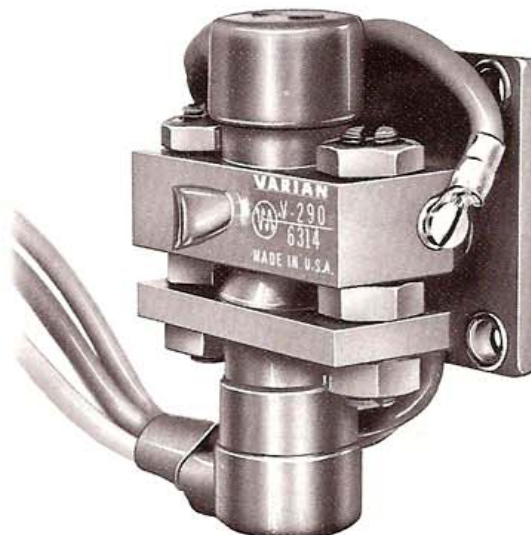


DESCRIPTION

The V-290/6314 is a mechanically-tunable, integral-cavity, reflex klystron for use as a low-power oscillator in missile and airborne radars. This tube delivers a CW output of at least 50 milliwatts over the frequency range of 8.5 to 10.5 gigahertz. It provides exceptional overall reliability and long operating life under extremely severe environmental conditions. Operating life expectancy is in excess of 2000 hours.

MAXIMUM RATINGS¹

Resonator Voltage	385 Vdc
Resonator Current	74 mAdc
Reflector Voltage ²	-1000 Vdc
Tuner Plate Temperature	200 °C



GENERAL CHARACTERISTICS³

ELECTRICAL

Frequency Range	8.5 to 10.5 GHz
Power Output, minimum	50 mW
Heater Voltage	6.3 ± 0.6 V
Heater Current, typical	1.18 A

PHYSICAL

Dimensions	See Outline Drawing
Weight, approximate	8 oz
Mounting Position	Any
Cooling	Forced Air
R-F Output Flange	Mates with UG-39/U
Supply Connections	Molded Flexible Leads

ENVIRONMENTAL

Altitude	No Limit
Temperature Coefficient, max TA = -10 to +40 °C	-200 kHz/°C
Frequency Deviation, max Vibration, 50 to 1000 Hz, 10 G	2 MHz(p-p)
Reflector Current, 60 Hz, 10 G, 120 s	10 μAdc
Shock, 200 G, 1 ms, max	5 MHz

TYPICAL OPERATING CONDITIONS³

Power Output, matched load	90 mW
Resonator Voltage	350 Vdc
Resonator Current	50 mAdc
Reflector Voltage ² F = 8.5 GHz	-90 Vdc
F = 10.0 GHz	-170 Vdc
Reflector Voltage Modulation Coefficient	3 MHz/V
Electronic Tuning Range ⁴	60 MHz

RANGE VALUES FOR EQUIPMENT DESIGN⁵

	Min	Max
Power Output	50	--- mW
Resonator Voltage	---	385 Vdc
Resonator Current	---	74 mAdc
Reflector Voltage ²	-85	-225 Vdc
Reflector Voltage Modulation Coefficient	2	4 MHz/V
Heater Current, at 6.3 V	1.08	1.32 A

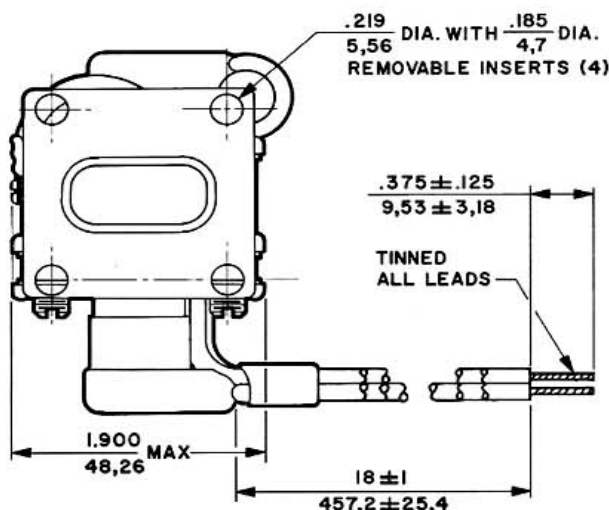
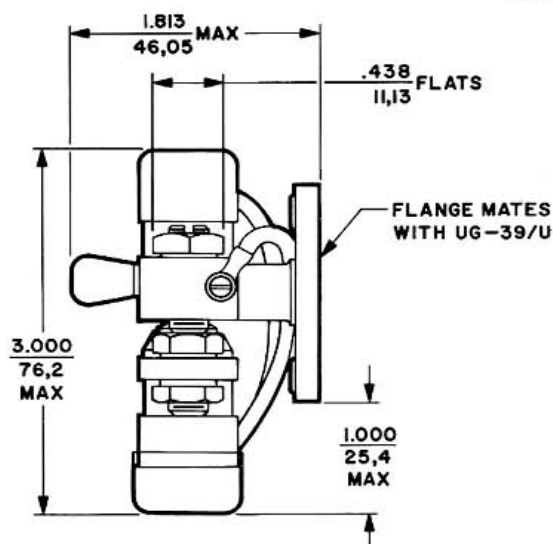
NOTES:

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 with-

out notice as the result of additional performance data or product refinement. Consult the Eastern Tube Division, Beverly, Massachusetts, before using this information for equipment design.

4. The electronic tuning range is measured between the half-power points.
5. These values are acceptance limits for this tube. Equipment design should allow for these variations.

OUTLINE DRAWING



LEAD CONNECTIONS		PROJECTION
YELLOW	HEATER	
⊕ WHITE	HEATER	
⊕ GREEN	CATHODE	
GRAY	REFLECTOR	
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.