

DESCRIPTION

VKE-2408A klystrons are extended-interaction oscillators for use primarily as pump tubes in parametric amplifiers. Each tube delivers a CW output of at least 500 milliwatts over a 1-gigahertz tuning range selected between 70 and 80 gigahertz. These ruggedly-constructed tubes provide high electronic efficiency, excellent frequency stability, and reliable long life.



MAXIMUM RATINGS¹

Beam Voltage	3.1 kVdc
Beam Current	65 mAdc
Anode Voltage ²	±500 Vdc
Heater Voltage	6.5 V
Body Surface Temperature	120 °C

GENERAL CHARACTERISTICS^{3,4}

ELECTRICAL

Frequency Coverage ⁵	70 to 80 GHz
Mechanical Tuning Range, min ..	1 GHz
Power Output, min	500 mW
Heater Voltage	6.3 ± 0.2 V
Heater Current, typical	0.75 A
Frequency/Temperature Coefficient	-1.4 MHz/°C

PHYSICAL

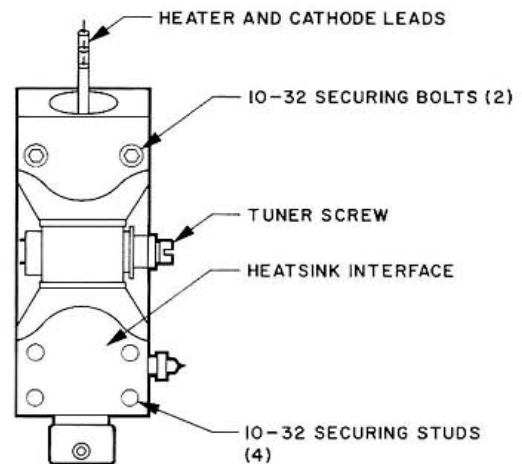
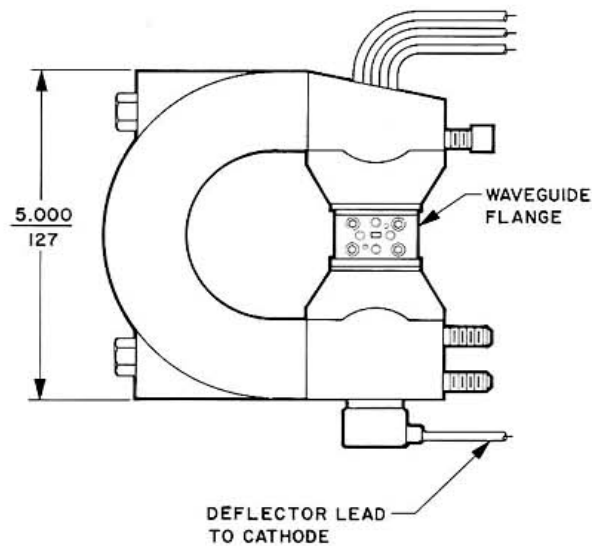
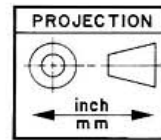
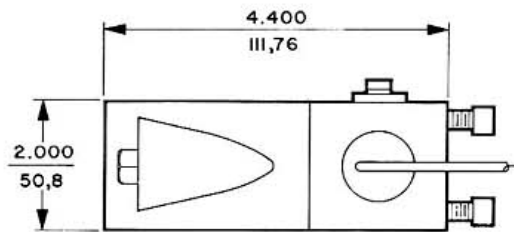
Dimensions	See Outline Drawing
Weight, approximate	7.5 lb
Mounting Position	Any
Cooling ⁶	Conduction
R-F Output ⁷	Mates with UG-385/U Flange
Base	Molded Flexible Leads

TYPICAL OPERATING CONDITIONS⁸

Frequency	75 GHz
Mechanical Tuning Range	±600 MHz
Power Output, matched load	700 mW
Power Output, optimized	1 W
Electronic Tuning Range ⁹	150 MHz
Beam Voltage	2.5 kVdc
Beam Current	50 mAdc
Anode Voltage ²	0 Vdc
Anode Current	0 mAdc

RANGE VALUES FOR EQUIPMENT DESIGN¹⁰

	Min	Max
Beam Voltage	2.4	3.0 kVdc
Beam Current	---	65 mAdc
Anode Voltage ²	---	±500 Vdc
Anode Current	---	3 mAdc
Electronic Tuning Range ⁹ ...	100	--- MHz
Heater Current, at 6.3 V ...	0.6	1.0 A

OUTLINE DRAWING¹⁰

NOTES:

1. Ratings should not be exceeded under continuous or transient conditions. A single rating may be the limitation and simultaneous operation at more than one rating may not be possible. Equipment design should limit voltage and environmental variations so that the ratings will never be exceeded.
2. Measured with respect to the tube body. The anode may be used to modulate or control power output. The tube must be connected so that the potential difference between the anode and body will never exceed 500 volts.
3. Characteristic and operating values are based on performance tests. These figures may change without notice as a result of additional performance data or product refinement. Consult Varian Associates of Canada, Ltd., before using this information for equipment design.
4. A power supply is available for use with these extended-interaction oscillator tubes. It provides all necessary voltages with good stability and reliability.
5. When ordering, specify the center frequency or frequency range desired.
6. Tubes designed for convection cooling are available upon request.
7. Adapters are available to allow the tube to mate with other flange and waveguide combinations.
8. Measured between half-power points.
9. These values are acceptance limits for VKE-2408A series tubes. Equipment design should allow for these variations.
10. Deflector electrode must be connected directly to the cathode.