

# To-Style Power Resistors

## To-Style Power Resistors Keeps Its Cool

### ▶ Preview

Providing design engineers with an open screened substrate device for applications requiring superior thermal performance, Token Electronics has developed a non-moulded power resistor rated up to 50W.

Designated the RMG50 Series, the resistor is housed in a TO-220 opened screened substrate package, and features an insulated tapered venturi bonded to the substrate for maximum heat dissipation. The design of the RMG50 Series resistor allows for three methods of heat dissipation, resulting in exceptional power handling characteristics.

The chimney-shaped tapered venturi is attached to the ceramic substrate and convection forces hot air up the 'neck' of the chimney and away from the resistor face of the component.

The power resistor utilises all three methods of heat dissipation, including conduction through the heatsink tab, radiation from the resistor surface, and convection through the venturi element. Typical applications for the RMG50 resistor include higher wattage switch-mode power supply circuits, motor control and drive circuits, inverters and industrial power equipment.

Resistance ranges from 0.05Ω to 10KΩ, with tolerances of ±0.50% and ±10% and operating temperature range is -65°C to +150°C. The RMG50 Series TO-220 provides customers requiring more wattage in a smaller package with an excellent alternative.

Token Electronics will also produce devices outside these specifications to meet customer requirements, with comprehensive application engineering and design support available for customers worldwide. Contact us with your specific needs.

### ▶ Applications

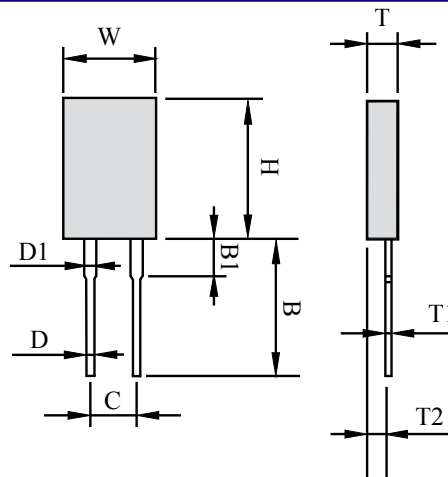
- UPS.
- Voltage Regulation.
- Pulsing applications.
- Switching Power Supplies.
- Non-inductive design for high frequency.

### ▶ Features

- Electrically Isolated Case.
- TO-220 Style Power Package.
- Low ohm value, non-inductance design
- Molded Case for Protection and Easy to Mount.
- 50 Watt at 25°C Case Temperature Heat Sink Mounted.



## ▶ Dimensions (Unit: mm)



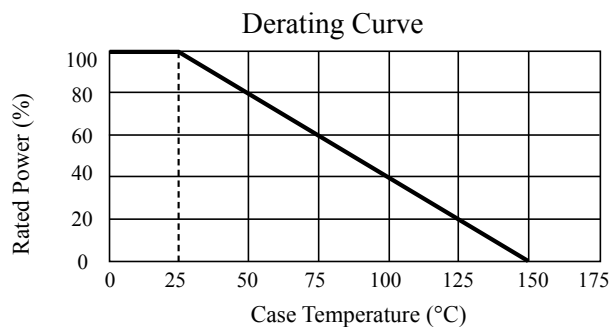
Type	W	H	T	T1	T2	B	B1	C	D	D1
RMG50	10.15~10.67	16.00~16.52	2.92~3.44	0.40~0.60	1.52~2.04	11.43~13.97	2.54~4.06	4.82~5.34	0.66~0.86	1.14~1.40

## ▶ 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. Maximum Torque: 0.9 Nm.

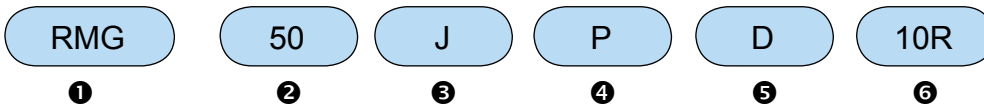
2. Without a Heat Sink, When in Free Air at 25°C, the RMG50 is Rated for 3W.

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

② Power Rating

③ Resistance Tolerance (%)

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

④ Package

Code	Package
T	Tube
P	Bulk

⑤ TCR (PPM/°C)

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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