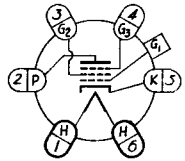


PENTODE
TRIPLE GRID POWER AMPLIFIER
Heater Type Glass Bulb

The 69 is a triple grid type power amplifier tube designed for service as a Class A triode, Class A pentode or Class B triode power amplifier in the output stage of storage battery or a-c operated receivers.



BOTTOM VIEW OF SOCKET

RATINGS

Heater Voltage (a-c or d-c)	6.3	volts
Heater Current	0.4	amp
Maximum Plate Voltage	250	volts
Maximum Screen Voltage	250	volts

AMPLIFIER - CLASS A - TRIODE CONNECTION

Grids #2 and #3 connected to plate

Plate Voltage	160	180	250	volts
Grid (#1) Bias	-20	-22.5	-31	volts
Amplification Factor	4.7	4.7	4.7	
Plate Resistance	3300	3000	2600	ohms
Transconductance	1425	1550	1800	μmhos
Plate Current	17	20	32	ma
Load Resistance*	7000	6500	5500	ohms
Power Output (5% second harmonic)	0.3	0.4	0.9	watts

AMPLIFIER - CLASS A - PENTODE CONNECTION

Grid #3 connected to cathode

Plate Voltage	100	135	180	250	volts
Screen (Grid #2) Voltage	100	135	180	250	volts
Grid (#1) Bias	-10	-13.5	-18	-25	volts
Amplification Factor	125	125	125	125	
Plate Resistance	104000	92500	80000	70000	ohms
Transconductance	1200	1350	1550	1800	μmhos
Plate Current	9.5	14	20	32	ma
Screen Current	1.6	2.2	3.0	5.5	ma
Load Resistance	10700	9200	8000	6750	ohms
Total Harmonics	9	9	9	9	percent
Power Output	0.33	0.75	1.5	3.4	watts

AMPLIFIER - CLASS B - TWO TUBES

Grid #1 connected to Grid #2

Grid #3 connected to plate

Maximum Plate Voltage	250	volts
Maximum Peak Plate Current (per tube)	90	ma
Maximum Average Grid (#1 and #2) Dissipation (per tube)	0.35	watts

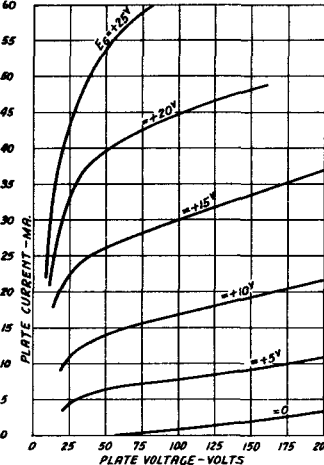
Typical Operation:

Plate Voltage	180	volts
Grid (#1 and #2) Bias	0	volts
No-Signal Plate Current (per tube)	3	ma
Load Resistance (plate to plate)	13600	9400 ohms
Power Output (approximate)	2.5	3.5 watts

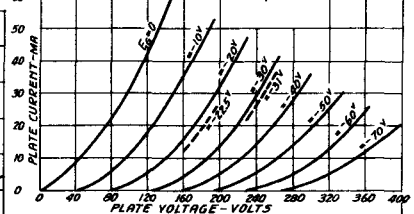
The voltage between heater and cathode should be kept as low as possible where they are not directly connected.

*Approximately twice this value is recommended when the tube is used as a driver for a Class B stage.

AVERAGE PLATE CHARACTERISTICS
TRIODE-CLASS B
GRID #1 CONNECTED TO GRID #2
GRID #3 CONNECTED TO PLATE
 $E_f = 6.3V$



AVERAGE PLATE CHARACTERISTICS
TRIODE-CLASS A
GRIDS #2 & #3 CONNECTED TO PLATE
 $E_f = 6.3V$



AVERAGE PLATE CHARACTERISTICS
PENTODE-CLASS A
GRID #3 CONNECTED TO CATHODE
 $E_f = 6.3V$
 $E_{s6} = 250V$

