

E I M A C
 Division of Varian
 S A N C A R L O S
 C A L I F O R N I A

35TG
 HIGH-MU TRIODE
 •
 MODULATOR
 OSCILLATOR
 AMPLIFIER

The EIMAC 35TG is a high-mu triode having a maximum plate dissipation of 50 watts. It is intended for use as an amplifier, oscillator or modulator, and can be used at its maximum ratings at frequencies up to 100 MHz. It is basically the same as the EIMAC 35T except that the grid terminal is located at the side of the bulb.

The 35TG is cooled by radiation and by free circulation of air around the envelope.

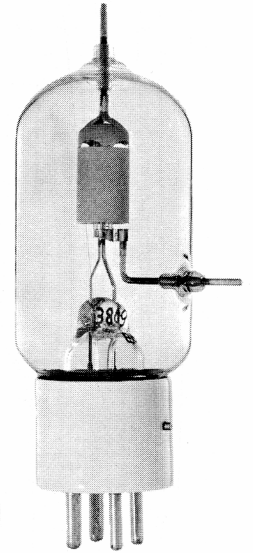
GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated Tungsten	<u>Min.</u>	<u>Nom.</u>	<u>Max.</u>	
Voltage - - - - -		5.0		volts
Current - - - - -	3.6		4.2	amps
Amplification Factor - - - - -	35		43	
Direct Interelectrode Capacitances:				
Grid-Plate - - - - -	1.25		2.05	pF
Grid-Filament - - - - -	2.00		3.20	pF
Plate-Filament - - - - -	0.10		0.35	pF
Transconductance ($I_b = 100$ mA) - - - - -		2850		umhos
Frequency for Maximum Ratings - - - - -			100	MHz

MECHANICAL

Base: UX Medium 4-pin. Fits E. F. Johnson Co. 122-124, or National XC-4 or CIR-4 sockets.	
Basing - - - - -	See outline drawing
Mounting - - - - -	Vertical, base down or up
Cooling - - - - -	Convection and radiation
Recommended Heat Dissipating Plate Connector - - - - -	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



AUDIO-FREQUENCY POWER AMPLIFIER AND MODULATOR

Class AB (Sinusoidal wave, two tubes unless otherwise specified)

MAXIMUM RATINGS

DC Plate Voltage - - - - -	2000	volts
DC Plate Current - - - - -	150	mA
Plate Dissipation - - - - -	50	watts
Grid Dissipation - - - - -	15	watts

TYPICAL OPERATION

DC Plate Voltage - - - - -	600	1000	1500	2000	volts
DC Grid Voltage (approx.)* - - - - -	0	-8	-25	-40	volts
Zero-signal DC Plate Current - - - - -	90	67	45	34	mA
Max-signal DC Plate Current - - - - -	300	240	200	167	mA
Effective Load Plate-to-Plate - - - - -	4250	7900	16,200	27,500	ohms
Peak AF Input Voltage (per tube) - - - - -	130	240	250	255	volts
Peak Driving Power (approx.) - - - - -	18	14	10	8	watts
Nominal Driving Power (app.) - - - - -	9	7	5	4	watts
Max-signal Plate Power Output - - - - -	95	140	200	235	watts

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

Class-C Telegraphy or FM Telephony (Key-down conditions, per tube)¹

MAXIMUM RATINGS

DC Plate Voltage - - - - -	2000	volts
DC Plate Current - - - - -	150	mA
Plate Dissipation - - - - -	50	watts
Grid Dissipation - - - - -	15	watts

TYPICAL OPERATION

DC Plate Voltage - - - - -	1000	1500	2000	volts
DC Grid Voltage - - - - -	-60	-120	-135	volts
DC Plate Current - - - - -	125	125	125	mA
DC Grid Current - - - - -	40	40	45	mA
Peak RF Grid Input Voltage - - - - -	165	250	285	volts
Driving Power (approx.) - - - - -	7	9	13	watts
Grid Dissipation - - - - -	4.2	5.0	6.8	watts
Plate Power Input - - - - -	125	188	250	watts
Plate Dissipation - - - - -	38	47	50	watts
Plate Power Output - - - - -	87	141	200	watts

PLATE MODULATED RADIO FREQUENCY POWER AMPLIFIER

Class-C Telephony (Carrier conditions, per tube)¹

MAXIMUM RATINGS

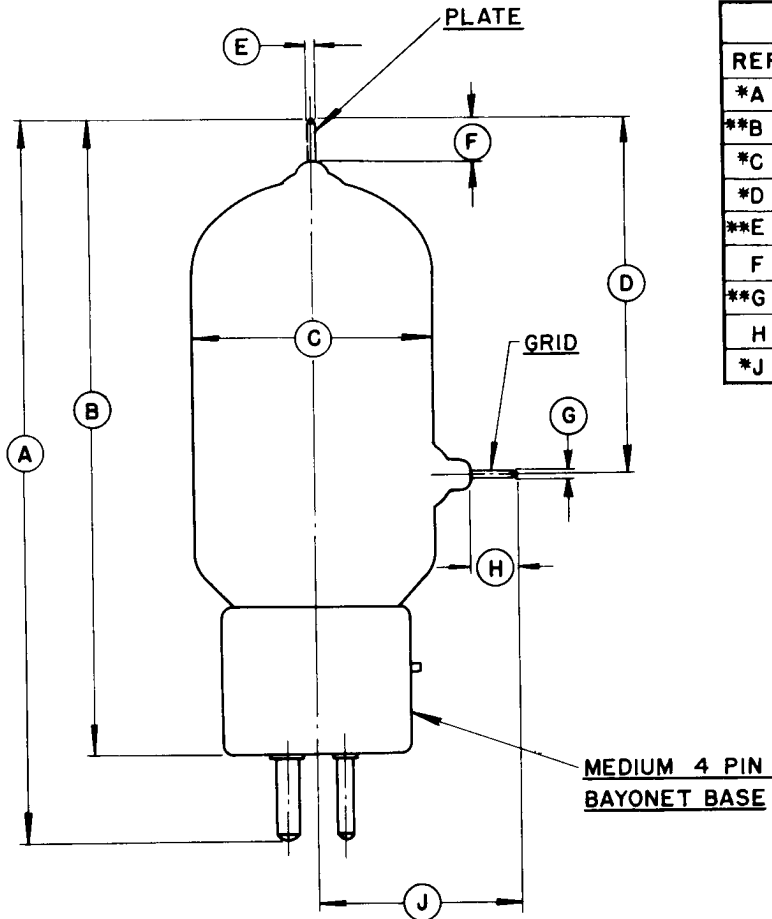
DC Plate Voltage - - - - -	1600	volts
DC Plate Current - - - - -	120	mA
Plate Dissipation - - - - -	33	watts
Grid Dissipation - - - - -	15	watts

TYPICAL OPERATION

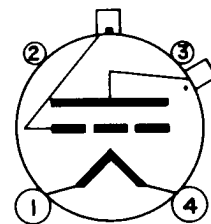
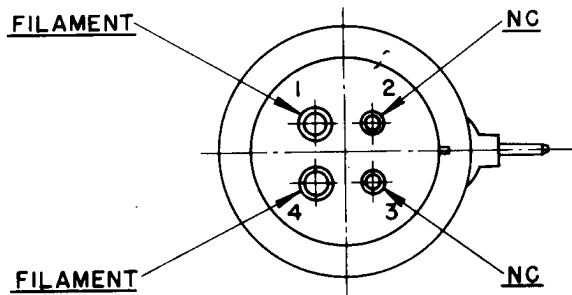
DC Plate Voltage - - - - -	750	1000	1500	volts
DC Grid Voltage - - - - -	-100	-125	-150	volts
DC Plate Current - - - - -	95	100	90	mA
DC Grid Current - - - - -	40	40	40	mA
Peak RF Driving Voltage (approx.) - - - - -	210	240	270	volts
Driving Power (approx.) - - - - -	9	10	11	watts
Plate Dissipation - - - - -	20	25	30	watts
Plate Input - - - - -	70	100	135	watts
Plate Power Output - - - - -	50	75	105	watts

*Adjust for stated zero-signal plate current.

¹ The 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.



DIMENSION DATA			
REF.	NOM.	MIN.	MAX.
*A		5 3/8	5 3/4
**B		4 3/4	5 1/8
*C			1.813
*D		2.060	2.680
**E		.065	.071
F		.312	
**G		.065	.071
H		.312	
*J		1.370	1.630



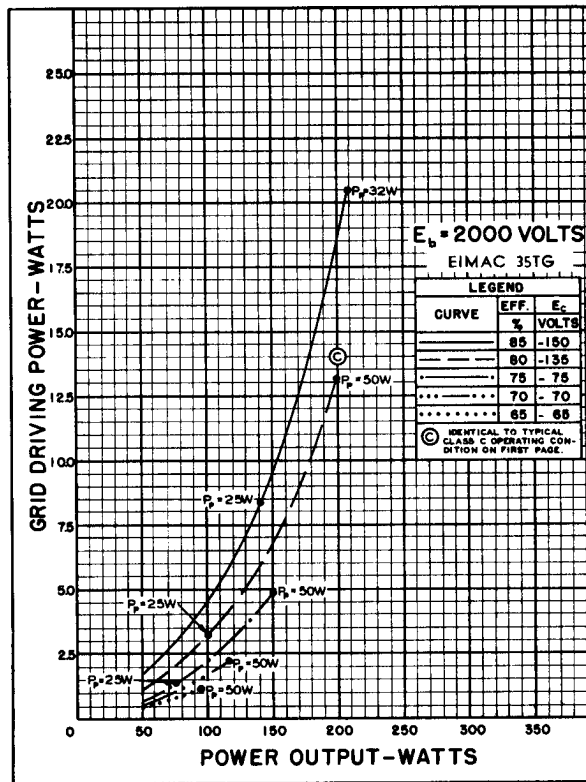
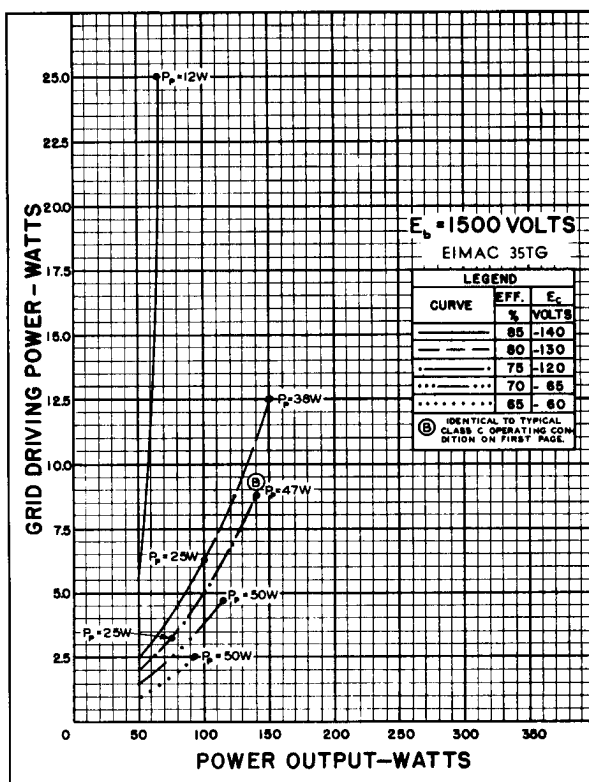
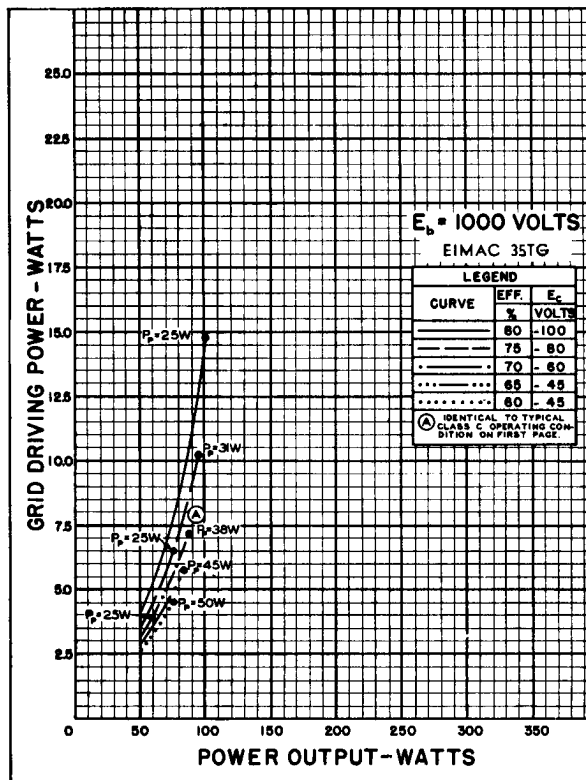
NOTES:

1. DIMENSIONS IN INCHES.
2. *STANDARD DESIGN TESTS & QUALIFICATION TESTS.
3. **QUALIFICATION TESTS.

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.





35TG

EIMAC 35TG TYPICAL CONSTANT CURRENT CHARACTERISTICS

— PLATE CURRENT — AMPERES
- - - GRID CURRENT — AMPERES

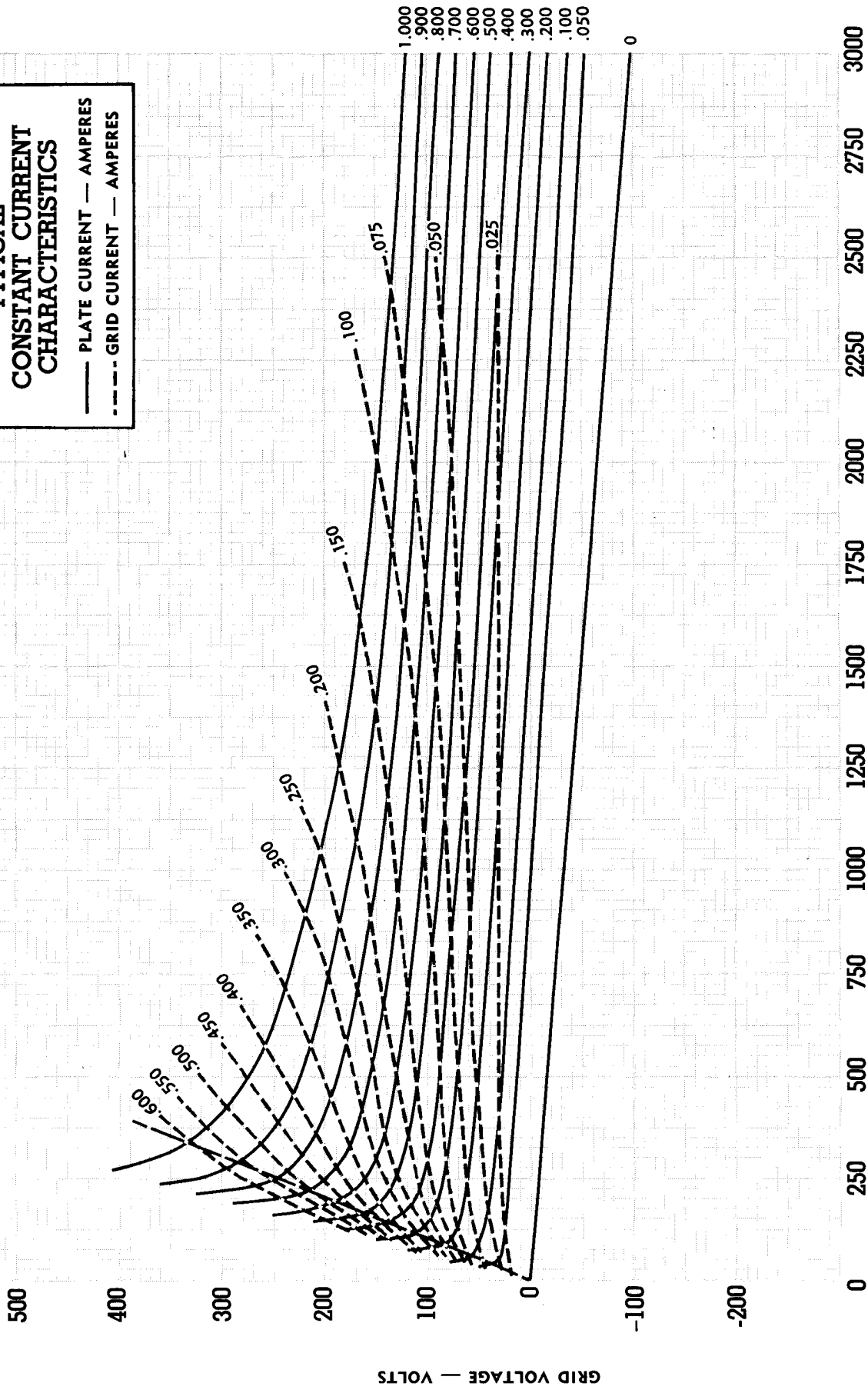


PLATE VOLTAGE — VOLTS

GRID VOLTAGE — VOLTS