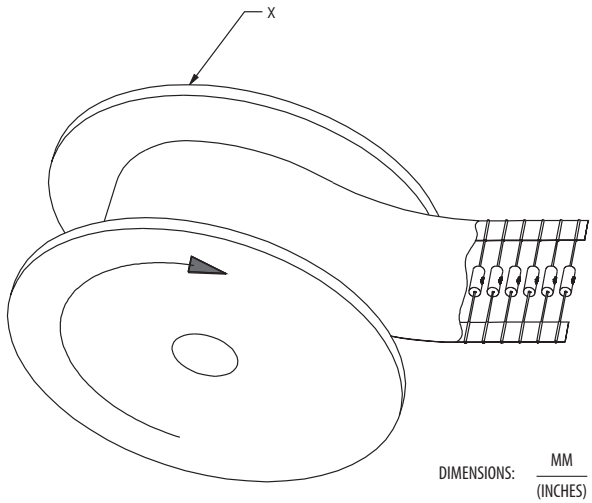
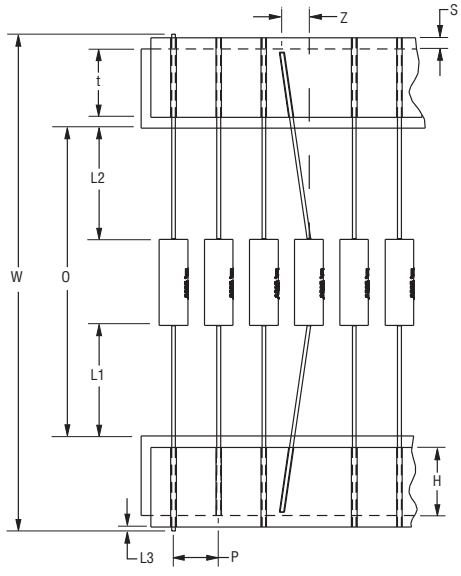
Standard Packaging Quantities

Model	Bulk	10-Inch Reel	12-Inch Reel	14-Inch Reel
UT1A UT2	500	1500	N/A	N/A
UT2B		N/A	1500	
UT2C UT5A			1000	
UT3 UT5 UT6 UT7C			N/A	1000
UT10	250			500

Packaging Specifications

Model	Dimension O (mm)	Reel Size (Inches) Dimension X	Pitch (Inches) Dimension P	Clean Lead to Clean Lead Eccentricity (Max.) Dimension L1–L2	Lead Extension (Max.) - Zero is Preferred Dimension L3	Lead Bending Dimension Z	Exposed Adhesive (Max.) Dimension S	Tape Width (mm) Dimension t	Lead Sandwich (Min.) Dimension H	Overall Width (Max.) Dimension W
UT1A	1.983-2.141	10	0.2	1.4 (.055)	0.8 (.031)	1.0 (.039)	0.8 (.031)	7.0 (177.8)	t/2	123.5 (4.862)
UT2	2.421-2.579									
UT2B	1.983-2.141	12	0.4							
UT2C	2.421-2.579									
UT5A										
UT3		14								
UT5										
UT6										
UT7C	3.206-3.364									
UT10										





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