

PRECISION METAL FILM RESISTORS



GP SERIES

- Meets requirements of MIL-R-10509
- 10 ohm - 10 megohm resistance range
- Flame-retardant coatings are standard
- Temperature coefficients from ± 25 to ± 100 ppm/ $^{\circ}\text{C}$
- Resistance range tolerance of $\pm 0.1\%$ - 1%



PERFORMANCE CHARACTERISTICS (TESTED PER MIL-STD-202):

IRC TYPE	IRC POWER RATING (watts)		MIL REFERENCE	MAXIMUM WORKING VOLTAGE	RESISTANCE TEMPERATURE COEFFICIENT ($\pm$ ppm/ $^{\circ}\text{C}$)	TOLERANCE & RESISTANCE RANGE		
	@ 70 $^{\circ}\text{C}$	@ 125 $^{\circ}\text{C}$				$\pm 1\%$	$\pm .5\%$	$\pm .25$ and $\pm 0.1\%$
GP-50 (T0)	1/8	1/10	RN50	200	100	10 - 2.37 Meg	10 ohm - 499K ohm	100 ohm - 100K ohm
GP-50 (T2)	1/8	1/10	RN50	200	50	10 ohm - 1 Meg	10 ohm - 499K ohm	100 ohm - 100K ohm
GP-50 (T9)	1/8	1/10	RN50	200	25	49.9 ohm - 499K ohm	49.9 ohm - 499K ohm	100 ohm - 100 K ohm
GP-55 (T0)	1/4	1/8	RN55	250	100	10 ohm - 10 Meg	10 ohm - 499K ohm	30 ohm - 300K ohm
GP-55 (T2)	1/4	1/8	RN55	250	50	10 ohm - 4.99 Meg	10 ohm - 499K ohm	30 ohm - 300K ohm
GP-55 (T9)	1/4	1/8	RN55	250	25	30 ohm - 499K ohm	30 ohm - 499K ohm	30 ohm - 300K ohm
GP-60 (T0)	1/2	1/4	RN60	350	100	10 ohm - 10 Meg	10 ohm - 499K ohm	100 ohm - 100K ohm
GP-60 (T2)	1/2	1/4	RN60	350	50	10 ohm - 4.99 Meg	10 ohm - 499K ohm	100 ohm - 100K ohm
GP-60 (T9)	1/2	1/4	RN60	350	25	49.9 ohm - 499K ohm	49.9 ohm - 499K ohm	100 ohm - 100K ohm

ENVIRONMENTAL (% Δ R)	MIL-R-10509		Char. C	EIA RS-196 Class 1
	Typical	Char. D		
Moisture Resistance	± 0.5	± 1.5	± 0.5	± 1.5
Thermal Shock	± 0.25	± 0.5	± 0.25	-
Load Life @ 70 $^{\circ}\text{C}$ - 1000 hours	± 0.5	± 1.0	± 0.5	± 2.0
Shock and Vibration	± 0.25	± 0.5	± 0.25	-
Resistance to Soldering Heat	± 0.1	± 0.5	± 0.1	-
Terminal Strength	± 0.2	± 0.2	± 0.2	-
Dielectric Withstand Voltage	± 0.25	± 0.5	± 0.25	± 0.5
Short Time Overload	± 0.25	± 0.5	± 0.25	± 0.5
Operating Temperature Range	-55 $^{\circ}\text{C}$ to +165 $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$ to +165 $^{\circ}\text{C}$	-55 $^{\circ}\text{C}$ to +165 $^{\circ}\text{C}$	
Maximum Pulse Voltage	GP50 400V, GP55 500V, GP60 600V			
Insulation Resistance	10,000 meg min.			
Voltage Coefficient	10ppm/V			

WIREWOUND AND FILM TECHNOLOGIES DIVISION

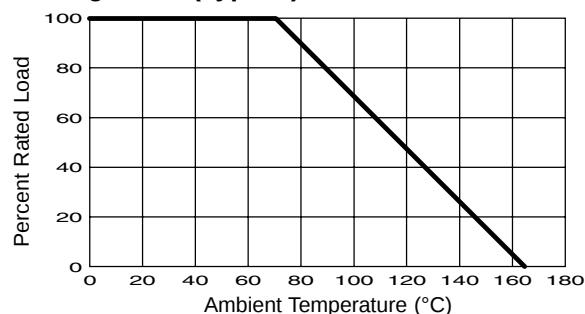
736 Greenway Road • Boone, North Carolina 28607-1860 • Tel: 828-264-8861 • Fax: 828-264-8866 • www.irctt.com

GP DIMENSIONS (Inches and (mm)):

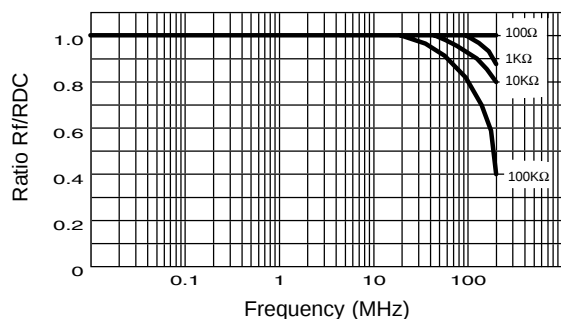
Dimension	GP50	GP55	GP60
A	1.10±.08 (28.0±2.0)	1.10±.08 (28.0±2.0)	1.10±.08 (28.0±2.0)
B	0.13 + .01/-0.00 (3.2+0.2/-0.0)	0.24±.01 (6.0±0.3)	0.33±.02 (8.5±0.5)
C	0.018±.001 (0.45±0.02)	0.023±.002 (0.60±0.05)	0.027±.002 (0.70±0.05)
D	0.073±.006(1.85±0.15)	0.09±.01(2.4±0.2)	0.11±.01(2.8±0.3)

GP PERFORMANCE CURVES:

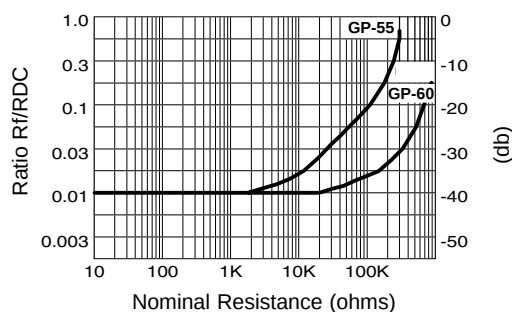
Derating Curve (Typical)



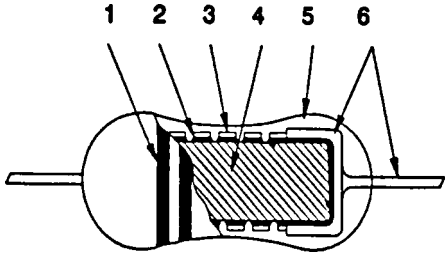
High-Frequency Characteristics (Typical)



Current Noise (Typical)



GP CONSTRUCTION:



- 1. COLOR BANDS.**
The resistors are permanently color banded for resistance value and tolerance in accordance with EIA specifications.
- 2. HELIXING.**
The units are helixed to a predetermined base to final value ratio to obtain the best TCR, noise and stability characteristics.
- 3. FILM.**
Carbon-film resistors have a homogeneous film of pure carbon deposited by a pyrolytic process at carefully controlled temperatures.
- 4. SUBSTRATES.**
The substrates are of a proprietary non alkaline ceramic, prepared and processed under exacting conditions to guarantee the utmost in uniformity and surface characteristics.
- 5. INSULATION.**
The resistors are coated with multiple layers of a baked-on fire-retardant synthetic resin which provides the units with a high degree of mechanical and electrical protection in the most adverse operating conditions.
- 6. TERMINATIONS.**
Positive contact is provided to the resistance element by precision-made end caps. The lead wires are attached by using proprietary welding techniques.

HOW TO ORDER:

Sample Part No.:

GP **55** **100** **1001** **F**
 IRC Type _____
 Size _____
 TCR _____
 Resistance Value _____
 3 digit range and 1 digit multiplier
 Tolerance _____

F = 1%, D = .5%, C = .25%, B = .1%

Packaging: Bulk or
Tape and Reel