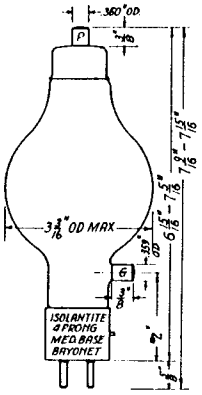
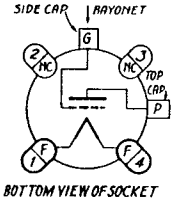


TRIODE POWER AMPLIFIER OSCILLATOR

The RK-38 is a high-mu triode type power amplifier tube having a thoriated tungsten filament, a tantalum plate and grid, a hard glass bulb and an isolantite base. It is designed for use as a power amplifier oscillator, or frequency multiplier.



FILAMENT RATING

Filament Voltage	5	volts
Filament Current	8	amp

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate	4.3	μμf
Input	4.6	μμf
Output	0.9	μμf

A-F POWER AMPLIFIER—CLASS B—TWO TUBES

MAXIMUM RATINGS

D-C Plate Voltage	3000	volts
D-C Plate Current (per tube)	165	ma
Plate Dissipation (per tube) (Averaged over 1 cycle)	100	watts

TYPICAL OPERATION

D-C Plate Voltage	2000	volts
D-C Grid Voltage	—52	volts
D-C Plate Current (no signal)	36	ma
D-C Plate Current (max. signal)	265	ma
D-C Grid Current (max. signal)	39	ma
Peak A-F Grid Voltage (grid to grid)	357	volts
A-F Driving Power	5.8	watts
Load Resistance (plate to plate)	16000	ohms
Power Output	330	watts

R-F POWER AMPLIFIER—CLASS C—TELEGRAPHY

MAXIMUM RATINGS

D-C Plate Voltage	3000	volts
D-C Plate Current	165	ma
D-C Grid Current	40	ma
Plate Dissipation	100	watts

TYPICAL OPERATION

D-C Plate Voltage	2000	volts
D-C Grid Voltage	—200	volts
D-C Plate Current	160	ma
D-C Grid Current	30	ma
Peak R-F Input Voltage	375	volts
R-F Driving Power	10	watts
Power Output	225	watts

R-F POWER AMPLIFIER—CLASS B—TELEPHONY

MAXIMUM RATINGS

D-C Plate Voltage	3000	volts
D-C Plate Current (Carrier)	100	ma
Plate Dissipation (Carrier)	100	watts

TYPICAL OPERATION

D-C Plate Voltage	2000	volts
D-C Grid Voltage	—100	volts
D-C Plate Current	75	ma
D-C Grid Current	2	ma
Peak R-F Input Voltage	300*	volts
R-F Driving Power	7 *	watts
Carrier Power Output	55	watts
Peak Power Output	220*	watts

R-F POWER AMPLIFIER—CLASS C—TELEPHONY

MAXIMUM RATINGS

	Grid Modulation	Plate Modulation	
D-C Plate Voltage	3000	2000	volts
D-C Plate Current (Carrier)	100	165	ma
D-C Grid Current (Carrier)	5	40	ma
Plate Dissipation (Carrier)	100	100	watts

TYPICAL OPERATION

	Grid Modulation	Plate Modulation	
D-C Plate Voltage	2000	2000	volts
D-C Grid Voltage	—150	—200	volts
D-C Plate Current	80	160	ma
D-C Grid Current	2	30	ma
Peak R-F Input Voltage	220	375	volts
R-F Driving Power	5.5 *	10	watts
Carrier Power Output	60	225	watts
Peak A-F Modulating Voltage	100*	2000*	volts
A-F Modulating Power	1 *	150	watts
Peak Power Output	240*	900 *	watts

*At the peak of the a-f cycle with 100% modulation.

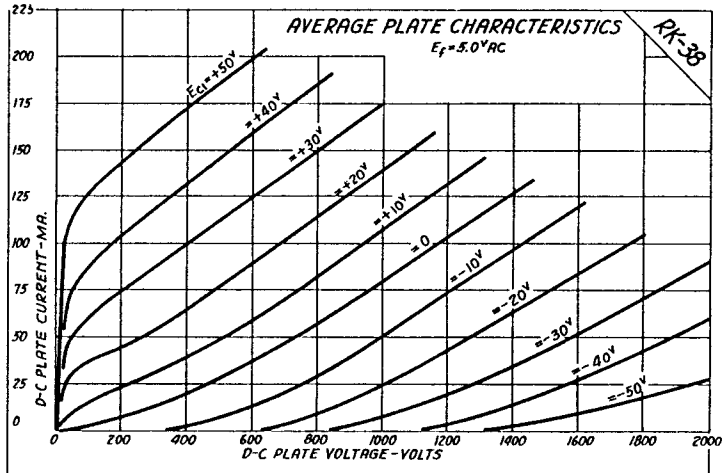
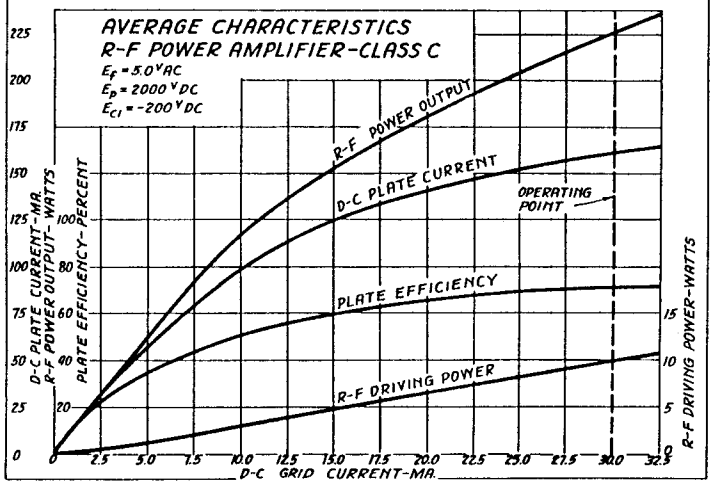
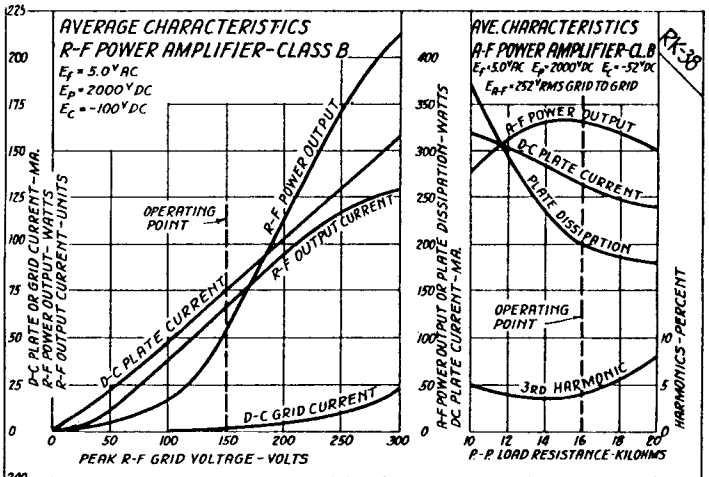
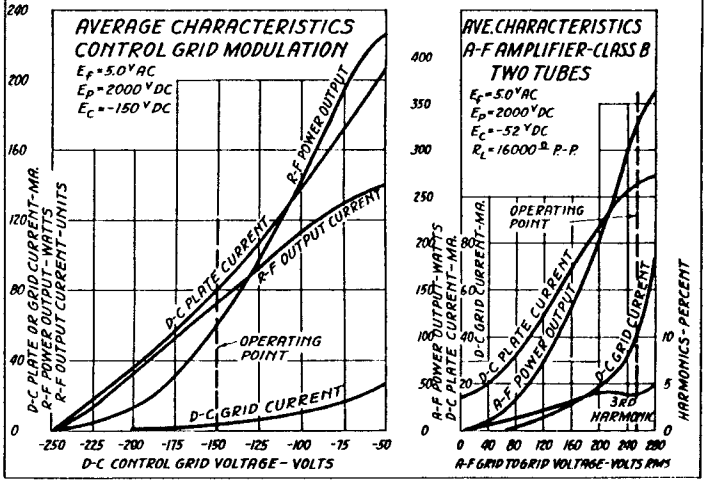
OPERATING NOTES

FREQUENCY RANGE

The construction of the RK-38 allows efficient operation at frequencies up to 60 megacycles. Above 60 megacycles reduced efficiency requires that the plate voltage be reduced to prevent the plate dissipation from exceeding the maximum rated value.

BIAS

At least 60 volts of fixed bias should be used with 2000 volts on the plate to protect the tube in case of failure of the bias or excitation.

PLATE TEMPERATURE

The plate of the RK-38 will show a light yellowish red color (See Plate Temperature Color Scale) when operated at the maximum rated plate dissipation. Dissipations above the rated value should be avoided.