



**E I M A C**  
 Division of Varian  
 S A N C A R L O S  
 C A L I F O R N I A

**EM-1059A**  
 TRAVELING WAVE TUBE  
 4.0-8.0 GHz  
 2.0 W C.W. Min.  
 35 dB Min. S.S.G.

The EM1059A is one of a family of ruggedized ceramic and metal traveling wave tubes designed to work under severe environmental extremes of shock, vibration, altitude, and temperature. These tubes are focussed by a fully temperature compensated periodic permanent magnet array. Typical applications are as ECM drivers and radar augmenters, and in airborne radar, communications, and special test equipment.

**FEATURES**

- Small Size
- Light Weight
- Metal-Ceramic Construction
- PPM Focusing
- High Gain
- High Efficiency
- Broadband Operation
- Versatile Operation
- Conduction Cooling



**GENERAL CHARACTERISTICS**

**PERFORMANCE**

Frequency Range .....	4.0-8.0 GHz
Saturated Power Output (Min) .....	2.0 W
(Typical) .....	4.0 W
Small Signal Gain (Min) .....	35 dB *
(Typical) .....	36 dB
Saturated Gain (Min) .....	32 dB *
(Typical) .....	33 dB
Output VSWR (Max) .....	2.5 : 1
Input VSWR (Max) .....	2.5 : 1
Impedance (Nominal) .....	50Ω
Noise Figure (Max) .....	34 dB
(Typical) .....	30 dB

\* Improved gain/frequency characteristics can be achieved using equalizers. This detail is available upon request.

NOTE: These data may be used for prototype design purposes. Before establishing production design specifications, contact the nearest Varian Sales Office or Microwave Product Manager, EIMAC Division of Varian, 301 Industrial Way, San Carlos, Calif. 94070

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**ELECTRICAL**

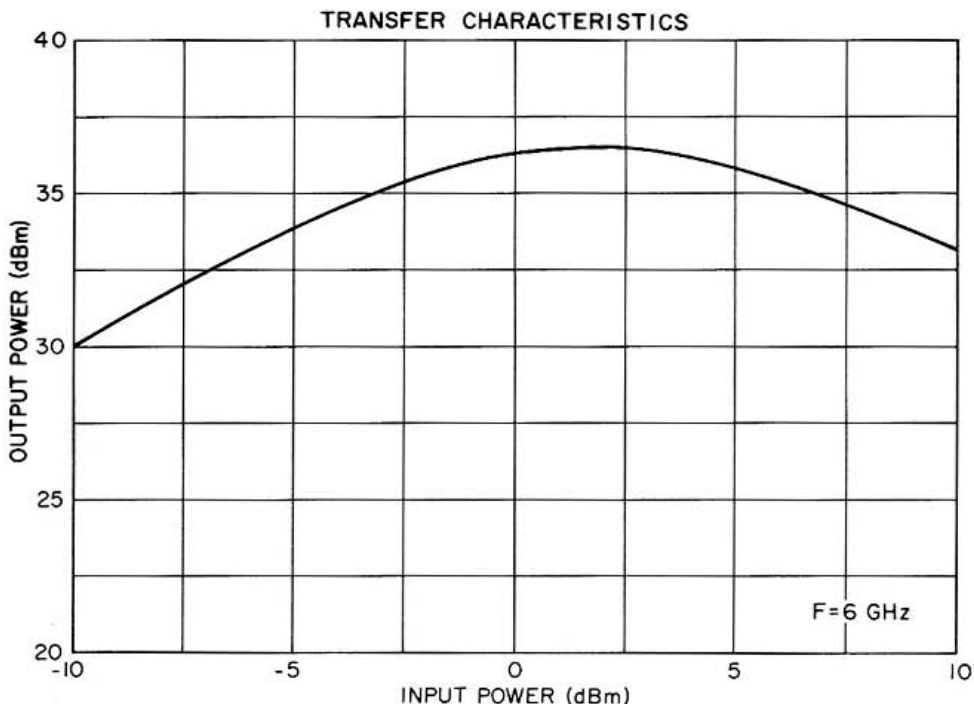
	<i>Min.</i>	<i>Max.</i>	<i>Units</i>
Cathode Voltage .....	-2300	-2600	V
Cathode Current .....		32	mA
Focus Electrode Voltage .....	0	+10	V (Ref to Cath)
Focus Electrode Current .....		1	mA
Helix Voltage.....	GND		ground
Collector Voltage.....	GND		ground
Heater Voltage (Nominal).....	6.3		V
Heater Current (Nominal).....	0.45		A

**ENVIRONMENT**

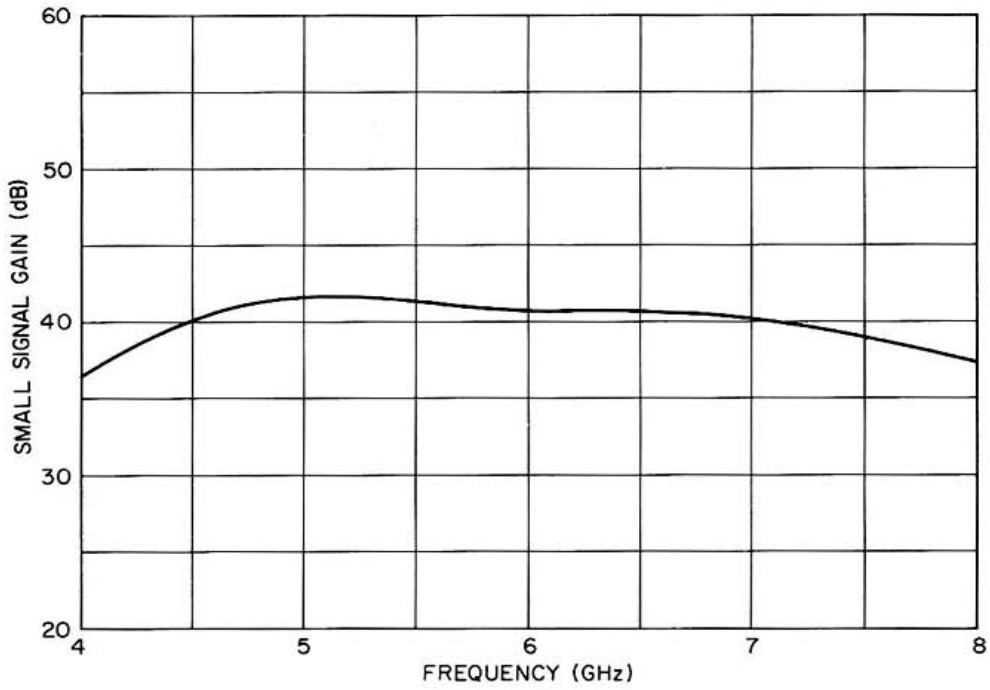
Vibration ..... 10G, to 2000 cps  
 Shock..... 25G, 11 ms  
 Acceleration ..... 25G, sustained  
 Temperature ..... -54°C to 85°C  
 Altitude (unpressurized)..... to 70,000 ft

**MECHANICAL**

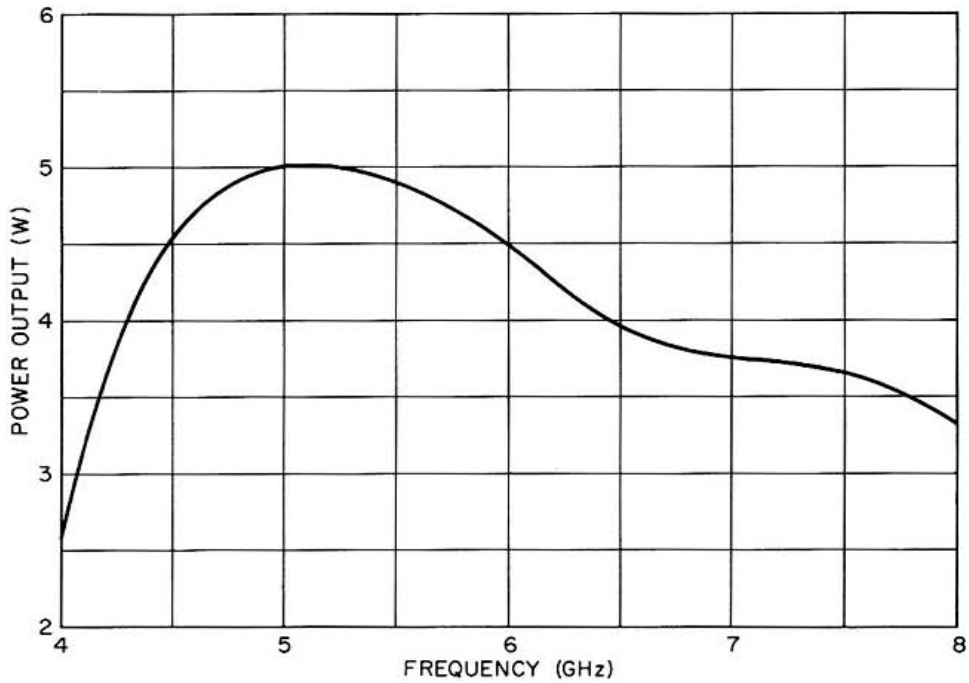
Length..... 14.15 in.  
 Width ..... 1.78 in.  
 Height (excluding RF connectors)..... 2.00 in.  
 Weight..... 3.5 lb  
 Cooling ..... Conduction  
 D.C. Connections ..... Flying Leads  
 RF Connectors ..... TNC  
 Mounting Position..... Any



### GAIN CHARACTERISTICS

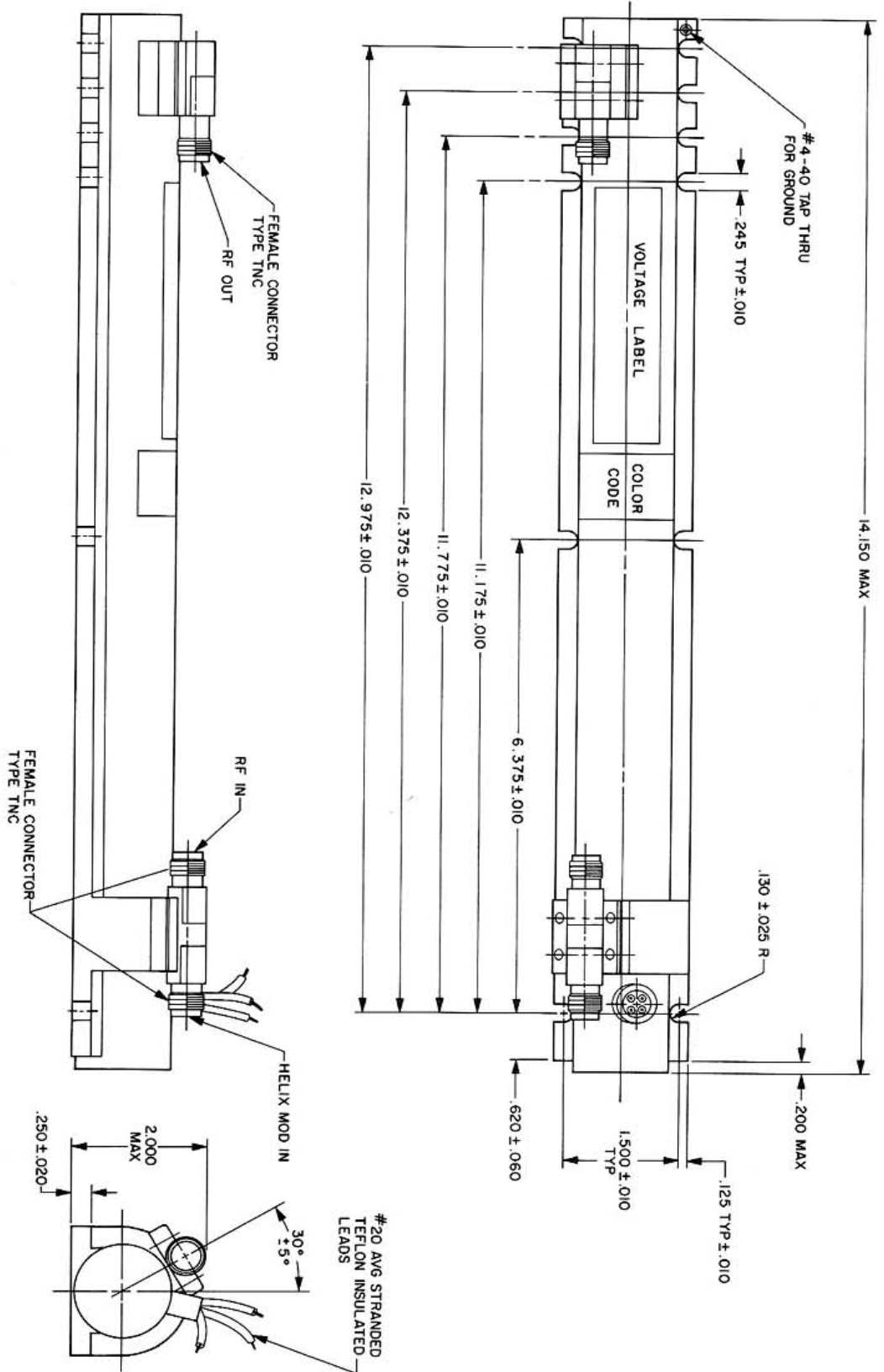


### POWER OUTPUT CHARACTERISTICS





EM-1059A



LEAD	ELEMENT
BROWN	HEATER
YELLOW	HEATER CATHODE
BLUE	ANODE