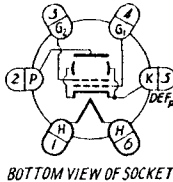


TETRODE POWER AMPLIFIER OSCILLATOR

The RK-49 is a heater type aligned grid beam power amplifier tube having an isolantite base. The use of aligned grids reduces the ratio of screen current to plate current and allows more efficient utilization of the total space current. The electrical characteristics are similar to those of the type 6L6C.



HEATER RATING

Heater Volt.	6.3	volts
Heater Cur.	0.9	amp

DIRECT INTERELECTRODE CAPACITANCES

Grid to Plate	1.4	μf
Input	11.5	μf
Output	10.6	μf

R-F POWER AMPLIFIER OR OSCILLATOR—CLASS C

D-C Plate Voltage—Telephony	400	volts
D-C Plate Voltage—Telephony—With Control Grid Mod.	400	volts
With Plate or Plate and Screen Modulation	300	volts
D-C Screen Voltage	300	volts
D-C Plate Current	100	ma
D-C Control Grid Current	6	ma
Plate Dissipation	21	watts
Screen Dissipation	3.5	watts

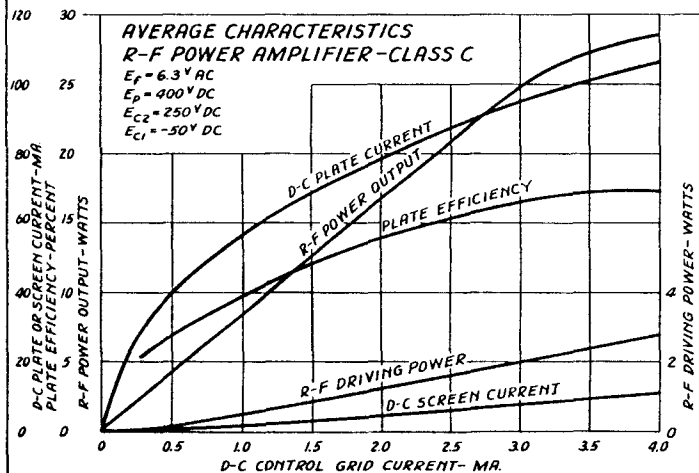
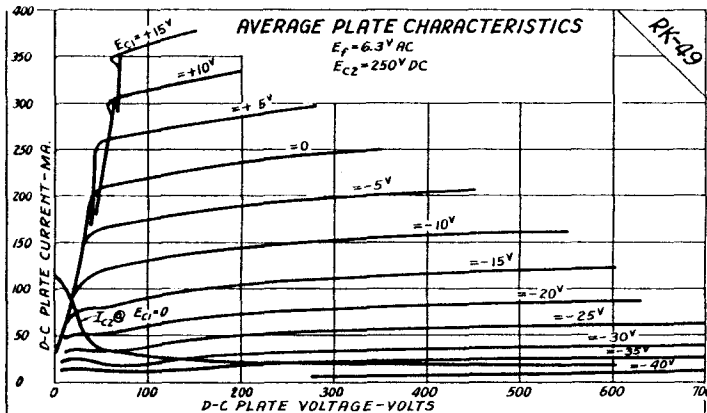
TYPICAL OPERATION

	Telephony Control Grid Modulation	Telephony Plate Only Modulation	Telephony Plate & Screen Modulation	Telephony	
D-C Plate Voltage	400	300	300	400	volts
D-C Screen Voltage	250	200	200	250	volts
D-C Control Grid Voltage	-40	-45	-45	-50	volts
D-C Plate Current	55	60	60	95	ma
D-C Screen Current	4	18	15	8	ma
D-C Control Grid Current	0.5	6	5	3	ma
Screen Resistor	—	5500†	6700†	—	ohms
Peak R-F Input Voltage	47	64	64	80	volts
R-F Driving Power	0.3 *	0.34	0.3	0.2	watts
Carrier Power Output	7	12	13	25	watts
Peak A-F Volt.—Plate	—	300*	300*	—	volts
Peak A-F Volt.—Grid	25 *	—	200*	—	volts
A-F Modulating Power	0.15*	9	11	—	watts
Peak Power Output	28 *	48 *	52 *	—	watts

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

†Connected direct to plate supply voltage and by-passed for r.f. only.

‡Connected to plate end of modulation trans. and by-passed for r.f. only.



R-F POWER AMPLIFIER—CLASS B—TELEPHONY

MAXIMUM RATINGS

D-C Plate Voltage	400	volts
D-C Screen Voltage	300	volts
D-C Plate Current (Carrier)	75	ma
Plate Dissipation (Carrier)	21	watts
Screen Dissipation (Carrier)	3.5	watts

TYPICAL OPERATION

D-C Plate Voltage	400	volts
D-C Screen Voltage	250	volts
D-C Grid Voltage	-30	volts
D-C Plate Current	52	ma
D-C Screen Current	5	ma
D-C Grid Current	0.1	ma
Peak R-F Input Voltage	60 *	volts
R-F Driving Power	0.5*	watts
Carrier Power Output	7	watts
Peak Power Output	28 *	watts

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

OPERATING NOTES

FREQUENCY RANGE

The RK-49 may be operated at the maximum ratings at frequencies up to 15 megacycles. Above 15 megacycles the reduced efficiency realized requires that the plate voltage be reduced to a maximum of 300 volts to prevent the plate dissipation from exceeding the maximum rated value. The operation of the tube at frequencies higher than 60 megacycles is not recommended.

EXCITATION

The Class C amplifier characteristic curves show the power output, plate current and screen current plotted vs. excitation as denoted by the d-c control grid current in milliamperes. The power output flattens off around 3 or 4 ma. of grid current with very little gained above these values. The screen dissipation increases with excitation and for this reason the excitation should be kept at a reasonable value.

SHIELDING

Shielding of the grid input tuning system from the plate tuning apparatus is desirable and will provide improved stability. Due to the high grid to plate capacitance, the RK-49 requires neutralization.

Bias

At least 25 volts of fixed bias should be used with 400 volts on the plate to protect the tube in case of failure of the bias or excitation. Additional bias may be obtained by the use of a grid or cathode resistor.

CRYSTAL OSCILLATOR

When the RK-49 is used as a crystal controlled oscillator, a 10000 ohm grid leak and a 400 ohm cathode resistor are recommended to give maximum power output and easy starting.

PLATE TEMPERATURE

The plate of the RK-49 will not show color when operated at the maximum rated plate dissipations. Dissipations above the rated value should be avoided.

