

PRELIMINARY TECHNICAL INFORMATION

These ratings represent those of current samples of this type. Refer to the Objective Technical Information sheet for design-objective ratings.

DEVELOPMENTAL

TYPE

ZM-5182

PTI-60A

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This technical information is proprietary and is furnished only as a service to customers.

ZM-5182

TRAVELING-WAVE TUBE

300 Milliwatts CW Output

30 db Saturation Gain

12,000-18,000 Megacycles

Periodic Permanent Magnet

The ZM-5182 is a ruggedized, low-power, broadband, traveling-wave tube for use in the 12,000-to-18,000 megacycle frequency range. It has a saturation gain greater than 30 decibels across the entire band and a power output of 300 milliwatts CW.

The tube is of metal-and-ceramic construction and is supplied as a complete packaged assembly, including the periodic-permanent-magnet focusing structure. The entire assembly weighs approximately 3.0 pounds.

The broad bandwidth, high gain, freedom from tuning adjustments, grid control, and rugged construction make this tube particularly useful in military systems. Applications include CW amplification in radar, electronic countermeasures equipment, microwave relay systems and radiometry.

Unless otherwise noted, voltages are with respect to the anode which is connected to the body of the tube. The body (package) of the tube should be grounded.

ELECTRICAL

	Minimum	Bogey	Maximum	
Frequency*	12,000	—	18,000	Megacycles
Heater				
Voltage †	5.3	6.3	7.3	Volts
Current	—	0.3	—	Amperes
Focusing Method — Periodic Permanent Magnet				
Saturation Gain	30	—	—	Decibels
Small Signal Gain	35	—	—	Decibels
Saturation Power Output, CW	150	300	500	Milliwatts
Collector Dissipation	—	—	12	Watts
Waveguide VSWR				
Input	—	—	2.5 to 1	
Output	—	—	2.5 to 1	

MECHANICAL

Mounting Position — Any			
Over-all Dimensions, approximate			
Length		8.8	Inches
Height		3.0	Inches
Width		1.5	Inches
Connectors			
RF Input — UG-419/U			
RF Output — UG-419/U			
Cathode-Heater, Heater, Helix, Focusing Electrode —			
Flying Leads			
Weight, approximate		3.0	Pounds

THERMAL

Cooling - Convection

TYPICAL OPERATING CONDITIONS

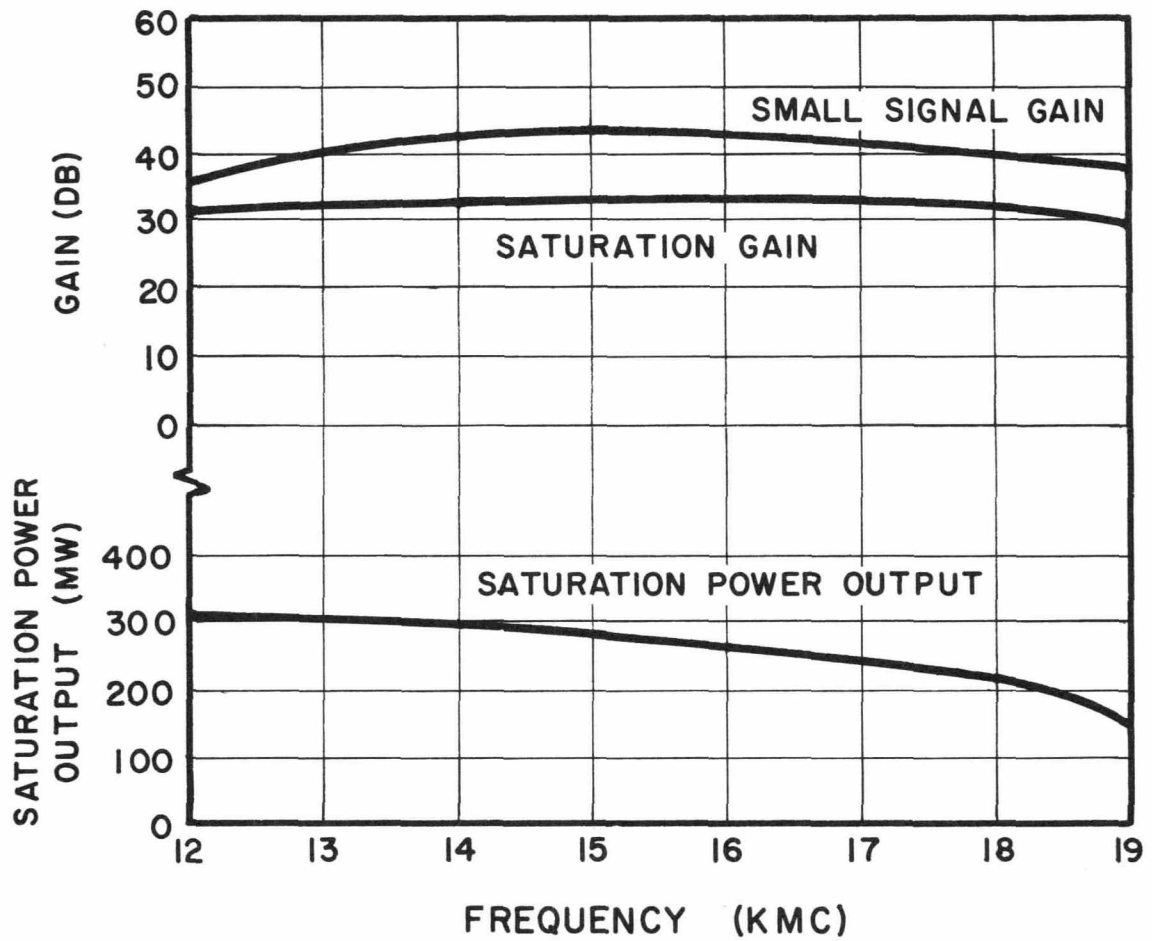
	Minimum	Bogey	Maximum	
Cathode Voltage ‡	-2100	-1900	-1700	Volts
Focusing Electrode Voltage, with Respect to Cathode				
Operating †	-15	-5	0	Volts
Cutoff	-150	-	-130	Volts
Collector Voltage	125	150	170	Volts
Cathode Current	5.0	6.0	7.0	Milliamperes
Helix				
Voltage	-	-	-	
Current ¶	-	0.5	1.0	Milliamperes

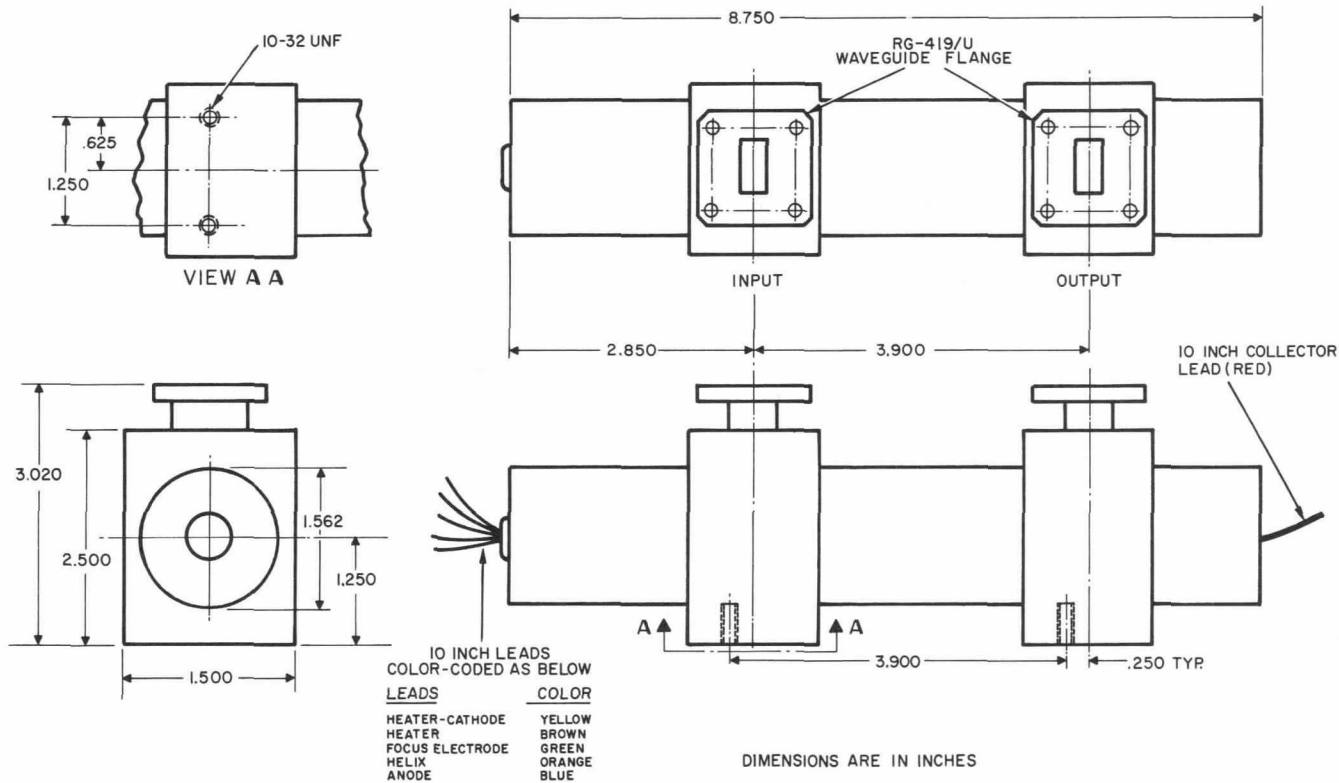
*The power and gain curves indicate performance possible at rated bandwidth. Increased performance can be obtained under narrow-band operation. For further information consult your nearest Power Tube Department sales office.

† For the bogey performance ratings specified on this sheet, these parameters should be set at the particular value specified in the instructions accompanying each tube. The value specified will be within the range given above. The specific value of heater voltage should be held within plus or minus two percent.

‡ The cathode voltage may be set at various values between -2100 and -1700 volts to obtain different power and gain characteristics.

¶ Since current in excess of the maximum will seriously damage the tube an overcurrent device should be provided for protection.





ZM-5182

Traveling-Wave Tubes

Technical Information

RF PERFORMANCE

Tube Type	Frequency Range (Gc)	Min. CW Saturated Power Output (mw)	Minimum Small Signal Gain (db)	Minimum Saturated Gain (db)
ZM-5182	12-18	150	35	30

- MEDIUM POWER
- K_u-BAND
- PPM FOCUSING

FEATURES

high gain
broad bandwidth
periodic permanent magnet focusing
metal-ceramic construction
military environments
light weight
current control electrode

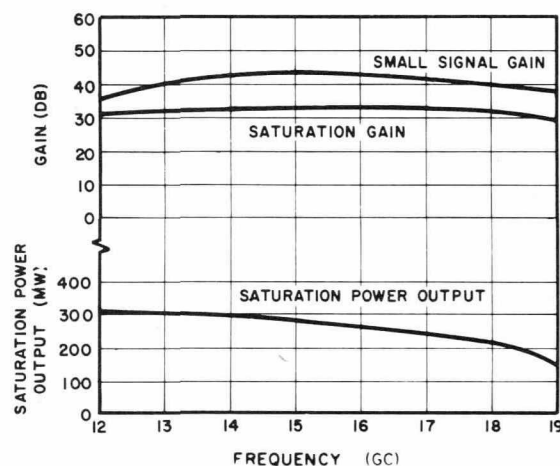
APPLICATIONS

radar
ecm
communications
instrumentation

MECHANICAL & MISCELLANEOUS

VSWR, max	
Input.....	2.5
Output.....	2.5
Mounting position.....	Any
Weight, lb.	3.8
Overall length, in.	8.8
Cooling.....	Convection
Connectors	
RF input	UG-419/U
RF output	UG-419/U
DC	Flying leads

TYPICAL CHARACTERISTICS



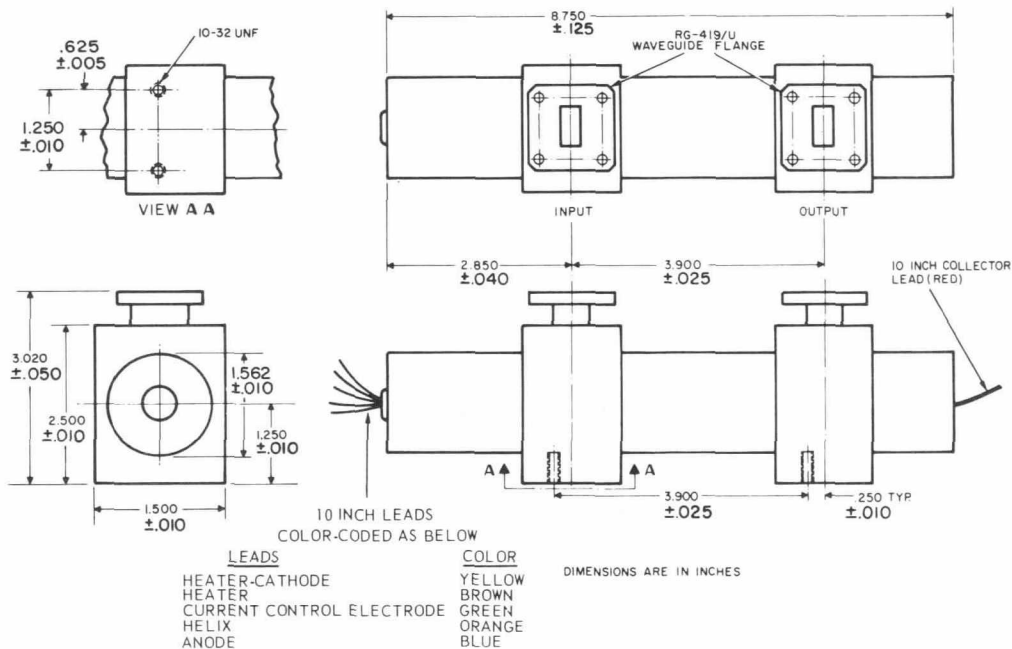
OPERATING CONDITIONS*

Htr. vac or vdc	5.3 to 7.3
Htr. amp (max)	0.4
Cath. kv dc#, with resp. to helix..	-1.7 to -2.1
Cath. ma, (max)	7
Coll. vdc, with resp. to helix	125 to 170
Helix ma (max)	1.0
Current control elect. vdc	
Operating, with resp. to cath..	0 to -15
Cutoff, with resp. to cath.	-130 to -150

ENVIRONMENTAL

Shock.....	30 G, 11 ms, (energized) 3 axes
Vibration	10 G, 70-3000 cps (operating)
Temp., ambient....	-65 to +100°C (operating)
Altitude.....	100,000 ft (operating)
Acceleration	30 G

OUTLINE



NOTES

- * For the performance ratings specified, voltages should be adjusted to values specified by instructions accompanying each tube. These values will be within the ranges given above.
- # The cathode voltage may be set at various values between -1.7 and -2.1 kv to obtain different power and gain characteristics.

These data are subject to change without notice.