

# TO-220 Power Resistors

## Power Resistors (TO-220 RMG20) Deliver Thermal Efficiency

### ▶ Preview

Providing design engineers with superior heat dissipation in a standard industry-recognised package, Token Electronics has introduced a TO220-style power resistor using a highly reliable, economical copper thick film.

The RMG20 Series, designed by Token, are rugged resistors feature noninductive performance and low thermal resistance, making them ideal for a variety of industrial applications such as power supplies, industrial controls and automotive, where cost effective performance and reliability are paramount.

The non-noble copper ink construction of the RMG20 Series resistor makes it an efficient alternative to other thick film leaded power resistors while maintaining the excellent thermal conductivity and heat dissipation necessary for demanding power applications.

With low resistance values at higher power ratings, Token's proprietary resistor element ensures design engineers the highest quality noninductive performance in an efficient package.

Operating temperatures range from -65°C to +150°C.

Constructed with proprietary thick-film copper conductors and alloy resistors on an alumina ceramic substrate, the RMG20 Series resistor features low thermal impedance for high power dissipation. Contact us with your specific needs.



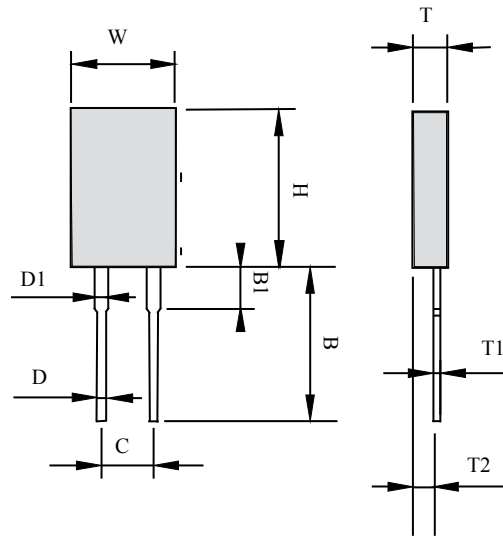
### ▶ Features

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

### ▶ Applications

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

## Dimensions (Unit: mm)



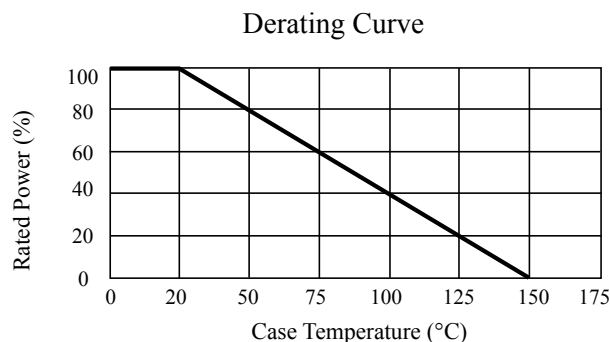
Type	W	H	T	T1	T2	B	B1	C	D	D1
RMG20	10.15~10.67	16.00~16.52	2.92~3.44	0.40~0.60	1.52~2.04	11.43~13.97	2.54~4.06	4.82~5.34	0.66~0.86	1.14~1.40

## Electrical Characteristics Specifications

Resistance Range	Resistance Tolerance	TCR(PPM/°C)
0.05Ω~1Ω	±5.00% ±10.0%	-
2Ω~5Ω	±1.00% ±5.00% ±10.0%	±200
5Ω~10Ω	±1.00% ±5.00% ±10.0%	±100 ±200
11Ω~10KΩ	±0.50% ±1.00% ±5.00% ±10.0%	±50 ±100 ±200

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

## Power Derating Curve



## ▶ Environmental Characteristics

Test Item	Specification	Test Method
Temperature Coefficient of Resistance	10Ω and above, ±50ppm/°C 1Ω and 10Ω, (±100ppm)/°C	Referenced to 25°C, ΔR taken at +105°C
Short Time Overload	Δ R±0.3%	2 times rated power with applied voltage not to exceed 1.5 times maximum continuous operating voltage for 5 seconds.
Load Life	Δ R±1.0%	MIL-R-39009, 2,000 hours at rated power.
Humidity (Steady State)	Δ R±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	Δ R±0.3%	MIL-STD-202, Method 107G. -65°C~150°C, 100 cycle
Terminal Strength	Δ R±0.2%	MIL-STD-202, Method 211, Cond.A(Pull Test) 2.4N.
Vibration, High Frequency	Δ R±0.2%	MIL-STD-202, Method 204, Cond.D.

Note: 1. Lead Material: Tinned Copper.

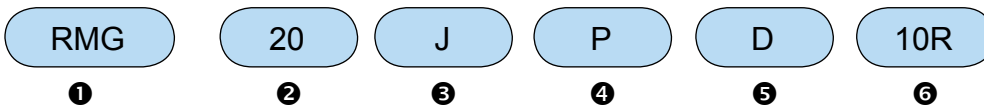
2. Without a Heat Sink, when in Free Air at 25°C, the RMG20 is Rated for 2.25W.

3. The Case Temperature is to be used for the Definition of the Applied Power Limit.

4. The Case Temperature Measurement Must be Made with a Thermocouple Contacting the Center of the Component Mounted on the Designed Heat Sink.

5. Thermal Grease Should be Applied Properly.

## ▶ How to Order



① Part Number: TO-220 Power Resistors

② Power Rating

③ Resistance Tolerance

Code	Resistance Tolerance
D	±0.5%
F	±1%
G	±2%
J	±5%
K	±10%

④ Packaging

Code	Packaging
T	Tube
P	Bulk

⑤ TCR

Code	TCR
D	±50PPM/°C
E	±100PPM/°C
F	±200PPM/°C
-	No specified

⑥ Resistance

Code	Resistance
0R1	0.1Ω
10R	10Ω
1K	1KΩ
10K	10KΩ

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