

The TL Series add heat sinkable options to the thick film resistor family. The resistor element is packaged with plastic insulators, and quick-connect terminals in a symmetrical aluminum profile for easy heat sink mounting. Special tapped configurations are offered to reduce on board component count.

Efficient thermal packaging provides improved heat conduction to the heat sink. Self-insulating package design increases voltage withstanding characteristics when compared to traditional aluminum housings. The in line mounting profile makes the TL Series easily adaptable to most heat sink systems. Thermal compound is always recommended when heat sinking.

FEATURES

- Very low inductance
- Low profile design
- In-Line Mounting Profile
- 1/4" Quick connect terminals
- Consult factory for common, isolated, or special multiple tap options.

APPLICATIONS

- Semiconductor Balancing
- Frequency Converters
- Snubber
- In-Rush Current Limiter
- Bleeder Resistor
- Power Switching
- Voltage Dividers

SPECIFICATIONS

Material

Resistive Element: Thick Film on Alumina

Housing: Aluminum

Insulators: Glass reinforced high temperature Valox®

Terminals: Tinned brass

Electrical

Power Range: 27 – 275 watts

Resistance Range:

0.3 ohm – 4 megohm

Tolerance:

Ultra Power (U Style): ±10% std;
Standard Power: ±10% std;
5% and 1% available

Temperature Coefficient:

±250 PPM

Test Voltage for 1 Minute:

6000 VDC/2500 VAC

Working Voltage: 1200 VAC

External Creeping Distance:

12mm

Temperature Limits: -40°C to +125°C

Insulation: >100² Mohm/500V

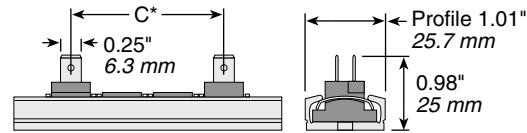
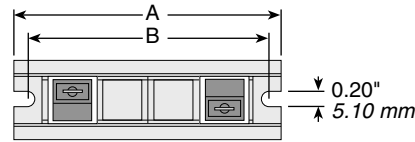
Air Distance, Terminal to Ground: 7mm

Inductance: 50-100 nH



TL Series

Modular Heat Sinkable Thick Film Power



*For adjacent taps, C = 0.665" (16.9mm)

| Series | Ultra* Wattle | Std** Wattle | Ohm Range | A (mm) | B (mm) | Operating Voltage VAC | Dielectric Withstanding Voltage VAC |
|--------|---------------|--------------|-------------|--------|--------|-----------------------|-------------------------------------|
| TL54 | 35 | 27 | 0.3 - 1 Meg | 54 | 46 | 1200 | 2500 |
| TL71 | 96 | 71 | 1.0 - 2 Meg | 71 | 63 | 1200 | 2500 |
| TL88 | 155 | 114 | 1.5 - 3 Meg | 88 | 80 | 1200 | 2500 |
| TL104 | 215 | 158 | 2.0 - 4 Meg | 104 | 96 | 1200 | 2500 |
| †TL122 | 275 | 202 | 2.0 - 4 Meg | 122 | 114 | 1200 | 2500 |

* For properly heat sinked, untrimmed resistors - see chart
** For properly heat sinked, trimmed resistors - see chart
† Power Ratings are theoretical. Consult Factory for details.

| THERMAL RESISTANCE (°C/W) | | | | |
|-------------------------------|------|------|------|-------|
| | TL54 | TL71 | TL88 | TL104 |
| Ultra Power (10% Tolerance) | 1.26 | 0.53 | 0.44 | 0.25 |
| Std Power (5% - 3% Tolerance) | 1.67 | 0.70 | 0.45 | 0.33 |

Consult factory for multiple tap options in common, isolated, and special configurations.

ELECTRICAL/MECHANICAL SPECS

| Type | | TL54 | TL71 | TL88 | TL104 | TL122 |
|------------------------------|-----|-------|-------|-------|-------|-------|
| Max. Rated Wattage | W | 35 | 96 | 155 | 215 | 275 |
| Nominal Power | W | 18 | 48 | 78 | 108 | 137 |
| Surge Load in 10 sec | W | 72 | 192 | 312 | 432 | 548 |
| Max Voltage Between Terminal | V | 1000 | 2000 | 2500 | 2500 | 2500 |
| Resistance Min | ohm | 0.3 | 1 | 1.5 | 2 | 2 |
| Resistance Max | ohm | 1 meg | 2 meg | 3 meg | 4 meg | 4 meg |
| Mechanics: | | | | | | |
| | A | mm | 54 | 71 | 88 | 104 |
| | B | mm | 46 | 63 | 80 | 96 |
| | C | mm | 16.9 | 33.8 | 50.7 | 67.6 |
| Weight | g | 26 | 33 | 44 | 55 | 65 |

ORDERING INFORMATION

E = RoHS compliant

TL104KUR500E

| Size | Tolerance | Power | Ohms |
|----------------|-----------|------------------|------------------|
| TL54 = 54 mm | F = 1% | Blank = standard | R500 = 0.50 |
| TL71 = 71 mm | J = 5% | U = ultra | 10R0 = 10.0 |
| TL88 = 88 mm | K = 10% | | 1K00 = 1,000 |
| TL104 = 104 mm | | | 1M00 = 1,000,000 |
| TL122 = 122 mm | | | |

STANDARD PART NUMBERS FOR TL SERIES

| Ohmic value | Part No. Prefix Suffix | TL54K | TL71K | TL88K | TL104K | TL122K | Ohmic value | Part No. Prefix Suffix | TL54K | TL71K | TL88K | TL104K | TL122K |
|-------------|------------------------|-------|-------|-------|--------|--------|-------------|------------------------|-------|-------|-------|--------|--------|
| | | 0.5 | R50 | ✓ | | | | | | | 240.0 | 240 | ✓ |
| 1.0 | 1R0 | ✓ | ✓ | ✓ | | | 470.0 | 470 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 1.5 | 1R5 | ✓ | ✓ | ✓ | | | 510.0 | 510 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2.0 | 2R0 | ✓ | ✓ | ✓ | ✓ | ✓ | 750.0 | 750 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3.0 | 3R0 | ✓ | ✓ | ✓ | ✓ | ✓ | 1,000.0 | 1K0 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4.0 | 4R0 | ✓ | ✓ | ✓ | ✓ | ✓ | 1,100.0 | 1K1 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5.0 | 5R1 | ✓ | ✓ | ✓ | ✓ | ✓ | 2,200.0 | 2K2 | ✓ | ✓ | ✓ | ✓ | ✓ |
| 10.0 | 10R | ✓ | ✓ | ✓ | ✓ | ✓ | 4,700.0 | 4K7 | ✱ | ✱ | ✱ | ✱ | ✱ |
| 15.0 | 15R | ✓ | ✓ | ✓ | ✓ | ✓ | 5,100.0 | 5K1 | ✱ | ✱ | ✱ | ✱ | ✱ |
| 22.0 | 22R | ✓ | ✓ | ✓ | ✓ | ✓ | 10,000.0 | 10K | ✱ | ✱ | ✱ | ✱ | ✱ |
| 47.0 | 47R | ✓ | ✓ | ✓ | ✓ | ✓ | 22,000.0 | 22K | ✱ | ✱ | ✱ | ✱ | ✱ |
| 75.0 | 75R | ✓ | ✓ | ✓ | ✓ | ✓ | 51,000.0 | 51K | ✱ | ✱ | ✱ | ✱ | ✱ |
| 100.0 | 100 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | |
| 150.0 | 150 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | |
| 220.0 | 220 | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | | |

✓ = Standard values
✱ = Non-standard values subject to minimum handling charge per item

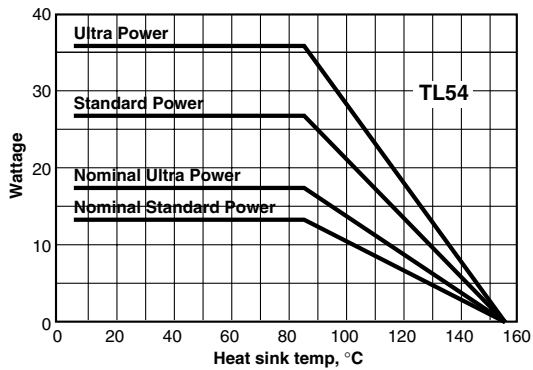
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TL Series

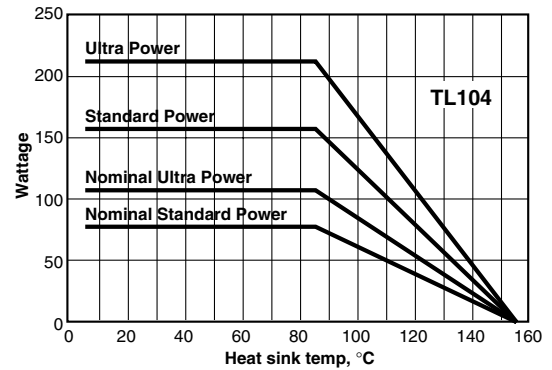
Modular Heat Sinkable Thick Film Power

MAXIMUM AND NOMINAL POWER RATINGS FOR ULTRA POWER AND STANDARD POWER RESISTORS

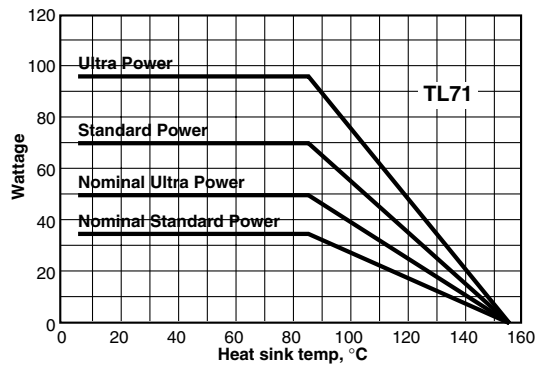
TL54



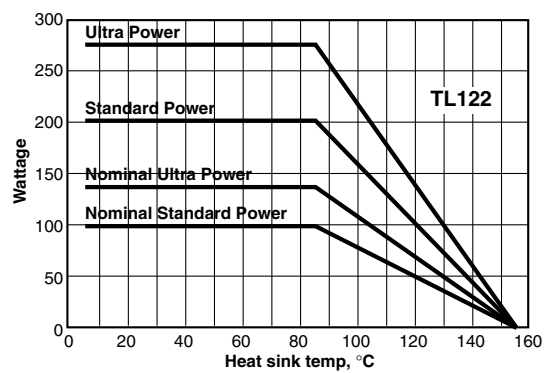
TL104



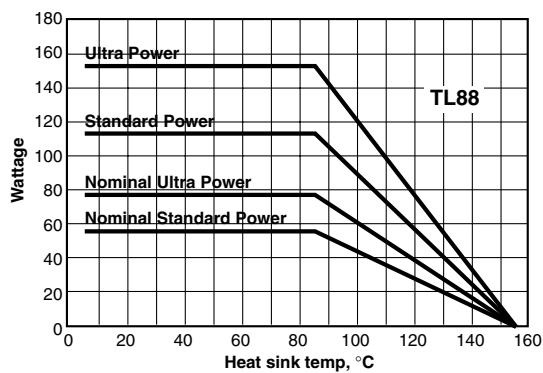
TL71



TL122



TL88



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