TO-220 Power Resistor

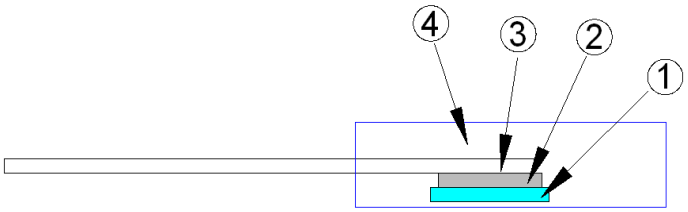
■Features

- 20 Watts at 25°C case temperature heat sink mounted
- TO-220 style power package
- Molded case for protection and easy to mount
- Electrically isolated case
- Non-Inductive design

■Applications

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

■Construction

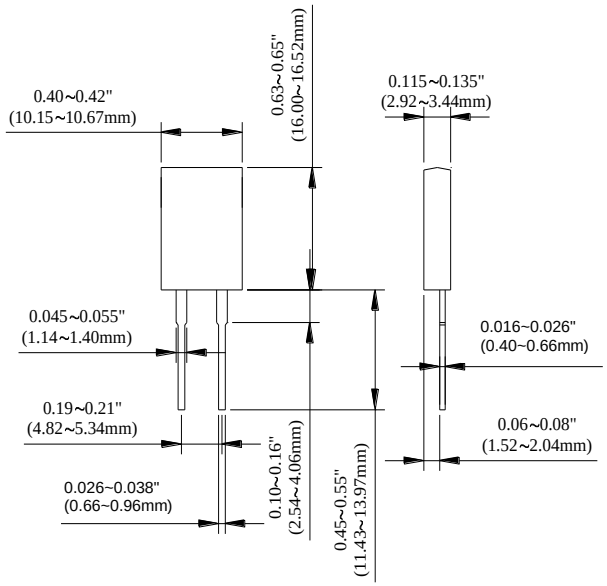


①	Alumina Substrate	③	Lead
②	Resistor Layer	④	Molding

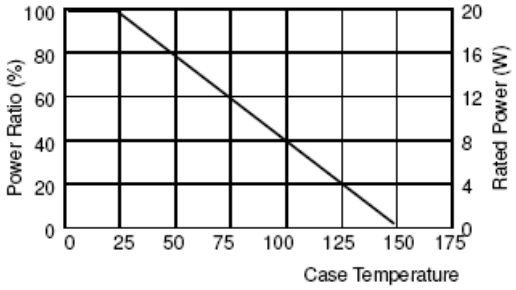
■Dimensions

Unit: mm

Type	Weight (g) (1000pcs)	Packaging
		Tube
TR20	1290	50pcs



■Derating Curve



TO-220 Power Resistor

■Part Numbering

TR	20	J	D	D	1001
Product Type	Power	Resistance Tolerance	Packaging Code	TCR (PPM/℃)	Resistance
	20: 20 Watts	D: ±0.5% F: ±1% J: ±5% K: ±10%	D: Tube	D: ±50 E: ±100 F: ±200 G: ±300 - : No Specified	R100: 0.1Ω 0100: 10Ω 4700: 470Ω 1001: 1000Ω 1002: 10000Ω

■Electrical Characteristics Specifications

Item / Type	Resistance Range				TCR (PPM/°C)
	±0.5%	±1%	±5%	±10%	
TR20	-	-	0.02Ω –1Ω		No Specified
	-	>1Ω –3Ω			±300
	-	>3Ω –10Ω			±100 ±200
	>10Ω –1MΩ				±50 ±100 ±200

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

■Environmental Characteristics

Test Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	Referenced to 25°C, ΔR taken at +105°C
Short Time Overload	ΔR±0.3%	2 times rated power with applied voltage not to exceed 1.5 times Maximum continuous operating voltage for 5 seconds
Load Life	ΔR±1.0%	2,000 hours at rated power
Damp Heat with Load	ΔR±0.5%	40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs “ON” and 0.5 hrs “OFF”
Solderability	90% min. coverage	245±5°C for 3 seconds
Thermal Shock	ΔR±0.3%	-65℃~150°C, 100 cycles
Terminal Strength	ΔR±0.2%	(Pull Test) 2.4N
Vibration, High Frequency	ΔR±0.2%	20g peak

■Lead Material: Tinned Copper
■Without a Heat Sink
■When in Free Air at 25°C, the TR20 is Rated for 3W
■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
RCWV(Rated continuous working voltage)= $\sqrt{}$(P*R) or Max. Operating voltage whichever is lower