



ELECTRON TUBE DIVISION

CLIFTON, NEW JERSEY

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

**F-2059
TRAVELING
WAVE TUBE**

TENTATIVE

GENERAL DESCRIPTION

The F-2059 is a 100 watt pulse traveling wave amplifier tube having 46 db gain and designed primarily for use in the 2700 to 2900 mc frequency range. It is constructed in a rugged metal envelope with a helix type slow wave structure. The integral matching circuit is in 50 ohm coaxial line and is provided with type "TNC" connectors. The tube is focused by a periodic permanent magnet which is integral with the tube. A convergent beam gun and oxide impregnated cathode are used. Duty cycles up to .01 and pulse widths up to 10 microseconds can be used. A control grid suitable for grid pulsing is provided.

ELECTRICAL RATINGS, ABSOLUTE VALUES

Heater Voltage	6.3 ($\pm 10\%$)	volts	Maximum Duty Cycle	.01
Heater Current	3.0	amperes	Maximum Pulse Width (beam)	10 microseconds
Maximum Anode Voltage (Note 1)	5000	volts	Maximum Cathode Current	1.0 ampere peak
Maximum Shell Current	0.5	ampere peak	Maximum Grid Voltage	
Maximum Collector Voltage	5000	volts	Negative	-100 volts
Maximum Collector Dissipation	20	watts average	Positive (with respect to cathode)	200 volts
Maximum R-F Output Power	5	watts average		

ELECTRICAL INFORMATION

Maximum Frequency (Note 2)	2900	mc	Capacitance	
Minimum Frequency (Note 2)	2700	mc	Control Grid to All Other Elements	20 uufd
Minimum Cold Transmission Loss	50	db		

MECHANICAL INFORMATION

Type of Cathode	Oxide Impregnated Unipotential	Weight	10 Pounds	Maximum
Base	(See Outline)	R-F Connections	Type "TNC"	Convection
Type of Envelope	Metal	Type of Cooling		
Mounting Position	Any			

TYPICAL OPERATION AS POWER AMPLIFIER

Frequency	2700 to 2900	mc	Gain	46	db
Anode Voltage (Note 1)	4400	volts	Duty	.01	
Cathode Current	0.5	amperes peak	Pulse Width	5	microseconds
Collector Voltage (tied to shell)	4400	volts	Grid Bias (for cut-off)	-30	volts
Collector Current	0.3	amperes peak	Grid Voltage during Pulse	175	volts
Power Output (minimum)	100	watts peak			

NOTE 1: All voltages shown are with respect to cathode. The shell is normally operated at ground potential and the anode connection is made to the shell of the package.

NOTE 2: Useful gain and power output exists below 2700 mc and above 2900 mc and can be utilized by adjusting anode voltage to optimize the frequency range desired. However, bandwidth cannot be extended both upward and downward simultaneously and maximum gain and power output outside the normal bandwidth will be lower than rated values.

NOTE 3: Heater warm up of two minutes before applying high voltage is recommended.

NOTE 4: High voltage must be applied in the absence of proper grid bias.

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