Data Sheet

Customer:	
Product:	**TO-220 Power Resistor – TR50-RF Series**
Sizes.:	**50W**
Issued Date:	**14-May-25**
Edition:	**REV.A3**

RoHS Compliant

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14-May-25	14-May-25	14-May-25	14-May-25	
Mandy Chang	***Ben Chang***	***Ben Chang***		

TO-220 Power Resistor



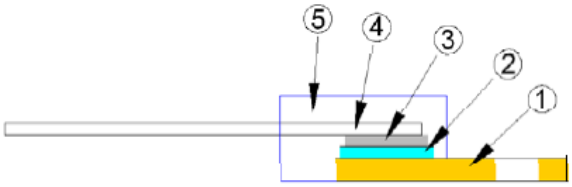
Features

- 50 watts at 25°C case temperature heat sink mounted
- TO-220 style power package
- Single screw mounting to heat sink
- Molded case for protection and easy to mount
- Electrically isolated case
- Non-Inductive design

Applications

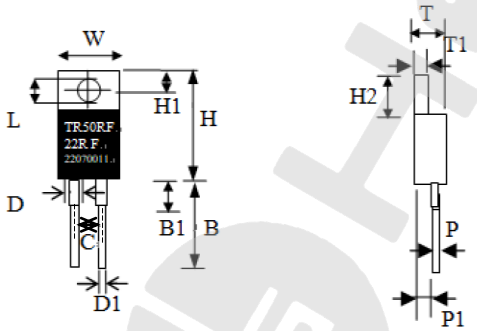
- Switching Power Supplies
- Snubbers Circuits
- Automated Machine Controller
- RF Power Amplifiers
- Low Energy Pulse Loading
- UPS
- Voltage Regulation

Construction



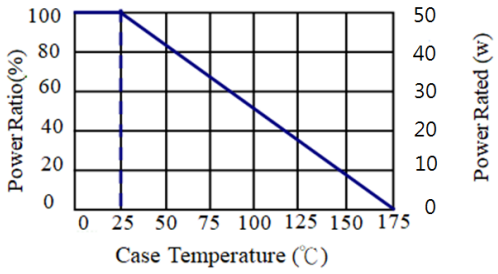
①	Radiator Fin	④	Copper Lead
②	Alumina Substrate	⑤	Molding
③	Resistor Layer		

Dimensions



Type	W (mm)	H (mm)	H1 (mm)	B (mm)	B1 (mm)	D (mm)	D1 (mm)	C (mm)	L (mm)	T (mm)	T1 (mm)	H2 (mm)	P (mm)	P1 (mm)	Packing Tube
TR50-RF	10.16 ±0.3	15.00 ±0.5	2.9 ±0.25	13.5 ±0.8	4 max	1.27 ±0.1	0.78 ±0.08	5.08 ±0.25	3.65 ±0.3	4.6 ±0.2	1.2 ±0.1	6.25 ±0.35	0.60 ±0.15	2.3 ±0.25	50pcs

Derating Curve



Derating Curve Slope: 0.333W/°K ; Thermal resistance：3.00°K/W

TO-220 Power Resistor

■Part Numbering

TR	50	J	D	D	1001	-RF
Product Type	Power	Resistance Tolerance	Packaging Code	TCR (PPM/℃)	Resistance	Code
	50: 50 Watts	D: ±0.5% F: ±1% J: ±5%	D: Tube	D: ±50 E: ±100 F: ±200 G: ±300 - : No Specified (±300~±700)	R100: 0.1Ω 0100: 10Ω 4700: 470Ω 1001: 1000Ω 1002: 10000Ω	RF: Radiator Fin

■Electrical Characteristics Specifications

Item / Type	Resistance Range ±0.5%	±1%	±5%	±10%	TCR (PPM/℃)
TR50-RF	-	-	0.05Ω – 0.1Ω		No Specified (±300~±700)
		≧ 0.1Ω - 1Ω			±300
	-	≧ 1Ω - 5Ω			±100 ±200 ±300
	≧ 5Ω - 10Ω				±100 ±200 ±300
	≧ 10Ω - 100KΩ				±50 ±100 ±200

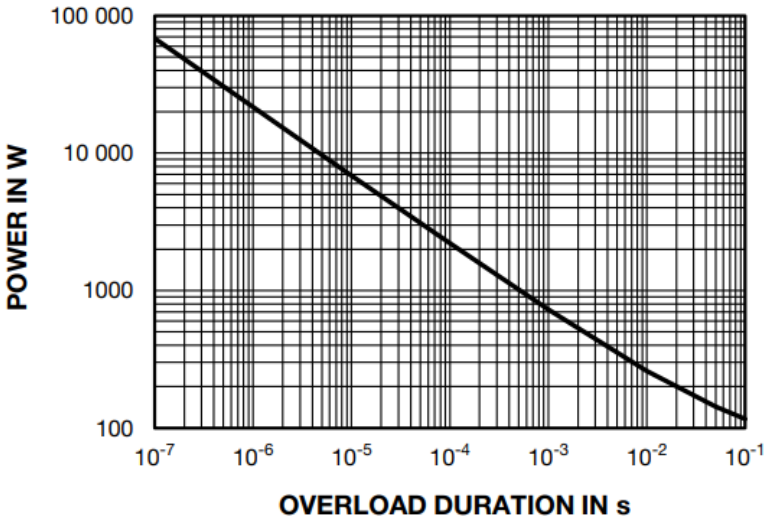
- Operating Voltage: 350V max.
- Dielectric Strength: 1800VAC
- Insulation Resistance: 10GΩ min.
- Working Temperature Range: -55°C to +175°C

■Environmental Characteristics

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°C~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
- Maximum Torque: 0.9 N-m
- Without a Heat Sink, when in Free Air at 25°C, the TR50-RF is Rated for 2.5W
- 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
- Storage Temperature: 25℃; Humidity: 25%～80%RH
- Shelf life: 1 years Max

■Power Curve


100 000
10 000
1000
100
POWER IN W
10^{-7}
10^{-6}
10^{-5}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
OVERLOAD DURATION IN s

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A2	Mar 31 ,2025		-Add Storage conditions and Shelf life.
Version A3	May 14 ,2025		-Modify the TCR specification for 0.05Ω – 0.1Ω from No Specified to No Specified (±300~±700) -Modify the TCR specification for ≥0.1Ω – 1Ω from No Specified to ±300 -Modify the resistance range for TCR No Specified (±300~±700) from 0.05Ω–1Ω → 0.05Ω–0.1Ω. -Modify the dimension L size -Add Power Curve.