

EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

TENTATIVE DATA

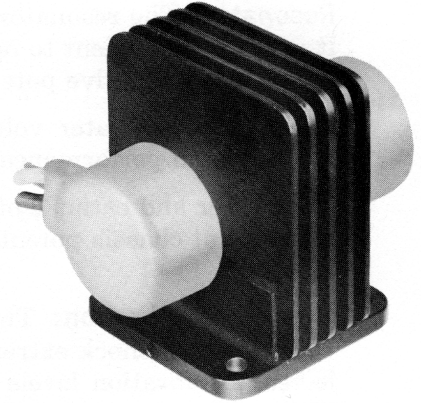
X1117

X BAND
REFLEX KLYSTRON

TYPICAL PERFORMANCE

ELECTRICAL PERFORMANCE

| | |
|--|-------------------------------|
| Frequency range | 11.2 to 11.7 Gc |
| Mechanically tunable | 500 Mc |
| Power output | 1 W min. |
| Electronic tuning range (3 db bandwidth) | 40 Mc min. |
| Resonator voltage | 750 Vdc |
| Cathode current | 90 mA max. |
| Repeller voltage | -300 Vdc |
| Modulation sensitivity | 1.5 Mc/V max. |
| Heater voltage | 6.3 V (ac or dc) ±5% |
| Heater current | 1.3 A max. |
| Mode | 3 ³ / ₄ |
| VSWR of load | 1.2:1 max. |
| Temperature coefficient | ±100 Kc/°C |
| Warm-up time | 30 sec. |



MAXIMUM RATINGS

| | |
|----------------------------------|------------------|
| Resonator voltage | 900 Vdc |
| Cathode current | 110 mA |
| Repeller voltage: | |
| Negative with respect to cathode | -50 to -1000 Vdc |

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

MECHANICAL

| | |
|-------------------------------|-------------------------|
| Operating position | any |
| Electrical connections | flexible leads |
| RF output coupling | WR-75 wave-guide flange |
| Cooling required | conduction & convection |
| Net weight | 6 oz. |
| Shipping weight (approximate) | 4 lbs. |

ENVIRONMENTAL PERFORMANCE

| | |
|-------------------|----------------------|
| Temperature range | -50 to +100 °C |
| Altitude | 100,000 ft. max. |
| Vibration | 10G, 20 to 2000 cps. |
| Shock | 40G, 11 ms |

OUTLINE DIMENSIONS

| | |
|--------|---------|
| Height | 1.6 in. |
| Width | 1.6 in. |
| Length | 2.1 in. |

APPLICATION

NOTE: All voltages referred to cathode.

Cooling: The X1117 may be cooled by conduction if the connecting waveguide flange provides an adequate heat-sink to maintain the tube body temperature below the maximum rating of 150° Centigrade. At high ambient temperatures, forced air cooling may be required to operate within this rating. For maximum tube life, the tube body temperature should be less than 100° Centigrade. Normal operating conditions will require convection cooling to maintain desired body temperatures.

Resonator: The resonator of the X1117 is integral with the body of the klystron. 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 with $\pm 5\%$ 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 X1117 are internally connected. When the resonator of this tube is operated at chassis potential, the heater transformer must be insulated for the cathode-to-resonator voltage.

Shock and Vibration: This klystron is specifically designed for use in applications encountering vibration and shock extremes. This tube is capable of delivering its rated power output when subjected to vibration levels of 10g (20-2000 cps) or shock of up to 40g (11 milliseconds duration.) With a vibration level of 10g in any reference plane, the peak-to-peak FM deviation will be less than 100 kilocycles.

