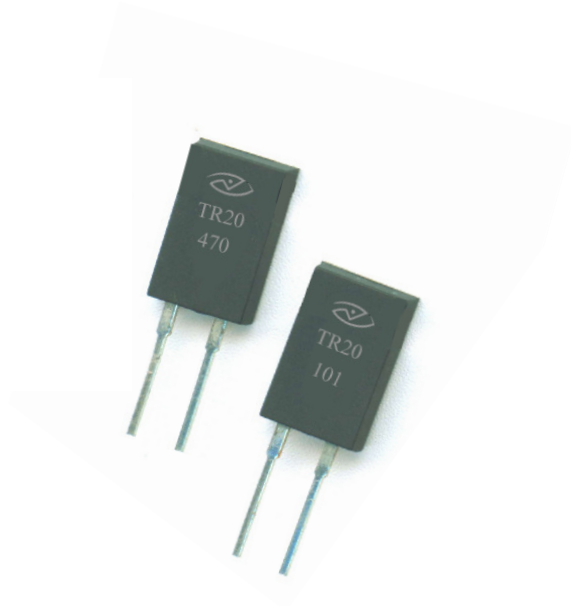


POWER - Resistors

TR 20



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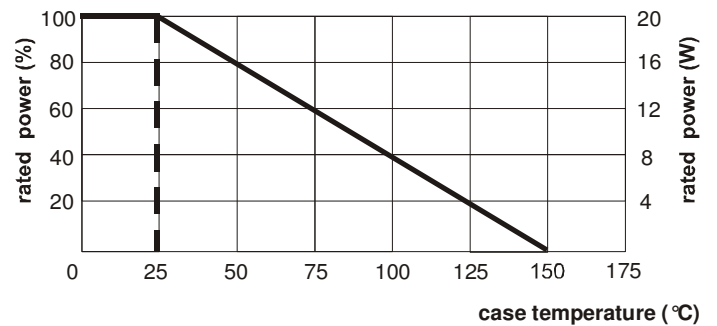
TO-220 Power Resistors TR20 Series

► Features:

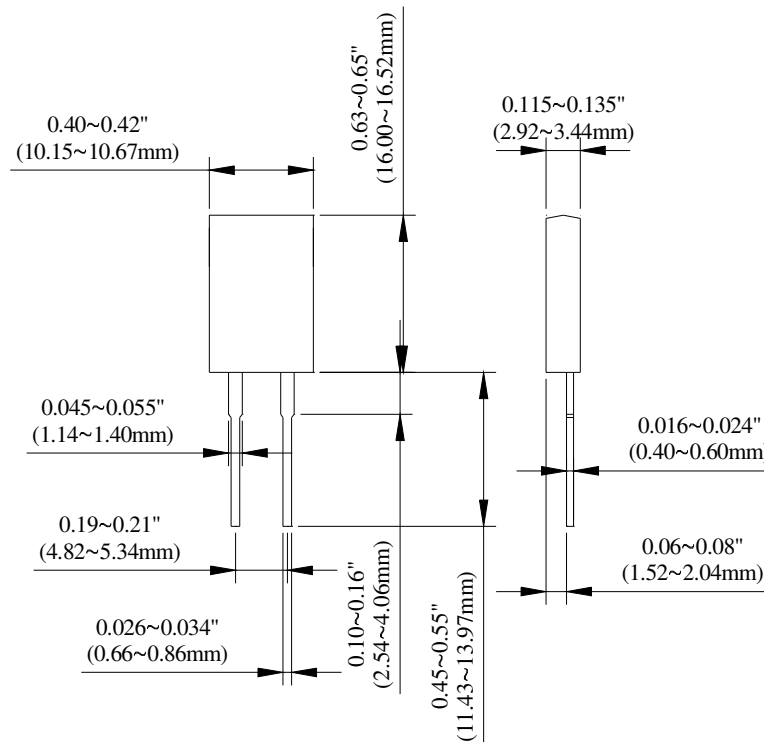
- 20 Watt at 25°C Case Temperature Heat Sink Mounted
- TO-220 Style Power Package
- Molded Case for Protection and Easy to Mount.
- Isolated Case.
- Non Inductive.

► Applications:

- High Speed Switching Power Supplies.
- Snubber Circuits.
- Load Resistor for Pulse Generators.
- Voltage Regulation.
- VHF Amplifiers.



► Dimensions



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► Ordering Information:

TR 20 J B D 1001
 (1) (2) (3) (4) (5) (6)

(1) Type: TR=TO-220 Power Resistors

(2) Power : 2=20 Watts

(3) Tolerance: D=0.5%, F=1%, G=2%, J=5%, K=10%

(4) Packaging Style: T=Tube, B=Bulk

(5) TCR: -= Not specified, D=±50ppm/°C; E=±100ppm/°C; F=±200ppm/°C; G=±300ppm/°C

(6) Resistance: 0R10=0.1Ω, 0100=10Ω, 4700=470Ω, 1001 =1KΩ, 1002=10KΩ

► Electrical Characteristics Specifications:

| Resistance Range | Resistance Tolerance | TCR (PPM/°C) |
|------------------|-----------------------------|---------------------|
| 0.05Ω ~ 0.1Ω | ±5% ±10% | - (No Specified) |
| >0.1Ω ~ 1Ω | ±5% ±10% | - (No Specified) |
| >1Ω ~ 3Ω | ±1% ±5% ±10% | ±300 |
| >3Ω ~ 10Ω | ±1% ±5% ±10% | ±100 ±200 |
| >10Ω ~ 10KΩ | ±0.5% ±1% ±5% ±10% | ±50 ±100 ±200 |

***electronic sensor + resistor GmbH is Capable of Manufacturing the Following Options Based on Customer's Requirement.:**

- Operating Voltage:350V Max.
- Dielectric Strength: 1800VAC
- Insulation Resistance: 10GΩmin.
- Working Temperature Range:-65°C to +150°C
- Resistance Value< 1Ω is Available

POWER - Resistors

► Environmental Characteristics:

| Test Item | Specification | Test Method |
|---------------------------------------|----------------------|--|
| Temperature Coefficient of Resistance | As spec. | Referenced to 25 °C, ΔR taken at +105 °C |
| Short Time Overload | $\Delta R \pm 0.3\%$ | 2 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds, |
| Load Life | $\Delta R \pm 1.0\%$ | MIL-PRF-39009D, 4.8.13 2,000 hours at rated power. |
| Humidity (Steady State) | $\Delta R \pm 0.5\%$ | MIL-STD-202F, Method 103B, 40 °C, 90~95%RH; RCWV 1.5hours ON, 0.5hours OFF total 1000~1048 hours |
| Thermal Shock | $\Delta R \pm 0.3\%$ | MIL-STD-202F, Method 107G -65 °C ~ 150 °C, 100 cycles |
| Terminal Strength | $\Delta R \pm 0.2\%$ | MIL-STD-202F, Method 211, Cond. A (Pull Test) 2.4N, |
| Vibration, High Frequency | $\Delta R \pm 0.2\%$ | MIL-STD-202, Method 204, Cond. D, |

- Lead Material: Tinned Copper.
- Without a Heat Sink.
- When in Free Air at 25 °C, the TR20 is rated for 3W.
- Derating for Temp. Above 25 °C is 0.018W/°K.
- The Case Temperature is to be used for the Definition of the Applied Power Limit.
- The Case Temperature Measurement Must be Made with a Thermocouple Contacting the Center of the Component Mounted on the Designed Heat Sink.
- Thermal Grease Should be Applied Properly.