



engineering data service

6493

MECHANICAL DATA

Envelope	Metal Capsule
Power Connector	Winchester PM6P1
RF Connectors	Type N Jack1
Focusing	Electromagnetic Solenoid Required
Cooling ²	Forced Air
Mounting Position	Any
Tube Weight (Approx.)	1 lb
Solenoid Weight (Approx.):	
Military (Aluminum foil-wound)	7 lbs
Non-Military (Copper wire-wound)	18 lbs

QUICK REFERENCE DATA

Traveling-wave Amplifier
Full Octave Coverage
2.0 to 4.0 Gc
Over 10 mW Power Output
Over 35 db Small Signal
Gain
CW or Pulsed
Suitable for Airborne
Applications

ELECTRICAL DATA³

HEATER CHARACTERISTICS

Voltage	6.3 ± 10% V
Current (at 6.3 V)	0.64 - 0.96 A
Minimum Preheat Time	1 Minute.

RATINGS (Absolute Maximum)

Helix, Collector Voltage	510 Vdc
Grid 1 Voltage	0 to -175 Vdc
Grid 2 Voltage	510 Vdc
Cathode Current	5 mAdc
CW RF Input	1 W

TYPICAL OPERATION⁴Conditions

Frequency	2.0 to 4.0 Gc
Magnetic Focusing Field Density	285 Gauss
Minimum Uniform Length	11 Inches
Helix, Collector Voltage (Approx.) ⁵	450 Vdc
Grid 1 Voltage	0 Vdc
Voltage to Gate-Off (55 db Insertion Loss)	-80 Vdc
Grid 2 Voltage (Approx.) ⁵	300 Vdc

Characteristics

	Min.	Max.	
Cathode Current	-	4.5	mAdc
Grid 1 Current	-	0.3	mAdc
Grid 2 Current	-	0.2	mAdc
Small Signal Gain (-40 dbm Input)	35	45	db
Small Signal Gain Variation	-	±3	db
Fine-Grain Variation of Gain			
for any 100-Mc Segment	-	±2	db
Noise Power Output ⁶	-	0.03	mW
Saturation Power Output	10	-	mW

CIRCUIT DESIGN INFORMATION⁷

Helix Voltage Range	400 to 500 Vdc
Grid 1 Voltage Range	0 to -170 Vdc
Grid 2 Voltage Range ⁸	190 to 500 Vdc

POWER CONNECTIONS

- A. Grid 1
- B. Grid 2
- C. Helix
- D. Heater, Cathode
- E. Heater
- F. Capsule, Collector

SYLVANIA ELECTRIC
PRODUCTS INC.

MICROWAVE DEVICE OPERATIONS
Mountain View, California

January 10, 1961

SYLVANIA

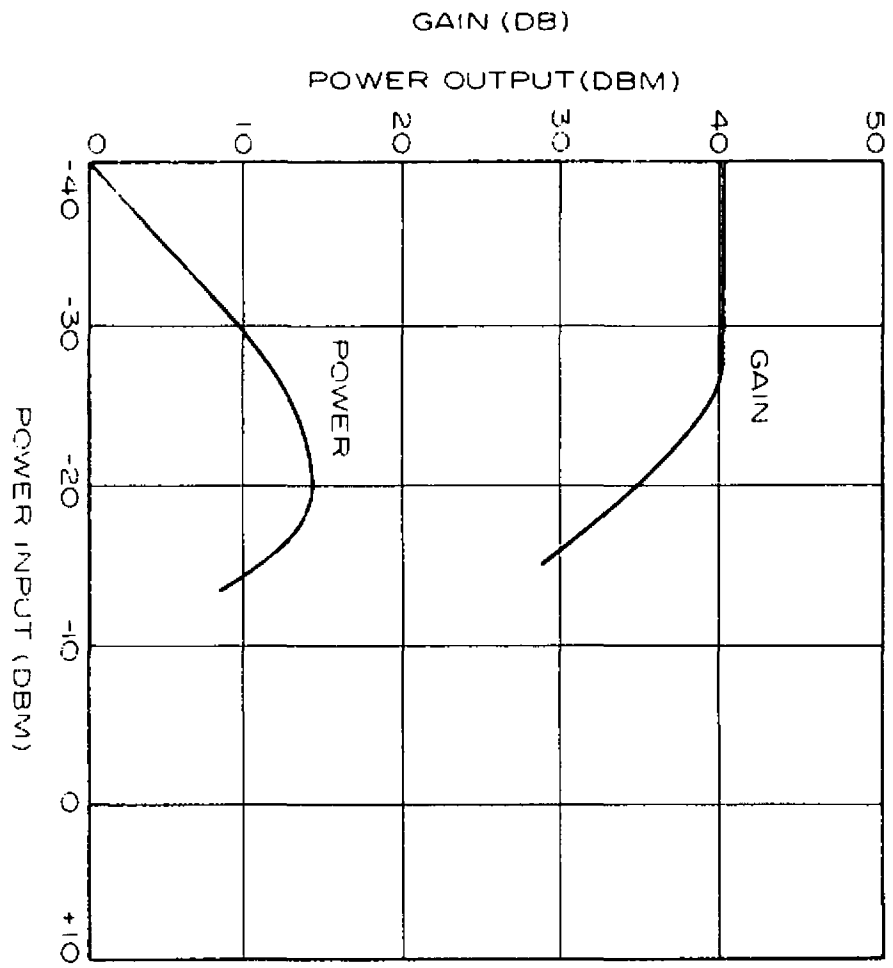
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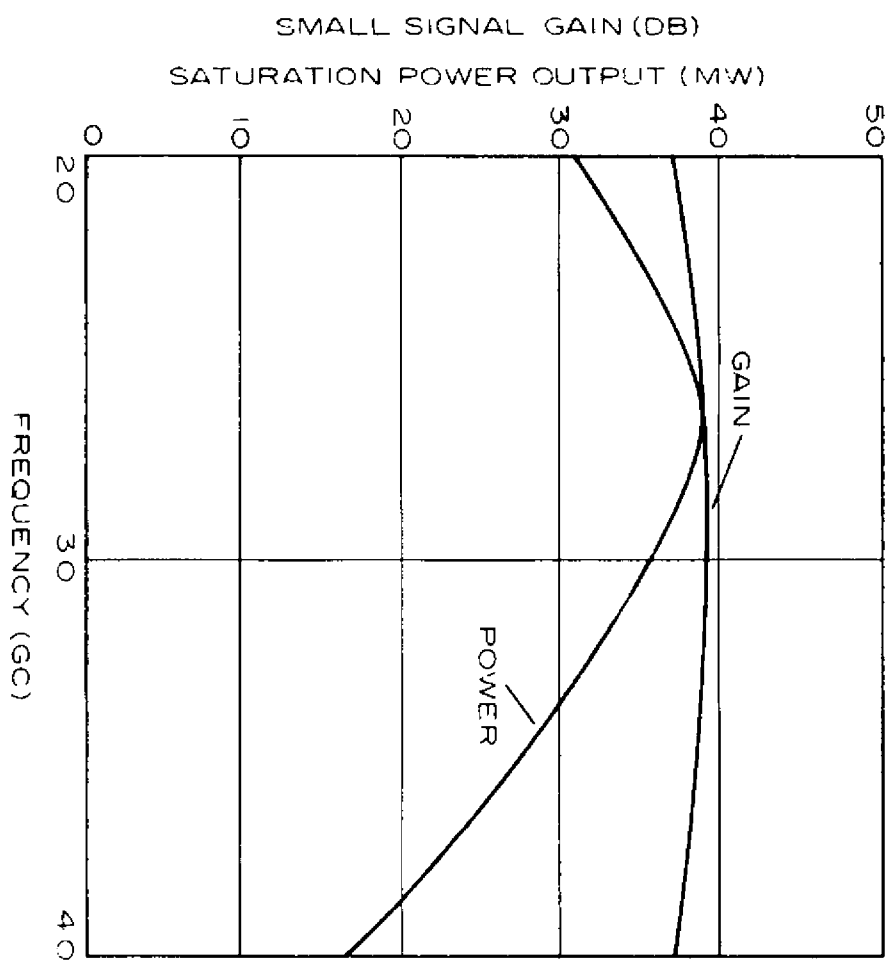
NOTES:

1. Alternative connectors supplied on request.
2. In addition to the cooling air requirements for the solenoid used with this tube it is recommended that at least 0.04 lbs/min of less than 100°F cooling air be passed along this tube.
3. All voltages given are with respect to cathode except where specified otherwise. Any one of pins A, B, C, D, or E may be connected to pin F which, for safety, should be grounded.
4. The quoted tube performance is for operation in a Sylvania-approved solenoid. Additional information will be supplied on request.
5. This voltage should be set to the value stated on the data sheet supplied with each tube.
6. As measured by a broadband bolometer with a frequency response from 0.5 to 10.0 Gc.
7. Ranges include values required as a result of initial spread in tube characteristics as well as those to accommodate changes throughout life.
8. For initial setup, it is desirable that grid 2 voltage be adjustable upward from zero.

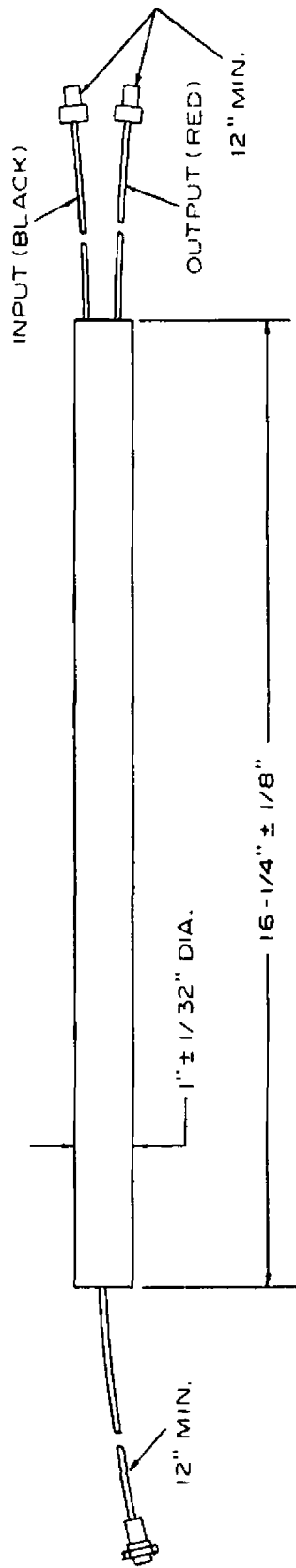
TYPICAL PERFORMANCE CHARACTERISTICS



Type 6493



Type 6493



Type 6493