

EIMAC
 Division of Varian
 SAN CARLOS
 CALIFORNIA

3C24
 MEDIUM-MU TRIODE
 MODULATOR
 OSCILLATOR
 AMPLIFIER

The Eimac 3C24 is a medium-mu, power triode intended for use as an amplifier, oscillator or modulator. It has a maximum plate dissipation rating of 25 watts and can be operated at its maximum ratings at frequencies up to 60 megacycles.

The 3C24 is cooled by radiation from the plate and by air circulation around the envelope. The plate operates at a visible red color at maximum rated dissipation.

This tube is identical to the 25T except that the grid terminal is located at the side of the envelope instead of the base.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament: Thoriated tungsten	
Voltage	6.3 volts
Current	3.0 amperes
Amplification Factor (Average) - - - - - 24	
Direct Interelectrode Capacitances (Average)	
Grid-Plate	1.6 μmf
Grid-Filament	1.7 μmf
Plate-Filament	0.2 μmf
Transconductance ($i_b = 25 \text{ ma.}, E_b = 1000 \text{ v.}$)	2500 μmhos
Frequency for Maximum Ratings	60 Mc.

MECHANICAL

Base	UX Small 4-pin
Basing - Fits E. F. Johnson Co. No. 122-224, National Co. No. XC-4 or CIR-4, or equivalent socket	
Mounting	Vertical, base down or up
Cooling	Convection and Radiation
Recommended Heat Dissipating Connector:	
Plate	HR-1
Grid	HR-1
Maximum Over-all Dimensions:	
Length	4.38 inches
Diameter	1.44 inches
Net Weight	1.5 ounces
Shipping Weight (Average)	1.0 pound



AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR

Class-B and AB

MAXIMUM RATINGS, PER TUBE

D-C PLATE VOLTAGE	2000 MAX. VOLTS
MAX-SIGNAL D-C PLATE CURRENT	75 MAX. MA.
PLATE DISSIPATION	25 MAX. WATTS
GRID DISSIPATION	7 MAX. WATTS

TYPICAL OPERATION, CLASS AB₂

Sinusoidal wave, two tubes unless otherwise specified			
D-C Plate Voltage	750	1000	1250 Volts
D-C Grid Voltage (approx.)*	-20	-30	-42 Volts
Zero-Signal D-C Plate Current	43	32	24 Ma.
Max-Signal D-C Plate Current	127	127	130 Ma.
Effective Load, Plate-to-Plate	12,000	17,000	21,400 Ohms
Peak A-F Grid Input Voltage (per tube)	110	120	135 Volts
Max-Signal Peak Driving Power	5.5	6.0	6.8 Watts
Max-Signal Nominal Driving Power (approx.)	2.8	3.0	3.4 Watts
Max-Signal Plate Power Output	60	85	112 Watts

*Adjust to give stated zero-signal plate current.

PLATE MODULATED RADIO FREQUENCY AMPLIFIER

Class-C Telephony (Carrier conditions, per tube)

MAXIMUM RATINGS

D-C PLATE VOLTAGE	1600 MAX. VOLTS
D-C PLATE CURRENT	60 MAX. MA.
PLATE DISSIPATION	17 MAX. WATTS
GRID DISSIPATION	7 MAX. WATTS

TYPICAL OPERATION

D-C Plate Voltage	1000	1250	1600 Volts
D-C Plate Current	60	60	53 Ma.
D-C Grid Voltage	-120	-140	-170 Volts
D-C Grid Current	14	13	11 Ma.
Peak R-F Grid Input Voltage	235	255	280 Volts
Driving Power	3.3	3.3	3.1 Watts
Grid Dissipation	1.6	1.5	1.2 Watts
Plate Power Input	60	75	85 Watts
Plate Dissipation	13	15	17 Watts
Plate Power Output	47	60	68 Watts

The above figures show actual measured tube performance and do not allow for variations in circuit losses.

RADIO FREQUENCY POWER AMPLIFIER AND OSCILLATOR

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

MAXIMUM RATINGS

D-C PLATE VOLTAGE	2000 MAX. VOLTS
D-C PLATE CURRENT	75 MAX. MA.
PLATE DISSIPATION	25 MAX. WATTS
GRID DISSIPATION	7 MAX. WATTS

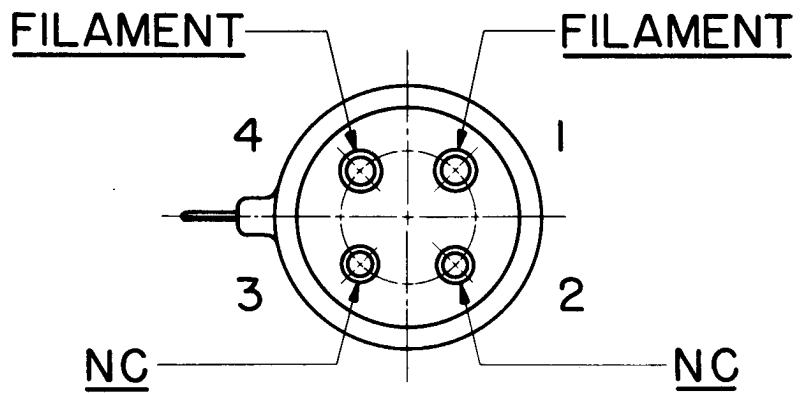
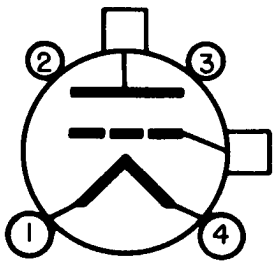
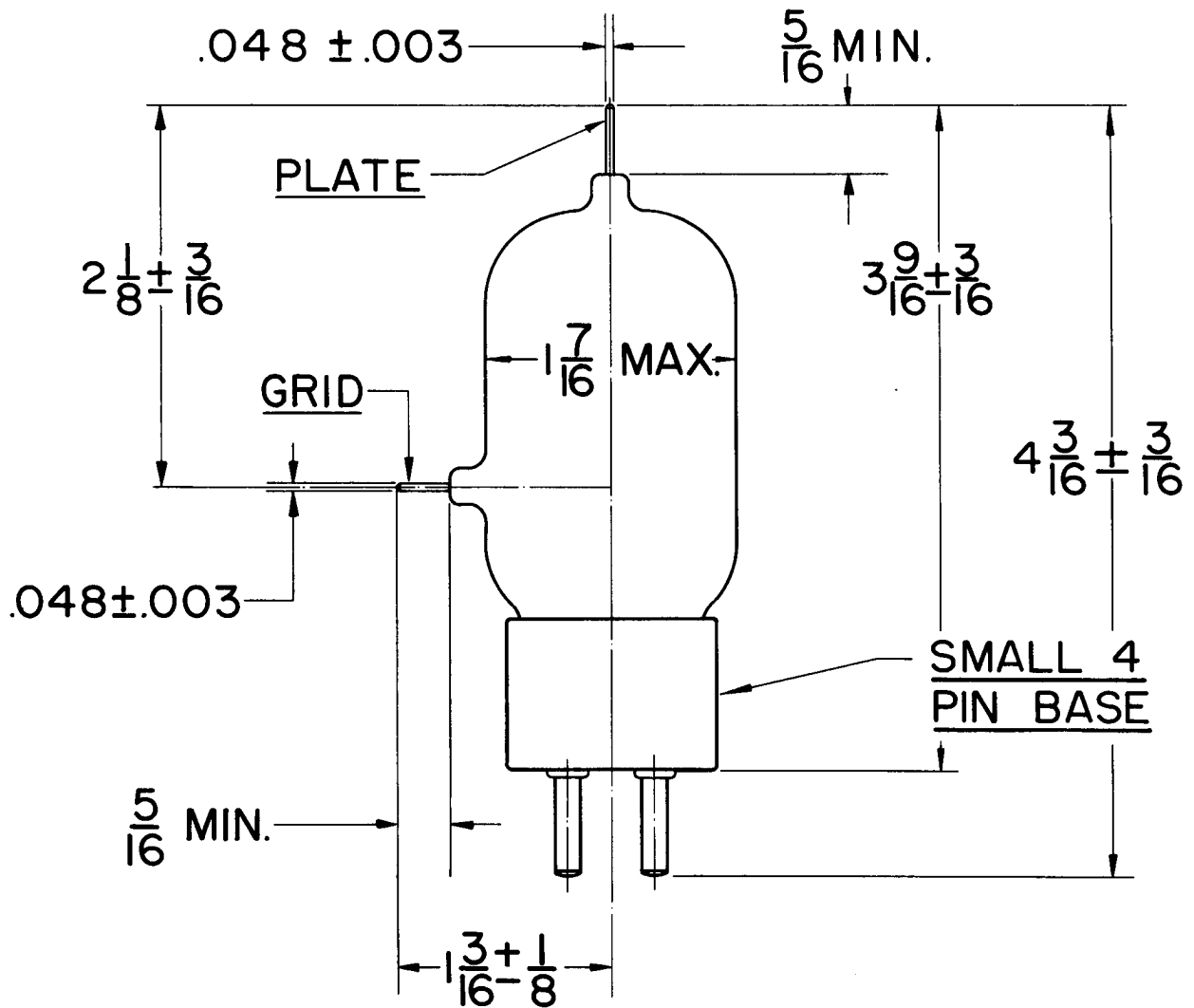
TYPICAL OPERATION

D-C Plate Voltage	1000	1500	2000 Volts
D-C Plate Current	72	67	63 Ma.
D-C Grid Voltage	-70	-95	-130 Volts
D-C Grid Current	9	13	18 Ma.
Peak R-F Grid Input Voltage	170	195	245 Volts
Driving Power	1.3	2.2	4.0 Watts
Grid Dissipation	.9	1.3	2.1 Watts
Plate Power Input	72	100	125 Watts
Plate Dissipation	25	25	25 Watts
Plate Power Output	47	75	100 Watts

The above figures show actual measured tube performance and do not allow for variations in circuit losses.



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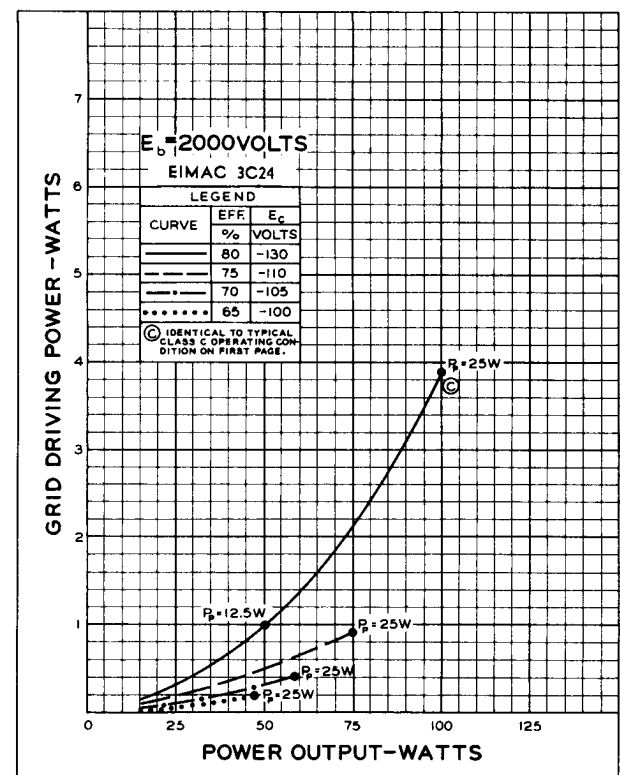
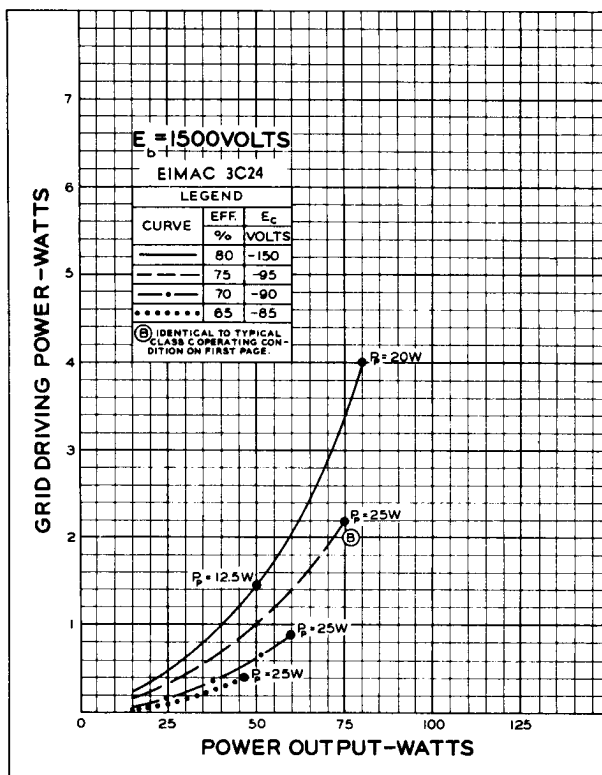
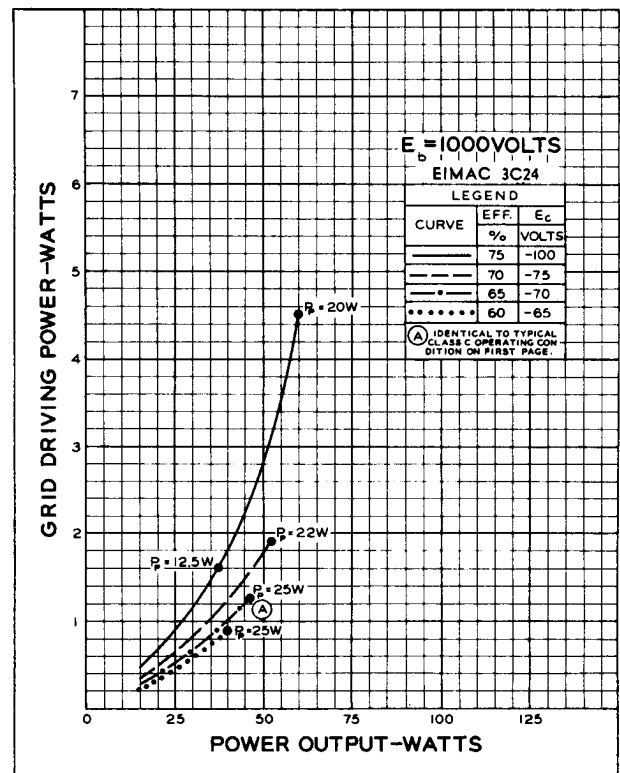


BOTTOM VIEW

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.





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