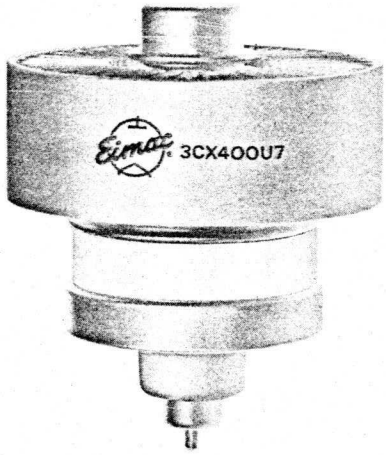
3CX400U7

TECHNICAL DATA

HIGH-MU UHF
TRANSMITTING
TRIODE



The EIMAC 3CX400U7 is designed for use above 200 MHz as a CW, pulse, or linear rf amplifier, particularly in the 806 to 950 MHz portion of the spectrum allocated to land mobile services.

The 3CX400U7 is a high-mu triode designed with beam-forming cathode and control grid geometry, of all metal/ceramic construction, and an external anode rated for 400 watts of dissipation with forced-air cooling.

The combination of an amplification factor of over 200 and minimum current interception by the control grid provides good power gain in cathode-driven (grounded grid) amplifiers. Coaxial terminals and continuous cone-shaped conductors for the grid and cathode allow the lowest possible inductance between these tube elements and the cavity. The heater terminals are separate from the cathode.

200 watts of useful CW rf power may be obtained with better than 33% efficiency, and better than 10 dB of gain. At frequencies near 900 MHz the amplifier circuit may be essentially a quarter-wave radial or rectangular resonator for the anode, and a three-quarter wave coaxial line section between ground and cathode. The amplifier is described in this data sheet. Terminal collets are available and are listed.

GENERAL CHARACTERISTICS[1]

ELECTRICAL

Cathode: Oxide-Coated, Unipotential		
Heater Voltage, Nominal (see derating table for UHF use)	6.3 ± 0.3	V
Heater Current, at 6.3 volts	3.0	A
Cathode-Heater Potential, Maximum	±150	V
Transconductance, average (I_b = 250 mAdc)	29,000	μmhos
Amplification Factor, average	240	
Direct Interelectrode Capacitances (grid grounded)[2]		
Cin	18.4	pF
Cout	6.1	pF
Cpk	0.07	pF
Ck-htr	6.0	pF
Frequency of Maximum Rating:		
CW	1000	MHz

1. Characteristics and operating values are based upon performance tests. These figures may change without notice as the result of additional data or product refinement. EIMAC Division of Varian should be consulted before using this information for final equipment design.
2. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic Industries Association Standard RS-191.

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MECHANICAL

Maximum Operating Temperature:
- Ceramic/Metal Seals and Anode Core ..... 250°C

Cooling ..... Forced Air

Base ..... Special Coaxial

Recommended Contact Collets:

Tube Element	EIMAC Part No.
Inner Heater	008290
Outer Heater	008291
Cathode	008292
Grid	882931
Anode	154418

Maximum Overall Dimensions:
- Length ..... 2.51 in; 63.75 mm
- Diameter ..... 2.08 in; 52.83 mm

Net Weight (approximate) ..... 5.5 oz; 155 gms

RADIO FREQUENCY POWER AMPLIFIER CLASS C TELEGRAPHY OR FM

MAXIMUM RATINGS:

DC PLATE VOLTAGE	1500 VOLTS
DC GRID VOLTAGE	-100 VOLTS
DC PLATE CURRENT	0.400 AMPERE
PLATE DISSIPATION	400 WATTS
GRID DISSIPATION	5 WATTS

TYPICAL OPERATION, Cathode Driven, 850 MHz

Plate Voltage	1500 Vdc
Plate Current	400 mAdc
Grid Current	-5 mAdc
Measured Driving Power	13.0 W
Useful Output Power	225 W
Efficiency	37 %
Power Gain	12 dB

RANGE VALUES FOR EQUIPMENT DESIGN

	Min.	Max.	
Heater Current, at 6.3 volts	2.8	3.4	A
Cathode Warmup Time	60	---	Sec
Interelectrode Capacitances (grid grounded)[1]			
Cin	16.0	21.0	pF
Cout	5.0	7.0	pF
Cpk	---	0.1	pF

1. Capacitance values are for a cold tube as measured in a special shielded fixture in accordance with Electronic Industries Association Standard RS-191.