ITT 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
Frequency	5.4-5.9	Note 1, Note 3	Gcs
Power Output	250-480	250 min.	mw
Power Output Variation	3	4 max.	db.
Fine Grain Variation, Note 2	±.8	±1.0 max.	db 50 mc
VSWR	2.5:1	3:1 max.	–
Output Impedance	50	50	Ohms
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

	TYPICAL	ABSOLUTE	UNITS
*Grid Voltage for no Oscillation (RF Cutoff) (with respect to cathode)	-25	-30 max.	Volts
*Collector Voltage (with respect to Helix)	+100	+150 max.	Volts
Capacitance, Cathode to all Electrodes	42	50 max.	$\mu\mu$fd.
Capacitance, Grid to all Electrodes	30	45 max.	$\mu\mu$fd.
Capacitance, Helix to all other Electrodes and Capsule	210	300 max.	$\mu\mu$fd.
Spurious Output below Signal	50	40 min.	db.

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

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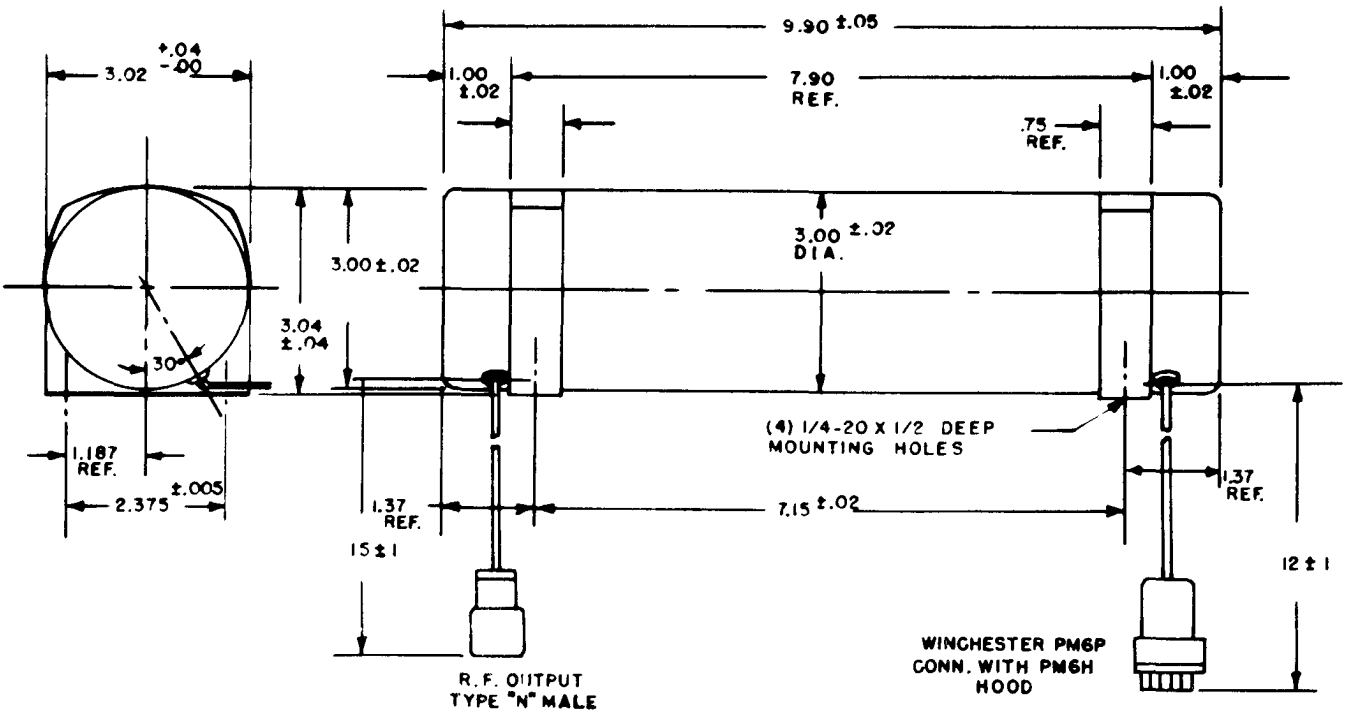
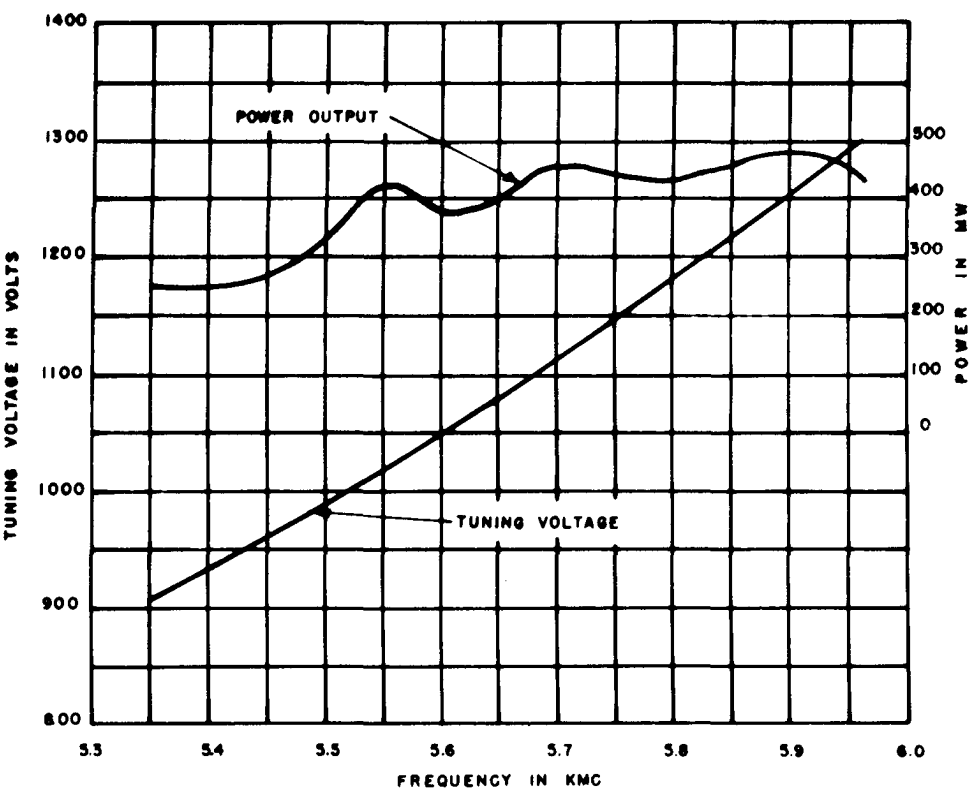

9.90 ±.05
3.02 +.04 -.00
1.00 ±.02
7.90 REF.
1.00 ±.02
.75 REF.
3.00 ±.02 DIA.
3.00 ±.02
3.04 ±.04
30°
1.187 REF.
2.375 ±.005
1.37 REF.
7.15 ±.02
1.37 REF.
15 ± 1
12 ± 1
(4) 1/4-20 X 1/2 DEEP MOUNTING HOLES
R.F. OUTPUT TYPE "N" MALE
WINCHESTER PM6P CONN. WITH PM6H HOOD


POWER OUTPUT
TUNING VOLTAGE
TUNING VOLTAGE IN VOLTS
1400
1300
1200
1100
1000
900
800
POWER IN MW
500
400
300
200
100
0
5.3
5.4
5.5
5.6
5.7
5.8
5.9
6.0
FREQUENCY IN KMC