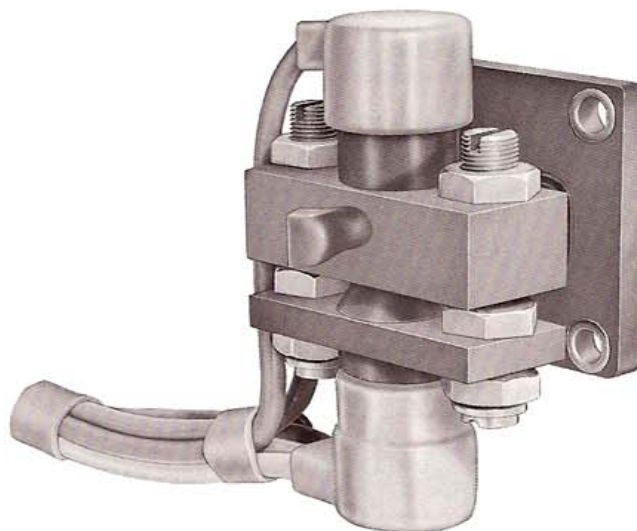


DESCRIPTION

The BL-800A/6316 is a mechanically-tunable, integral-cavity, reflex klystron for use as a low-power oscillator in missile and airborne radar applications, where small size, light weight, and superior frequency stability are required. This tube delivers a CW output of at least 15 milliwatts at any specified frequency between 8.5 to 10.0 gigahertz. It provides excellent overall reliability and long operating life under severe environmental conditions. Life expectancy is in excess of 2000 hours.

MAXIMUM RATINGS¹

Resonator Voltage	350 Vdc
Resonator Current	42 mAdc
Reflector Voltage ²	-1000 Vdc
Tuner-Plate Temperature	200 °C
Altitude	No Limit



GENERAL CHARACTERISTICS³

ELECTRICAL

Frequency Range	8.5 to 10.0 GHz
Power Output, minimum	15 mW
Heater Voltage	6.3 ± 0.6 V
Heater Current, typical	1.18 A

ENVIRONMENTAL

Temperature Coefficient, max TA = -20 to +60 °C, F = 9.3 GHz	100 kHz/°C
Vibration, 50 to 100 Hz, 5 min ..	10 G
Reflector Current, 60 Hz, 10 G, 120 s	10 μAdc
Shock, 4 ms, max	200 G

PHYSICAL

Dimensions	See Outline Drawing
Weight, approximate	8 oz
Mounting Position	Any
Cooling ⁴	Conduction and/or Forced Air
R-F Output Flange	Mates with UG-39/U or UG-40A/U Flange
Supply Connections	Molded flexible leads terminated with a Viking VP5-2AA1 Plug and VS7/23C1 Hood

TYPICAL OPERATING CONDITIONS³

Frequency	10 GHz
Power Output, matched load	25 mW
Resonator Voltage	200 Vdc
Resonator Current	14 mAdc
Reflector Voltage ²	-130 Vdc
Electronic Tuning Range ⁵	35 MHz

RANGE VALUES FOR EQUIPMENT DESIGN⁶

	Min	Max
Resonator Voltage	---	350 Vdc
Resonator Current	20	32 mAdc
Reflector Voltage ²	-75	-240 Vdc
Electronic Tuning Range ⁵ ..	20	---
Heater Current, at 6.3 V ..	1.08	1.32 A

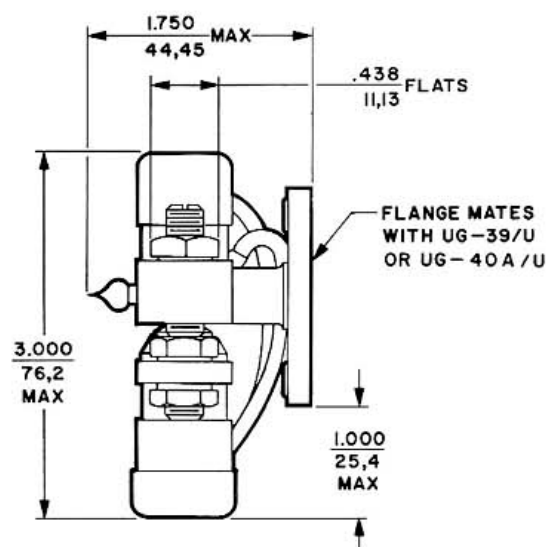
NOTES:

1. Ratings should not be exceeded under continuous or transient conditions. Simultaneous operation at more than one rating may not be possible. Equipment design should limit voltage and environmental variations so that no ratings will ever be exceeded.
2. The reflector must always be at least 20 volts negative with respect to the cathode.
3. Characteristics and operating values are based on performance tests. These figures may change without notice as the result of additional performance data or product refinement. Consult the Varian Eastern Tube

Division, Beverly, Massachusetts, before using this information for equipment design.

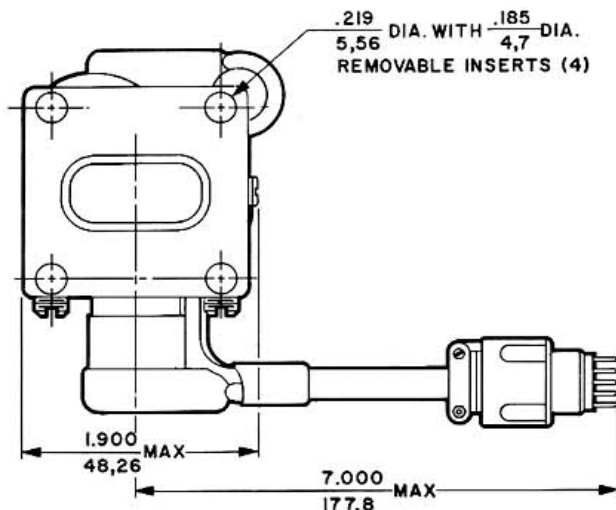
4. The maximum allowable tuner-plate temperature is 200 °C. For optimum tube life and frequency stability, the temperature of the tuner plate should not exceed 125 °C. At resonator power-input levels above 10 watts, auxiliary forced-air cooling is required.
5. The electronic tuning range is measured between the half-power points.
6. These values are acceptance limits for this tube. Equipment design should allow for these variations.

OUTLINE DRAWING



PIN CONNECTIONS		PROJECTION
B YELLOW	HEATER	
A ⊕ WHITE	HEATER	
E ⊕ GREEN	CATHODE	
D GRAY	REFLECTOR	
C BROWN	BODY	

⊕ INTERNALLY CONNECTED



OPERATING HAZARDS

Read the following and take all necessary precautions to protect personnel. Safe operating conditions are the responsibility of the equipment designer and the user.

High Voltage. This tube operates at voltages which can be deadly. Equipment must be designed so personnel cannot come in contact with operating voltages. Enclose high-voltage circuits and terminals and provide fail-safe interlocking switch circuits to open the primary circuits of the power supply and to discharge high-voltage condensers whenever access is required.

Microwave Radiation. Exposure of the human body to microwave radiation in excess of 1 milliwatt per

square centimeter is unsafe and can result in blindness or other injury. Personnel must be fully protected from the microwave energy which radiates from this device. All output r-f connections, waveguide flanges, and gaskets must be r-f leakproof and properly engaged. Never operate this device without a microwave-energy-absorbing load attached. Personnel must be prevented from looking into open waveguides or antennas while such a device is energized. (Ref. Proc. IRE, Vol. 49, No. 2, pp. 427-447, Feb. 1961).

Equipment must be designed to fully safeguard all personnel from these hazards. Labels and caution notices must be provided on equipment and in manuals clearly warning of those hazards which cannot be avoided.