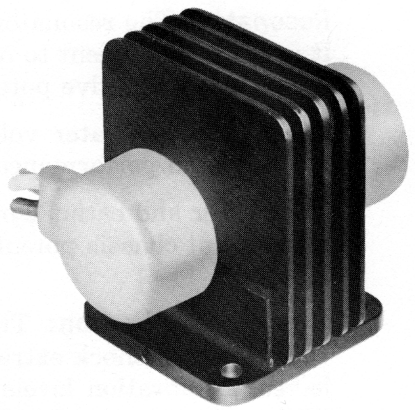
EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

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	3¾
VSWR of load	1.2:1 max.
Temperature coefficient	±100 Kc/°C
Warm-up time	30 sec.
[redacted]	[redacted]

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.

(EFFECTIVE 4-1-64) PRINTED IN U.S.A.

APPLICATION

NOTE: All voltages referred to cathode.

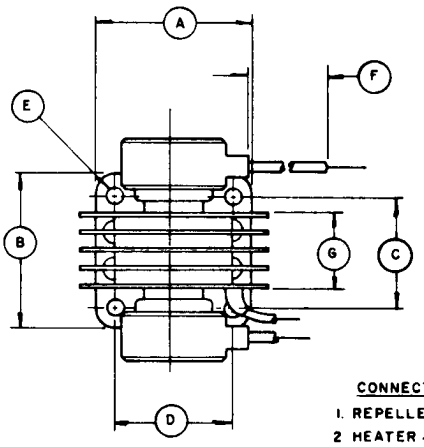
Cooling: The X1117 may be cooled by conduction if the connecting waveguide flange provides an adequate heat-sink to maintain the tube body temperature below the maximum rating of 150° Centigrade. At high ambient temperatures, forced air cooling may be required to operate within this rating. For maximum 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 ±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.



DIMENSIONS IN INCHES

DIMENSIONAL DATA			
REF.	MIN.	MAX.	NOM
A			1.500
B			1.500
C	1.118	1.126	
D	1.036	1.044	
E	.143 D	.148D.	
F	12±1 TYP. LEAD LENGTH		
G			.650
H			1.600
J		2.100	
K		1.600	
L			.125
M		.532	

CONNECTIONS

1. REPELLER - GREY
2. HEATER - YELLOW
3. CATHODE - GREEN
4. HEATER CATHODE - WHITE
5. GROUND - BROWN