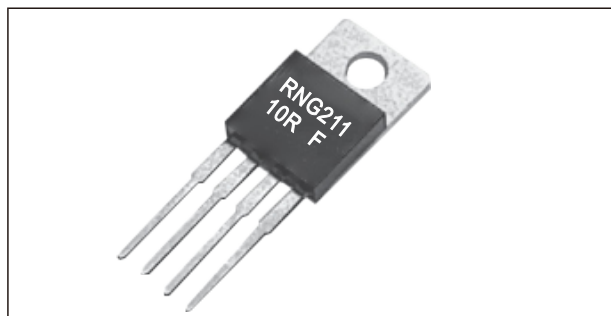




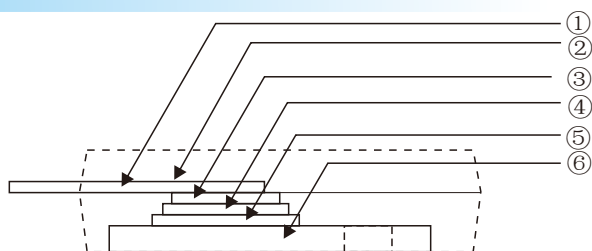
● Features

- I Temperature coefficient of resistance (TCR):
 $\pm 0.05 \text{ ppm}/^{\circ}\text{C}$ typical (0°C to $+60^{\circ}\text{C}$)
 $\pm 0.2 \text{ ppm}/^{\circ}\text{C}$ typical (-55°C to $+125^{\circ}\text{C}$, $+25^{\circ}\text{C}$ ref.)
- II Tolerance: to $\pm 0.01\%$
- III Power coefficient “ ΔR due to self heating” $4 \text{ ppm}/\text{W}$ typical
- IV Rated power: 8 W chassis mounted (MIL-PRF-39009)
- V Load life stability: to $\pm 0.005\%$ at 25°C for 2000 hours, at 1.5 W

● Application

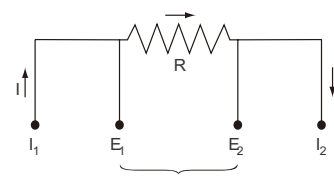
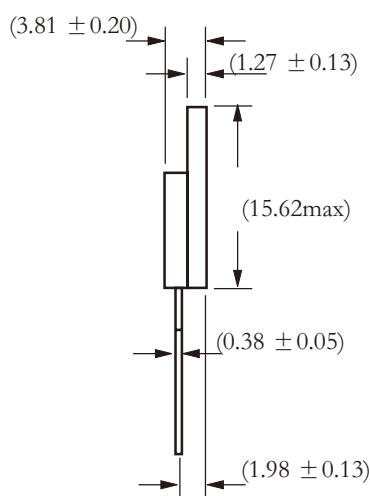
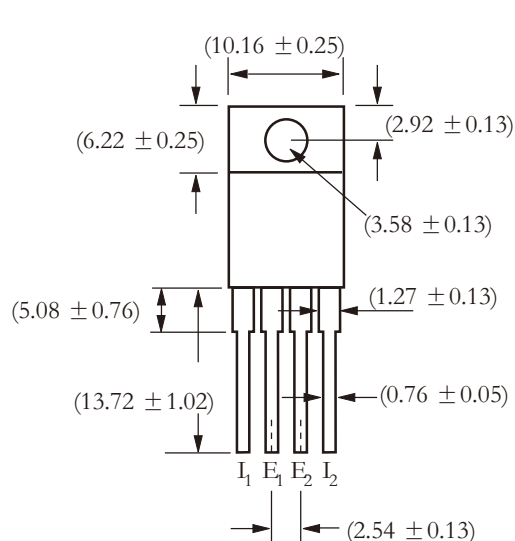
- I Switching Power Supplies
- II Snubbers Circuits
- III Automated Machine Controller
- IV RF Power Amplifiers

● Construction



①	Leads, Tin plated Cu
②	Mold, epoxy, UL94-V0
③	Conductor, Cu
④	Resistor, NiCr or RuO
⑤	Substrate, Alumina
⑥	Flange, Ni plated Cu

● Dimensions



● Ordering Information

Example:

RNG211	8	F	10R0	C2	B
(1)	(2)	(3)	(4)	(5)	(6)
Series Name	Power Rating	Resistance Tolerance	Resistance	T.C.R	Packaging

(1)Type:RNG211 SERIES

(2)Power Rating: 8=8W

(3)Tolerance: T = $\pm 0.01\%$ 、Q = $\pm 0.02\%$ 、A = $\pm 0.05\%$ 、B = $\pm 0.1\%$ 、C = $\pm 0.25\%$ 、D = $\pm 0.5\%$ 、F = $\pm 1.0\%$

(4)Resistance Value:10R0=10 Ω

(5)T.C.R: $\pm 0.2 \text{ ppm}/^{\circ}\text{C}$ ~ $\pm 2.8 \text{ ppm}/^{\circ}\text{C}$

(6)Packaging:B=bulk pack

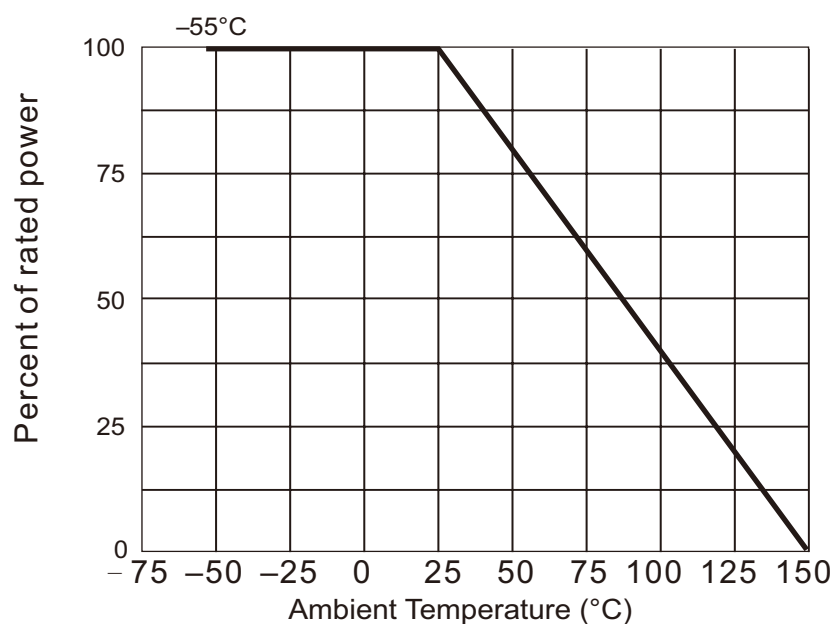
Applications And Ratings

Type	Power (25°C)	Resistance Range(Ω)	Tolerance	T.C.R	Max working Voltage(V)	Operating Temperature Range
RNG211	8	0.5 to <1	$\pm 0.05\%$	$\pm 0.2 \text{ ppm}/^\circ\text{C} \pm 2.8 \text{ ppm}/^\circ\text{C}$	300V	- 55°C to +150°C
		1 to <10	$\pm 0.02\%$	$\pm 0.2 \text{ ppm}/^\circ\text{C} \pm 2.3 \text{ ppm}/^\circ\text{C}$		
		10 to 500	$\pm 0.01\%$	$\pm 0.2 \text{ ppm}/^\circ\text{C} \pm 1.8 \text{ ppm}/^\circ\text{C}$		

Notes

(1) MIL-Range (- 55°C to +125°C, +25°C Ref.)Contact Applications Engineering for other available values

Derating Curve



Specifications

Power Rating at +25°C	8 W or 3 A(2) on heat sink(3), 1.5 W in free air. Further derating not necessary.
Current Noise	<0.010 $\mu\text{VRMS}/\text{V}$ of applied voltage (- 40 dB)
High Frequency Operation	
Rise Time	0.2 ns at 1 W
Inductance(4) (L)	0.1 μH maximum: 0.03 μH typical(1)
Capacitance (C)	1.0 pF maximum: 0.5 pF typical(1)
Voltage Coefficient(5)	<0.1 ppm/V
Operating Temperature Range	- 55°C to +150°C
Maximum Working Voltage	300 V, Not to exceed power rating
Thermal EMF(6)	0.15 $\mu\text{V}/^\circ\text{C}$ maximum (lead effect)

Notes

- (1) Maximum is 1.0% A.Q.L. standard for all specifications except TCR.
- (2) Whichever is lower.
- (3) Heat sink chassis dimensions are requirements per MIL-R-39009/1B: (see table on the right)
- (4) Inductance (L) mainly due to the leads.
- (5) The resolution limit of existing test requirement (within the measurement capability of the equipment, "essentially zero").
- (6) $\mu\text{V}/^\circ\text{C}$ relates to EMF due to lead temperature difference.

	INCHES	MILLIMETERS
L	6.00	152.4
W	4.00	101.6
H	2.00	50.8
T	0.04	1.0

● Performance

Performance Specifications ⁽¹⁾ MIL-PRF 39009			
TEST OR CONDITION	MIL-PRF 39009	TYPICAL ΔR	MAXIMUM ΔR
Low temperature storage 24 hours at -55°C	$\pm 0.3\%+0.01\ \Omega$	$\pm 0.001\%$ (10 ppm)	$\pm 0.002\%$ (20 ppm)
Dielectric withstanding voltage 300 VAC at Atm	$\pm 0.2\%+0.01\ \Omega$	$\pm 0.001\%$ (10 ppm)	$\pm 0.002\%$ (20 ppm)
Dielectric withstanding voltage 200 VAC at Brm	$\pm 0.2\%+0.01\ \Omega$	$\pm 0.001\%$ (10 ppm)	$\pm 0.002\%$ (20 ppm)
Insulation resistance	$>10^4\text{M}\Omega$	–	$>10^4\text{M}\Omega$
Low temperature operation	$\pm 0.3\%+0.01\ \Omega$	$\pm 0.002\%$ (20 ppm)	$\pm 0.008\%$ (80 ppm)
Short time overload 5 x rated power for 5 seconds (in air)	$\pm 0.3\%+0.01\ \Omega$	$\pm 0.001\%$ (10 ppm)	$\pm 0.002\%$ (20 ppm)
Moisture resistance $+65^{\circ}\text{C}$ to -10°C , 90 to 98 Rh, 10 days	$\pm 0.5\%+0.01\ \Omega$	$\pm 0.005\%$ (50 ppm)	$\pm 0.015\%$ (150 ppm)
Terminal Strength	$\pm 0.2\%+0.01\ \Omega$	$\pm 0.001\%$ (10 ppm)	$\pm 0.002\%$ (20 ppm)
Load life 8 W at $+25^{\circ}\text{C}$, 2000 hours with heat sink	$\pm 1.0\%+0.01\ \Omega$	$\pm 0.005\%$ (50 ppm)	$\pm 0.015\%$ (150 ppm)
Load life 1.5 W at $+25^{\circ}\text{C}$ for 2000 hours in free air	$\pm 1.0\%+0.01\ \Omega$	$\pm 0.005\%$ (50 ppm)	$\pm 0.015\%$ (150 ppm)
High temperature exposure $+150^{\circ}\text{C}$	$\pm 1.0\%+0.05\ \Omega$	$\pm 0.005\%$ (50 ppm)	$\pm 0.01\%$ (100 ppm)