

EITEL-McCULLOUGH, INC.

SAN BRUNO, CALIFORNIA

35TG

HIGH-MU TRIODE
 MODULATOR
 OSCILLATOR
 AMPLIFIER

The Eimac 35TG is a high-mu triode intended for use as an amplifier, oscillator, or modulator in applications particularly suited to the side grid connection. It is basically the same as the Eimac 35T except that the grid terminal is brought out at the side of the bulb. The 35TG has a maximum plate dissipation rating of 50 watts and delivers plate power output in the range of 100 to 200 watts at plate voltages of 1000 to 2000 volts. The tube can be operated at maximum ratings up to 100 Mc. Cooling is by radiation and the free circulation of air.

The 35TG in class-C r-f service will deliver up to 200 watts plate power output with 13 watts driving power. Two 35TG's in class-AB₁ modulator service will deliver up to 235 watts maximum signal plate power output with 8 watts driving power.

GENERAL CHARACTERISTICS

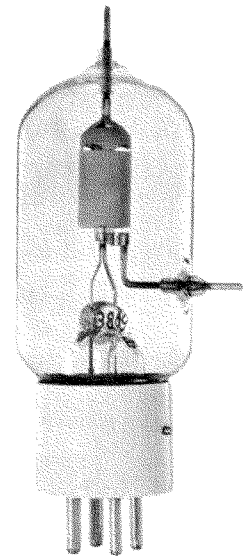
ELECTRICAL

Filament: Thoriated tungsten	
Voltage	5.0 volts
Current	4.0 amperes
Amplification factor (Average)	39
Direct Interelectrode Capacitances (Average)	
Grid-Plate	1.6 $\mu\mu\text{fd}$
Grid-Filament	2.5 $\mu\mu\text{fd}$
Plate-Filament	0.25 $\mu\mu\text{fd}$
Transconductance ($I_b=100 \text{ ma.}, E_b=2000\text{v.}, E_c=-30\text{v.}$)	2850 μmhos
Frequency for Maximum Ratings	100 Mc.

MECHANICAL

Base: Medium 4-pin bayonet. Fits E. F. Johnson Co. 122-224, National XC-4 or CIR-4 sockets, or equivalent.

Basing	See outline drawing
Mounting Position	Vertical, base down or up.
Cooling	Convection and radiation.
Recommended Heat Dissipating Plate and Grid Connectors	Eimac HR-3
Maximum Overall Dimensions:	
Length	5.5 inches
Diameter	1.8 inches
Net Weight	2.5 ounces
Shipping Weight (Average)	1.25 pounds



RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C Telephony or FM Telephony
 (Key-down conditions, per tube)

MAXIMUM RATINGS (Frequencies up to 100 Mc)

D-C PLATE VOLTAGE	2000 MAX. VOLTS
D-C PLATE CURRENT	150 MAX. MA
PLATE DISSIPATION	50 MAX. WATTS
GRID DISSIPATION	15 MAX. WATTS

TYPICAL OPERATION (Frequencies up to 30 Mc)¹

D-C Plate Voltage	1000	1500	2000	Volts
D-C Grid Voltage	-60	-120	-135	Volts
D-C Plate Current	125	125	125	Ma
D-C Grid Current (approx.)	40	40	45	Ma
Peak R-F Grid Input Voltage (approx.)	165	250	285	Volts
Driving Power (approx.)	7	9	13	Watts
Grid Dissipation	4.2	5.0	6.8	Watts
Plate Dissipation	38	47	50	Watts
Plate Power Input	125	188	250	Watts
Plate Power Output	87	141	200	Watts

¹The performance figures listed under Typical Operation are for radio frequencies up to the VHF region and are obtained by calculation from the characteristic tube curves and confirmed by direct tests. The driving power given includes power taken by the tube grid and the bias circuit. The driving power and output power do not allow for losses in the associated resonant circuits. These losses are not included because they depend principally upon the design and choice of the circuit components.

IF IT IS DESIRED TO OPERATE THIS TUBE UNDER CONDITIONS WIDELY DIFFERENT FROM THOSE GIVEN UNDER "TYPICAL OPERATION", AND WHICH POSSIBLY EXCEED MAXIMUM RATINGS, WRITE EITEL-McCULLOUGH, INC., FOR INFORMATION AND RECOMMENDATIONS.

AUDIO FREQUENCY POWER AMPLIFIER OR MODULATOR

Class-AB₂

MAXIMUM RATINGS (Per tube)

D-C PLATE VOLTAGE	- - -	2000 MAX. VOLTS
D-C PLATE CURRENT	- - -	150 MAX. MA
PLATE DISSIPATION	- - -	50 MAX. WATTS
GRID DISSIPATION	- - -	15 MAX. WATTS

TYPICAL OPERATION (Sinusoidal wave, two tubes unless otherwise specified)

D-C Plate Voltage	- - - -	600	1000	1500	2000	Volts
D-C Grid Voltage (approx.)*	- - - -	0	-8	-25	-40	Volts
Zero-Signal D-C Plate Current	- - - -	90	67	45	34	Ma
Max-Signal D-C Plate Current	- - - -	300	240	200	167	Ma
Effective Load Plate-to-Plate	- - - -	4250	7900	16,200	27,500	Ohms
Peak A-F Grid Input Voltage (per tube)	- - - -	115	120	125	130	Volts
Peak Driving Power (approx.)	- - - -	18	14	10	8	Watts
Nominal Driving Power (approx.)	- - - -	9	7	5	4	Watts
Max-Signal Plate Power Output	- - - -	95	140	200	235	Watts

*Adjust for stated zero-signal plate current.

PLATE MODULATED RADIO FREQUENCY POWER AMPLIFIER

Class-C Telephony (Carrier conditions, per tube)

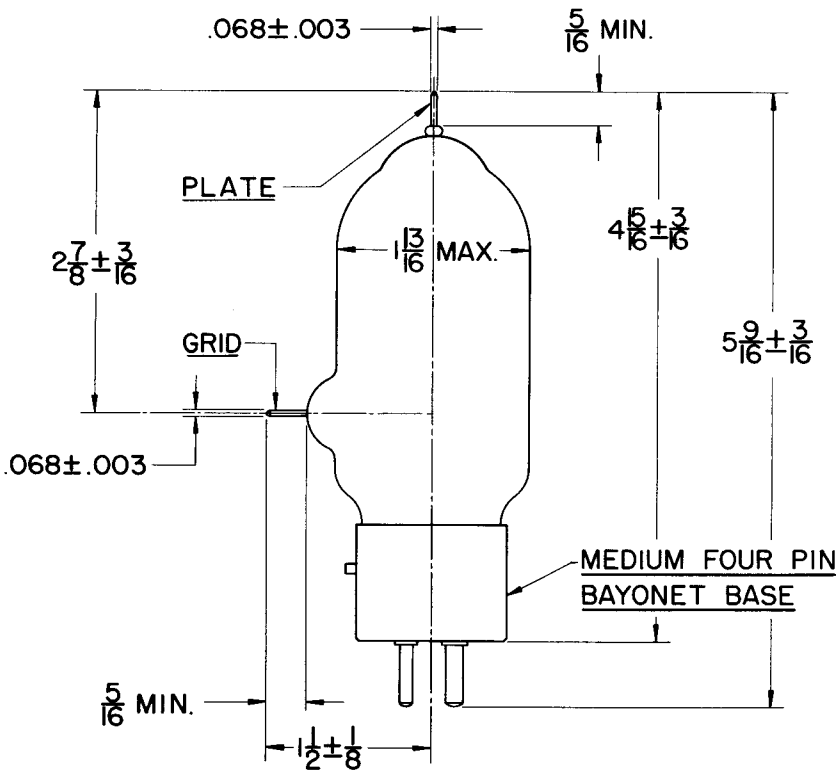
MAXIMUM RATINGS (Frequencies up to 100 Mc)

D-C PLATE VOLTAGE	- - -	1600 MAX. VOLTS
D-C PLATE CURRENT	- - -	120 MAX. MA
PLATE DISSIPATION	- - -	33 MAX. WATTS
GRID DISSIPATION	- - -	15 MAX. WATTS

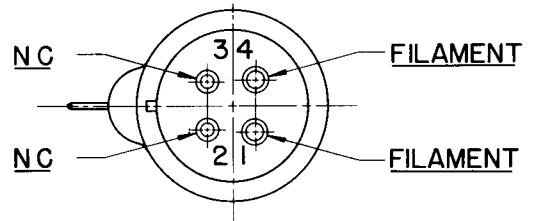
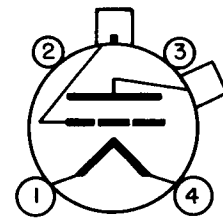
TYPICAL OPERATION (Frequencies up to 30 Mc)¹

D-C Plate Voltage	- - - -	750	1000	1500	Volts
D-C Grid Voltage	- - - -	-100	-125	-150	Volts
D-C Plate Current	- - - -	95	100	90	Ma
D-C Grid Current (approx.)	- - - -	40	40	40	Ma
Peak R-F Grid Input Voltage (approx.)	- - - -	210	240	270	Volts
Driving Power (approx.)	- - - -	9	10	11	Watts
Plate Dissipation	- - - -	20	25	30	Watts
Plate Power Input	- - - -	70	100	135	Watts
Plate Power Output	- - - -	50	75	105	Watts

¹The performance figures listed under Typical Operation are for radio frequencies up to the VHF region and are obtained by calculation from the characteristic tube curves and confirmed by direct tests. The driving power given includes power taken by the tube grid and the bias circuit. The driving power and output power do not allow for losses in the associated resonant circuits. These losses are not included because they depend principally upon the design and choice of the circuit components.



ALL DIMENSIONS IN INCHES



BOTTOM VIEW

DRIVING POWER vs. POWER OUTPUT

The three charts on this page show the relationship of plate efficiency, power output and grid driving power at plate voltages of 1000, 1500 and 2000 volts. These charts show combined grid and bias losses only. The driving power and power output figures do not include circuit losses. The plate dissipation in watts is indicated by P_p .

Points A, B, and C are identical to the typical Class C operating conditions shown on the first page under 1000, 1500, and 2000 volts respectively.

