The Eimac 3K2500LX is a ceramic and metal, three cavity, magnetically focused, power-amplifier klystron designed for use at frequencies between 980 and 1200 megacycles. It will deliver a minimum CW output power of one kilowatt with a power gain of more than 25 db.

The resonant cavities of the 3K2500LX have cylindrical ceramic windows and are completed by tuning boxes external to the tube. This design permits a wide tuning range, and allows repeated tuning cycling without damage to vacuum seals.

An Eimac Klystron Amplifier Circuit Assembly (Catalog Number H-114) has been designed for use with this tube. The klystron must not be operated in any other circuit assembly without design guidance and final approval by Eitel-McCullough, Inc.

CHARACTERISTICS

ELECTRICAL

Cathode: Unipotential, Oxide Coated

Minimum Heating Time 5 minutes

Heater:

Voltage 7.5 volts
Current 5.8 amperes

Maximum Starting Current 15 amperes

Power Gain 25 db

Output Power 1000 watts

Frequency Range 980 to 1200 mc

MECHANICAL

Operating Position* Axis vertical

R-F Coupling:

Type "N" coaxial fitting

Output 1 5/8-inch 50-ohm air line

Cooling (See Application) Forced air

Net Weight 22 pounds

Shipping Weight (Approximate) 80 pounds

Maximum Over-All Dimensions:

Length 25 7/8 inches

Diameter 5 1/8 inches

MAGNETIC-COIL POWER-SUPPLY REQUIREMENTS (Using H-114 Coils)

Prefocus-Coil Voltage 0 to 35 volts
Prefocus-Coil Current 0 to 1.0 ampere
Body-Coil Voltage 0 to 165 volts
Body-Coil Current 0 to 2.5 amperes

* Cathode end up when installed in the Eimac H-114 circuit assembly.

MAXIMUM RATINGS

D-C BEAM VOLTAGE - - - - - - 7000 MAX. VOLTS
D-C BEAM CURRENT - - - - - - 600 MAX. MA
D-C BODY CURRENT (CONTINUOUS) - - - - - - 60 MAX. MA
D-C BODY CURRENT (TUNING ONLY) - - - - - - 90 MAX. MA
D-C FOCUS-ELECTRODE VOLTAGE - - - - - - -100 MAX. VOLTS
COLLECTOR DISSIPATION - - - - - - 2500 MAX. WATTS

TYPICAL OPERATION

NARROW-BAND CW AMPLIFIER (In H-114 Circuit Assembly)

Frequency - - - - - - 1000 1000 megacycles
Output Power - - - - - - 830 1320 watts
Driving Power - - - - - - 2 2 watts
Power Gain - - - - - - 26.1 28.2 db

D-C Beam Voltage - - - - - - 6000 7000 volts
D-C Beam Current - - - - - - 350 455 milliamperes
Beam Input Power - - - - - - 2100 3180 watts
Beam Power Efficiency - - - - - - 39.5 41.4 percent
D-C Body Current - - - - - - 40 30 milliamperes
D-C Collector Current - - - - - - 310 425 milliamperes
Collector Dissipation* - - - - - - 1030 1650 watts
Focus-Electrode Voltage - - - - - - -100 -100 volts
Heater Voltage - - - - - - 7.5 7.5 volts
Heater Current - - - - - - 5.8 5.8 amperes

Magnetic-Coil Currents:*
  Prefocus - - - - - - 0.5 0.5 amperes
  Body - - - - - - 2.0 2.0 amperes

*Approximate values.

APPLICATION

Cooling—When the 3K2500LX is operated at sea level, with an ambient air temperature of less than 30°C (86°F), the cathode will normally require only convection air cooling. At higher altitudes or temperatures, forced-air cooling must be used to maintain the temperature of the metal button at the cathode end of the tube below 150°C.

With a maximum ambient temperature of 25°C (77°F) and at sea level, the air-flow rates tabulated below are sufficient for operation at maximum ratings.

<table>
<thead>
<tr>
<th>Component</th>
<th>Rate</th>
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<tbody>
<tr>
<td>Output and Middle Cavities</td>
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<tr>
<td>Collector</td>
<td>150 cfm</td>
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</table>

At higher temperatures or altitudes, the air-flow rate must be increased to obtain equivalent cooling.

Body cooling is normally provided by the escaping air from the tuning boxes. However, if the ambient air temperature exceeds 30°C, forced air will also be required on the body cooling fins.

Special Applications—If it is desired to operate this tube under conditions not covered by this data sheet or if more information is required, write to the Application Engineering Department, Eitel-McCullough, Inc., San Carlos, California.
KLYSTRON AMPLIFIER CIRCUIT ASSEMBLY
DIMENSION DATA

<table>
<thead>
<tr>
<th>REF</th>
<th>NOM.</th>
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<th>MAX.</th>
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NOTES:
1. MINIMUM CONTACT SURFACES.
2. DIMENSIONS IN INCHES.

3K2500LX
OUTLINE DRAWING

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