

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

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

ZM-3133

TRAVELING-WAVE TUBE

5 Kilowatts Peak Output
40 db Saturation Gain

5000-6000 Megacycles
Metal-Ceramic

Periodic Permanent Magnet

The ZM-3133 is a ruggedized, high-power, broadband traveling-wave tube for use in the 5000-to-6000-megacycle frequency range. It has a saturation gain of 40 decibels with a peak power output of 5 kilowatts.

The tube is of metal-and-ceramic construction and is supplied as a complete packaged assembly which includes the tube, the periodic-permanent-magnet focusing structure, and the r-f connectors. The periodic permanent magnets do not require temperature compensation. The entire assembly weighs approximately 13 pounds.

The broad bandwidth, high gain, freedom from tuning adjustments, and rugged construction make this tube particularly useful in military systems. Applications include pulse amplification in radar, electronic counter-measures equipment, and similar systems, including phased-array radars.

GENERAL

Unless otherwise noted, voltages are with respect to the anode. Anode and collector are connected to the body of the tube. These parts of the tube should be grounded.

ELECTRICAL	Minimum	Bogey	Maximum	
Frequency	5000	-	6000	Megacycles
Heater				
Voltage*	4.5	5.0	5.5	Volts
Current	-	4	-	Amperes
Focusing Method - Periodic Permanent Magnet				
Saturation Gain	-	40	-	Decibels
Saturation Power Output, peak	5	-	10	Kilowatts
Duty Cycle**	-	-	0.001	
Pulse Length	-	-	6.0	Microseconds
Cathode Voltage†	-15	-16	-18	Kilovolts
Cathode Current	-	4.6	-	Amperes
Grid Bias (with respect to cathode)	-300	-350	-500	Volts
Grid Swing	-	+800	-	Volts
Grid Current, peak	-	0.6	-	Amperes
Collector Current, peak	-	3.25	-	Amperes
Helix Current, peak	-	0.75	-	Amperes
Grid-Cathode Capacitance	-	25	-	Micromicro farads
Phase Shift	-	10	-	Degrees per one percent change in beam voltage
Vacuum Ion-Pump Voltage	-	2800	-	Volts
Waveguide VSWR				
Input	-	-	2.5 to 1	
Output	-	-	2.5 to 1	

MECHANICAL

Mounting Position - Any

Over-all Dimensions, approximate

Length	18	Inches
Diameter	2.88	Inches
Weight, approximate	13	Pounds

Connectors

RF Input - Low Height C-band WG or Type N Coaxial Connector (choice optional)

RF Output - Low Height C-band WG or Type N Coaxial Connector (choice optional)

Cathode-Heater, Heater - Flexible Leads

THERMAL

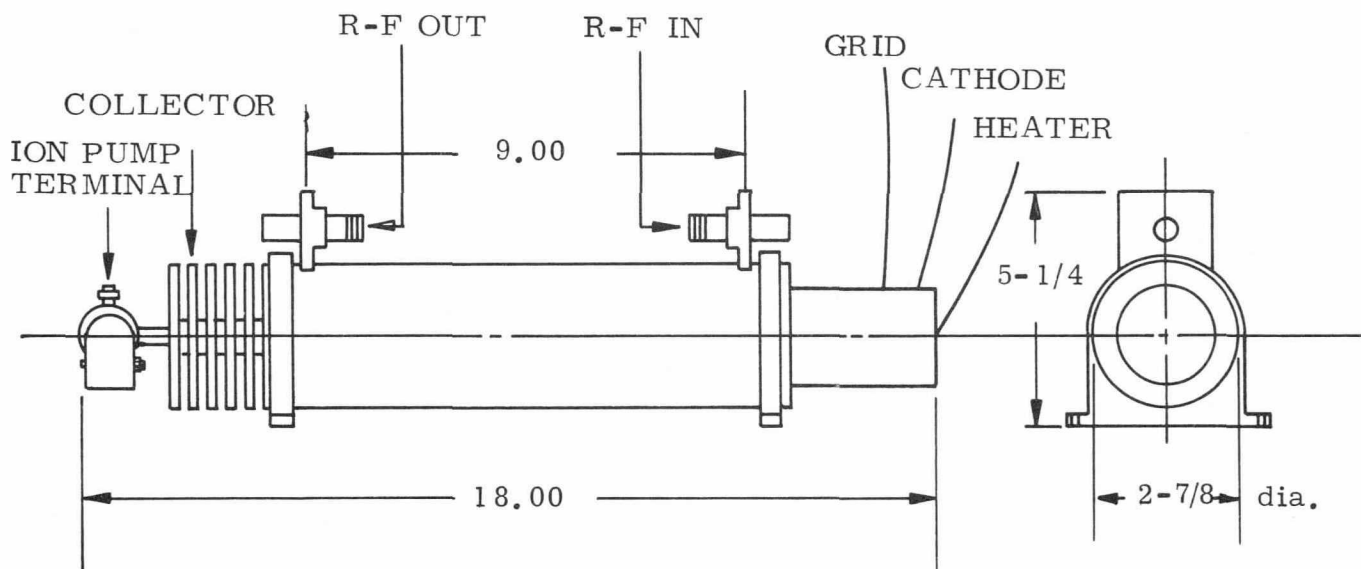
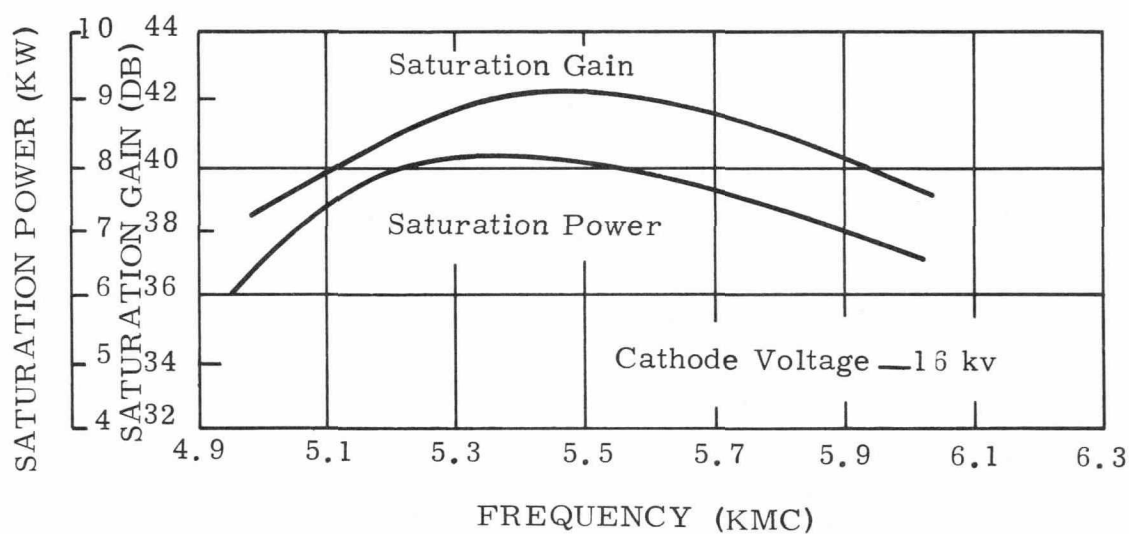
Cooling - Forced Air on both Collector and Cathode

NOTE: This tube is available without grid with the electrical parameters substantially the same except that cathode current is 4 amperes at 16 kilovolts.

* For the bogey performance ratings specified on this data sheet, heater voltage should be set at the particular value specified in the instructions accompanying each tube. The value specified will be within the range given above. D-c is recommended for the heater.

** Duty is 0.001 when forced-air cooling is used. With liquid cooling on collector and body, duty can be increased to 0.01.

† The cathode voltage may be set at various values between -15 to -18 kilovolts to obtain different power and gain characteristics.



DIMENSIONS ARE IN INCHES

