



E I M A C
Division of Varian
SAN CARLOS
CALIFORNIA

3 C 2 4
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

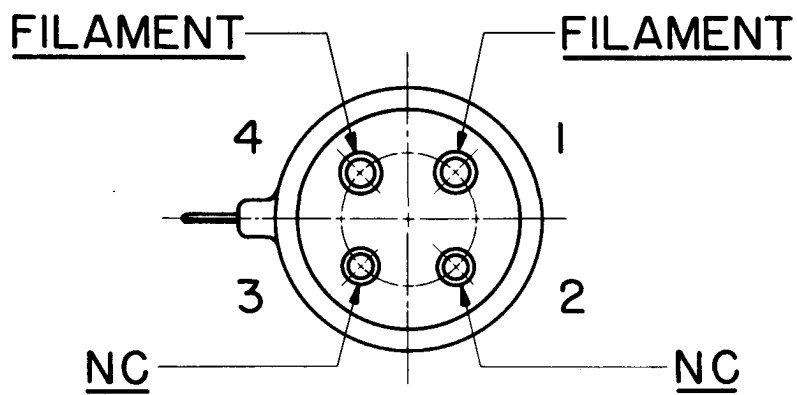
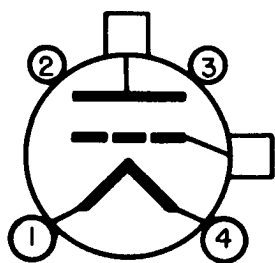
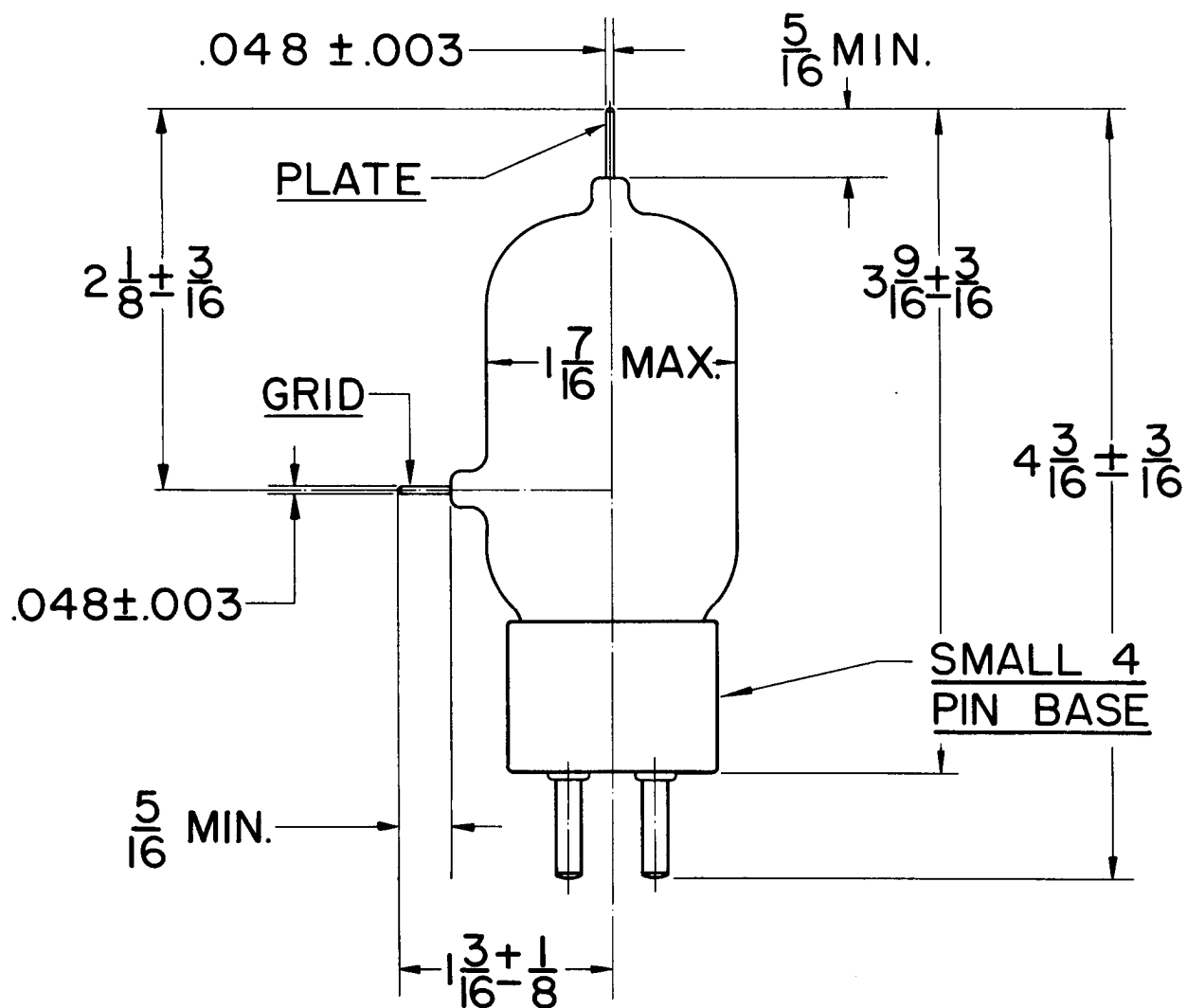
Grid Dissipation - - - - - .9 1.3 2.1 Watts

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.



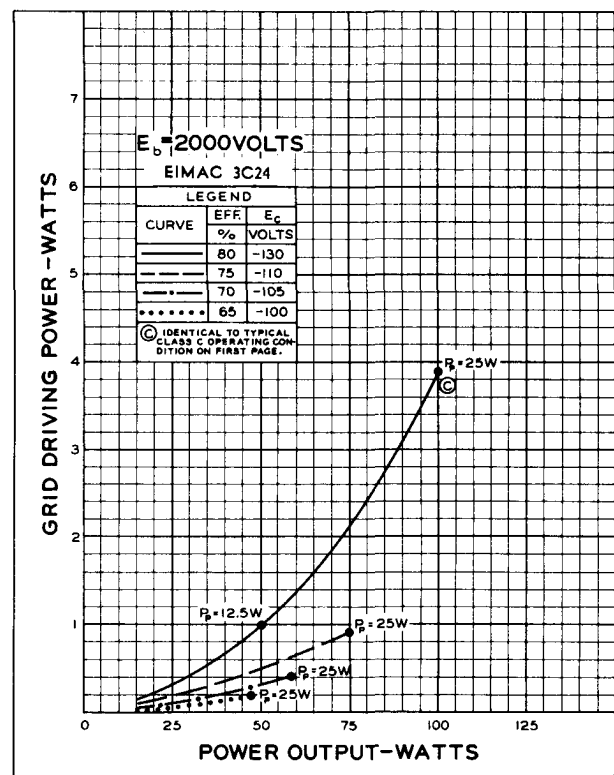
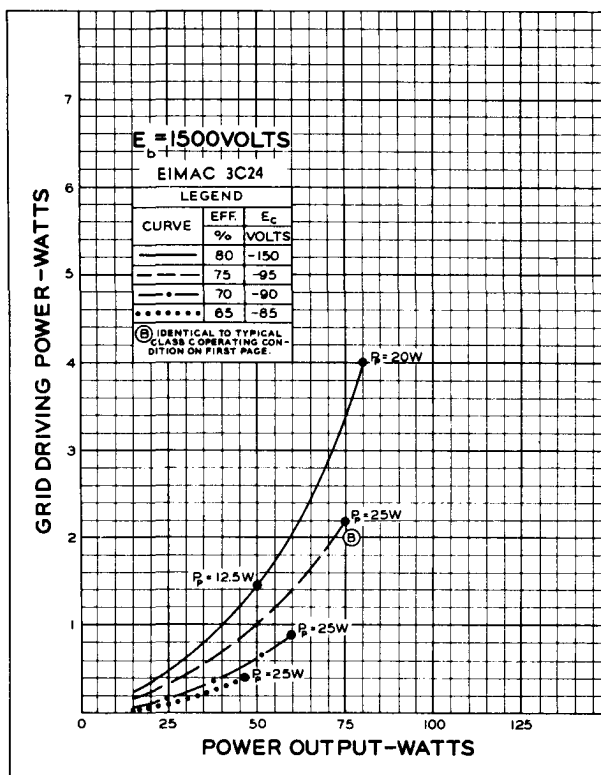
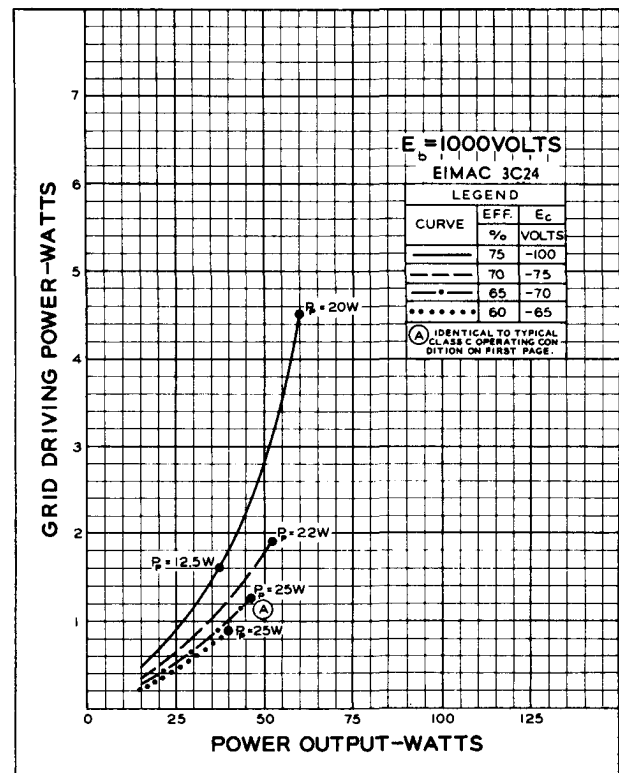
BOTTOM VIEW



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.





3C24

