



ELECTRON TUBE DIVISION

CLIFTON, NEW JERSEY

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

F-2513 BACKWARD WAVE OSCILLATOR

TENTATIVE

GENERAL

The F-2513 is a voltage-tunable, wide-band oscillator with a minimum output power of 25 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	1.0 - 4.0	Note 1	Gcs	*Grid Voltage for no			
Power Output	25 - 150	25 min.	mw	Oscillation (RF Cutoff)			
Power Output Variation	11	15 max.	db	(with respect to Cathode)	-11	-20 max.	Volts
Fine Grain Variation, Note 2	±3	±3 max.	db/300 mc	*Collector Voltage (with			
VSWR	2.5:1	3:1 max.	—	respect to Helix)	+100	+150 max.	Volts
Output Impedance	50	50	Ohms	Capacitance, Cathode to			
Heater Voltage	6.3	6.0 min./	Volts	all Electrodes	42	50 max.	μμfd.
		6.6 max.		Capacitance, Grid to			
Heater Current	.96	1.2 max.	Amps	all Electrodes	30	45 max.	μμfd.
Anode Voltage (with				Capacitance, Helix to all			
respect to Cathode)	95	250 max.	Volts	other Electrodes and			
Anode Current	.15	1.0 max.	Ma	Capsule	220	300 max.	μμfd.
Cathode Current	12	20 max.	Ma	Spurious Output below			
*Helix Voltage	Zero	Zero	Volts	Signal	50	40 min.	db
Helix Current	5	8 max.	Ma				
*Cathode Voltage (with	-100 to	-90 to	Volts				
respect to Helix)	-2400	-2500					

*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-2513 will operate over the frequency range of .99 to 4.04 Gcs. with a 3 db reduction in the rated minimum output power.

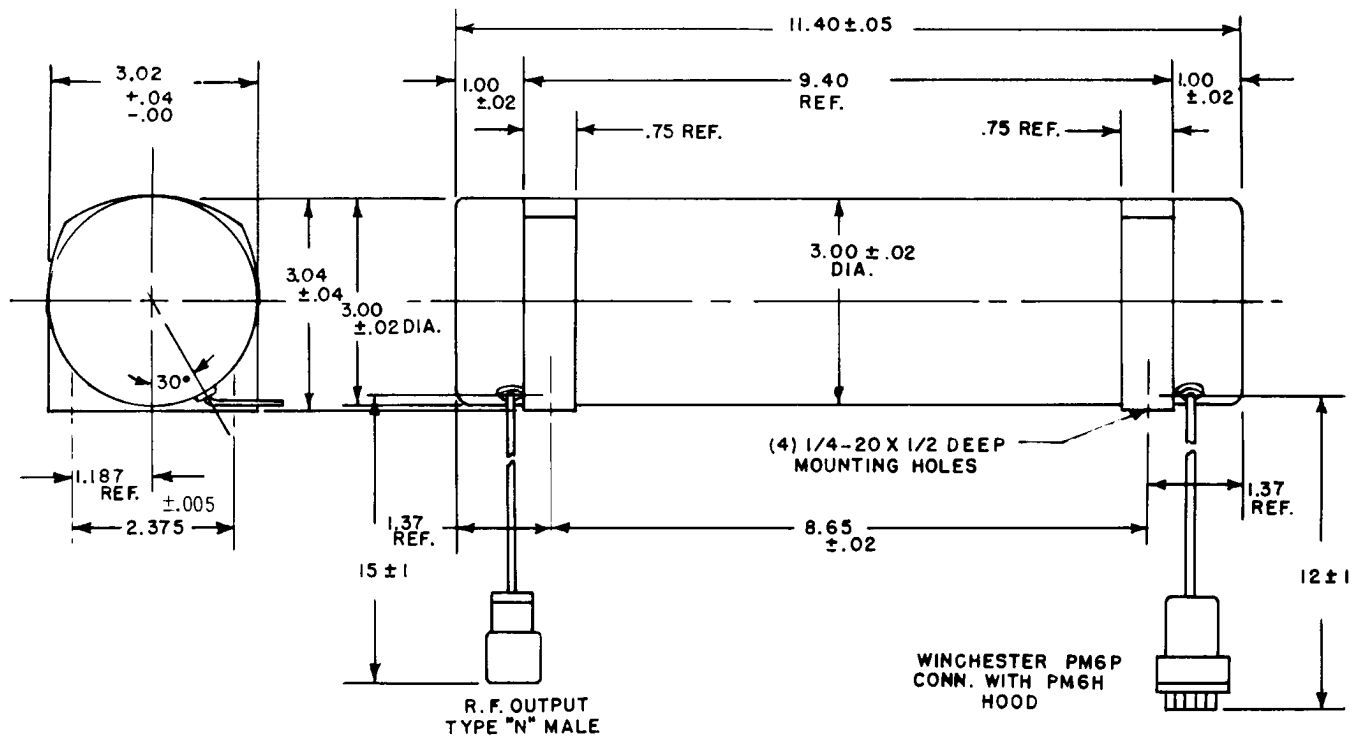
NOTE 2 This value is determined by selecting the 300 mc region of the frequency range which has the greatest differences in power output. The difference between these power levels is divided by two and the plus or minus sign is affixed to denote the difference from an average power level.

MECHANICAL

Package Length	11.40	11.45 max.	Inches	Output Cable Length		
Package Diameter	3.00	3.02 max.	Inches	(to end of Type		
Package Weight	14 lbs. -4 oz.	14.5 max.	Pounds	"N" Connector)	15	14 min./16 max. Inches
Power Cable Length						
(to end of Winchester 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



- A-COLLECTOR
- B-HELIX
- C-HEATER
- D-HEATER-CATHODE
- E-ANODE
- F-GRID (FOCUS)

