



varian
palo alto tube division

TECHNICAL DATA

1K75CK/8199

REFLEX KLYSTRON

4.3 GHz
250 mW

DESCRIPTION

The 1K75CK/8199 is a low-noise reflex klystron oscillator for use in altimeter applications at a fixed frequency of 4300 ± 50 megahertz. This sturdy, lightweight tube provides a CW output of at least 250 milliwatts when operating into an

approximate load VSWR of 1.15:1, even under severe conditions of shock, vibration, and acceleration. Cooling is normally achieved by heat conduction through the output flange.

MAXIMUM RATINGS¹

Resonator Voltage	900 Vdc
Resonator Current	100 mAdc
Resonator Dissipation	75 W
Reflector Voltage ²	-500 Vdc
Heater to Cathode Voltage	± 45 V
Heat Sink Temperature	125 °C

GENERAL CHARACTERISTICS³

ELECTRICAL

Frequency	4.3 ± 0.05 GHz
Power Output, minimum	250 mW
Heater Voltage	6.3 ± 0.3 V
Heater Current	1.0 to 1.5 A
Heater Warm-up Time	60 s

PHYSICAL

Dimensions	See Outline Drawing
Weight, approximate	8 oz
Operating Position	Any
Mounting	Special Waveguide Flange
Cooling ⁴	Conduction and Convection

ENVIRONMENTAL

Altitude, maximum	No limit
Shock, non-operating, maximum 11 ms duration	30 G
Vibration, operating, maximum 20-2000 Hz ⁵	10 G

TYPICAL OPERATING CONDITIONS³

Frequency	4.3 GHz
Power Output	250 mW
Resonator Voltage	500 Vdc
Resonator Current	35 mA
Reflector Voltage ²	-130 Vdc
Electronic Tuning Range, 3-dB	60 MHz
Modulation Sensitivity, ΔE_r of ± 5 V	1.6 MHz/V
Residual FM	40 kHz

NOTES:

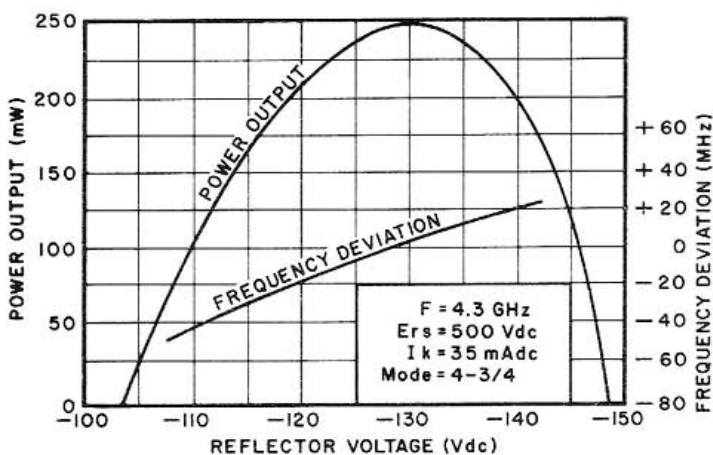
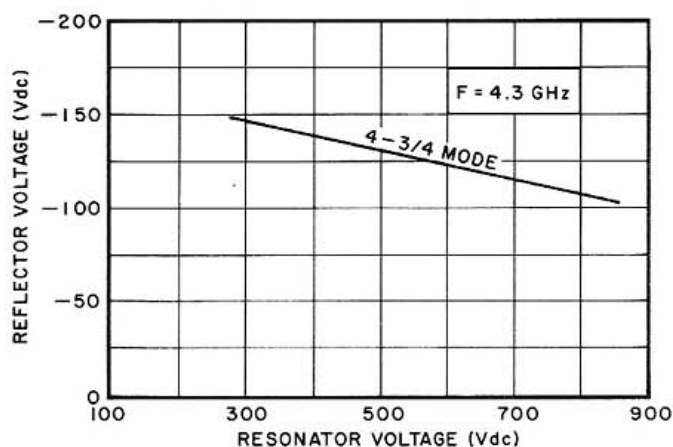
1. Ratings should not be exceeded under continuous or transient conditions. A single rating may be the limitation and simultaneous operation at more than one rating may damage the tube. Equipment design should limit voltage and environmental variations so that the ratings will never be exceeded.
2. Reflector must always be negative with respect to the cathode.
3. Characteristics and operating values are based on performance tests. These figures may change without notice as a result of additional performance data or product refinement. Varian Palo Alto Tube Division

should be consulted before using this information for equipment design.

4. At sea level, these tubes require no auxiliary cooling when operated at their maximum rated dissipation with heat-sink and ambient temperatures less than 125°C. The waveguide flange will normally provide the heat sink convection needs for conduction cooling. If an insulator is used between the tube and waveguide or chassis, forced-air cooling may be required to maintain the ceramic-to-metal seal temperature below 175°C.
5. Based on maximum peak-to-peak frequency deviation of 100 kilohertz.

CHARACTERISTIC CURVES

Typical performance values



OUTLINE DRAWING

PROJECTION	LEAD CONNECTIONS	
	WHITE	HEATER
	WHITE	HEATER
	BLACK	CATHODE
	RED	REFLECTOR

