



EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

PRELIMINARY DATA

1K125CA

**C-BAND
REFLEX KLYSTRON**

TYPICAL PERFORMANCE

ELECTRICAL PERFORMANCE

| | |
|---|---------------------|
| Frequency Range - - | 3.7 to 4.4 Gc |
| Mechanically Tunable | 700 Mc |
| Power Output - - - | 1.25 W min |
| Electronic Tuning Range (3 db bandwidth) - | 25 Mc min |
| Resonator Voltage - | 1000 Vdc |
| Cathode Current - - | 80 mAdc |
| Repeller Voltage - - | -400 Vdc |
| Modulation Sensitivity | 250 to 550 Kc/v |
| Heater Voltage - - | 6.3 V(ac or dc) ±5% |
| Heater Current - - - | 1.5 A max |
| Mode - - - - - | 2-3/4 |
| VSWR of Load - - - | 1.15:1 |
| Temperature Coefficient | ±75 Kc/°C |
| Warm-up Time - - - | 120 seconds |

MAXIMUM RATINGS

| | |
|--|------------------|
| Resonator Voltage - - - - - | 1200 Vdc |
| Cathode Current - - - - - | 110 mA |
| Repeller Voltage (negative with respect to the cathode) - - - | -100 to -750 Vdc |

Note: Damage to the tube may occur if the maximum ratings are exceeded.

MECHANICAL

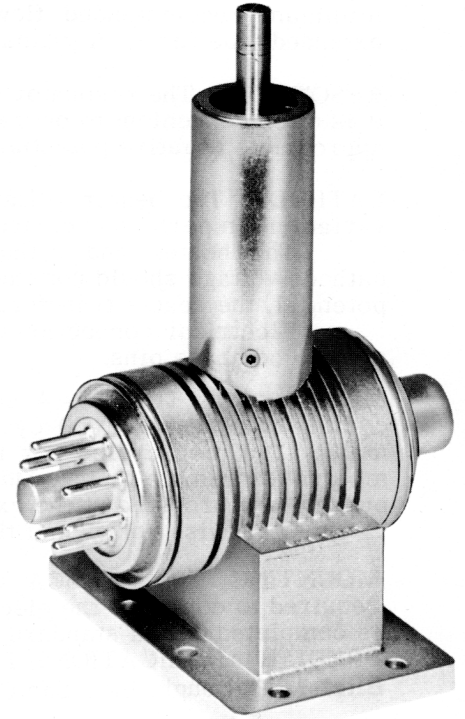
| | |
|-----------------------------------|---------------------------|
| Operating Position - - - - - | any |
| Electrical Connection - - - - - | Octal Socket |
| RF Output Coupling - - - - - | -CMR 187 waveguide flange |
| Cooling Required - - - - - | 10 cfm @ sea level |
| Net Weight - - - - - | 19 ounces |
| Shipping Weight (approximate) - - | 5 pounds |

ENVIRONMENTAL PERFORMANCE

| | |
|-------------------------------|----------------|
| Temperature Range (Ambient) - | -25 to +65 C |
| Altitude - - - - - | 10,000 ft. max |
| Vibration - - - - - | 10 G, 40 cps |
| Shock - - - - - | 10 G, 1 ms |

OUTLINE DIMENSIONS

| | |
|------------------|-----------|
| Height - - - - - | 4.700 max |
| Width - - - - - | 2.797 max |
| Length - - - - - | 3.450 max |





APPLICATION NOTES

NOTE: All voltages are referred to the cathode.

COOLING: At sea level, with an ambient temperature of 50° Centigrade, a minimum air-flow rate of 10 CFM, directed over the klystron body, is required to adequately cool the tube when operated at maximum ratings.

For conditions other than the above, the criterion for proper cooling is to maintain the klystron ceramic-to-metal seal temperatures below 175° Centigrade. Cooling in excess of the minimum recommended flow rate will result in longer tube life and more stable operation. If extended tube life is of primary concern, the body temperature should not exceed 100° Centigrade.

RESONATOR: The resonator of the 1K125CA is integral with the body of the tube. For this reason, it is often convenient to operate the resonator at chassis potential, with the repeller and cathode at appropriate negative potentials.

CATHODE: The heater voltage should be maintained within ±5% of the rated value of 6.3 volts if variations in performance are to be minimized and best tube life obtained.

The heater and cathode of the 1K125CA are not internally connected and the heater-to-cathode voltage should not exceed ±45 volts. When the resonator of this tube is operated at chassis potential, the heater transformer must be insulated for the cathode-to-resonator voltage.

Electrical connection to the cathode of this tube should be completed by utilizing all four of the cathode base pins.

MECHANICAL TUNING: A screw-driven bellows, coupled to a ceramic-slug tuner, allows tuning cycling in excess of 1000 cycles without damage to the vacuum seals. The tuning rate of approximately 100 megacycles per turn and the low tuner starting-torque permits the use of miniature motors for remote tuning. Mechanical stops, capable of withstanding a maximum torque of 10 inch-ounces, are provided at the extremes of the tuning range to prevent damage to the tube.

Clockwise rotation of the tuner-shaft produces an increase in frequency.

MOUNTING: The 1K125CA should be mounted by the output-waveguide flange. An octal socket is required to complete the electrical connections to the heater and cathode. The repeller connection is completed with a standard medium cap connector.

SPECIAL APPLICATIONS: For additional information regarding any specific application, write to Eitel-McCullough, Inc., San Carlos, California. All such requests will be handled confidentially.

