



ELECTRON TUBE DIVISION

CLIFTON, NEW JERSEY

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

**F-2521
BACKWARD WAVE
OSCILLATOR**

TENTATIVE

GENERAL

The F-2521 is a voltage-tunable, wide-band oscillator with a minimum output power of 250 milliwatts over its rated operating frequency range. This permanent magnet focused, highly stable device finds applications as a swept signal source in signal generators; master oscillator for frequency diversity transmitters; or typically as a local oscillator in radar or ECM receivers. The tube features a bifilar helix contained in a rugged envelope of simple mechanical design thus providing a highly reliable, compact unit. No cooling is required when the environment is below +60°C ambient temperature.

ELECTRICAL

	TYPICAL	ABSOLUTE	UNITS		TYPICAL	ABSOLUTE	UNITS
Frequency	5.4-5.9	Note 1, Note 3	Gcs	*Grid Voltage for no Oscillation (RF Cutoff) (with respect to cathode)	-25	-30 max.	Volts
Power Output	250-480	250 min.	mW	*Collector Voltage (with respect to Helix)	+100	+150 max.	Volts
Power Output Variation	3	4 max.	db.	Capacitance, Cathode to all Electrodes	42	50 max.	μμfd.
Fine Grain Variation, Note 2	+1.8	+1.0 max.	db 50 mc	Capacitance, Grid to all Electrodes	30	45 max.	μμfd.
VSWR	2.5:1	3:1 max.	—	Capacitance, Helix to all other Electrodes and Capsule	210	300 max.	μμfd.
Output Impedance	50	50	Ohms	Spurious Output below Signal	50	40 min.	db.
Heater Voltage	6.3	6.0 min. 6.6 max.	Volts				
Heater Current	.96	1.2 max.	Amps				
Anode Voltage (with respect to Cathode)	210	250 max.	Volts				
Anode Current	.25	1.0 max.	Ma				
Cathode Current	20	25 max.	Ma				
*Helix Voltage	Zero	Zero	Volts				
Helix Current	3.0	6.0 max.	Ma				
*Cathode Voltage (with respect to Helix)	-937 to -1256	-800 to -1400	Volts				

*The above data shows tube operation with helix at ground potential (Zero Volts). If desired as an alternate, any one of the asterisked elements may be operated at ground potential, provided the other electrode potentials are set at the appropriate relative levels.

NOTE 1 The F-2521 will operate over the frequency range of 5.346 to 5.959 Gcs. with a 3 db reduction in the rated minimum output power.

NOTE 2 This value is determined by selecting the 50 mc region of the frequency range which has the greatest differences in power output. The difference between these power levels is divided by two and the plus or minus sign is affixed to denote the difference from an average power level.

NOTE 3 The F-2521 will operate over the frequency range of 4 to 7 Gcs. at a reduced power output of not less than 20 milliwatts. Under this type of operation a typical cathode voltage range of -370 to -2390 volts will apply. However, caution must be observed that the cathode current does not exceed 14 ma and the cathode voltage does not exceed -2500 volts. A typical anode voltage of 125 volts will be required for this type of operation and the maximum anode voltage must be such that the cathode current does not exceed 14 ma.

MECHANICAL

Package Length	9.90	9.95 max.	Inches	Output Cable Length		
Package Diameter	3.00	3.02 max.	Inches	(to end of type		
Package Weight	9 lbs.-14 oz.	10 max.	Pounds	"N" Connector)	15	14 min/16 max. Inches
Power Cable Length (to end of Win chester PM6P Connector)	12	11 min/13 max.	Inches			

Additional information for specific applications can be obtained from the

Electron Tube Applications Section
ITT Electron Tube Division
Post Office Box 104
Clifton, New Jersey

