



ELECTRON TUBE DIVISION

CLIFTON, NEW JERSEY

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

F-2519 BACKWARD WAVE OSCILLATOR

TENTATIVE

GENERAL

The F-2519 is a voltage-tunable, wide-band oscillator with a minimum output power of 75 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	2.4 -5.3	Note 1	Gcs	*Grid Voltage for no Oscillation (RF Cutoff) (with respect to Cathode)	-11	-30 max.	Volts
Power Output	75 - 300	75 min.	mW	*Collector Voltage (with respect to Helix)	+100	+150 max.	Volts
Power Output Variation	6	8 max.	db	Capacitance, Cathode to all Electrodes	42	50 max.	$\mu\text{fd.}$
Fine Grain Variation, Note 2	+1.0	+1.5 max.	db 290 mc	Capacitance, Grid to all Electrodes	30	45 max.	$\mu\text{fd.}$
VSWR	2.5:1	3:1 max.	—	Capacitance, Helix to all other Electrodes and Capsule	220	300 max.	$\mu\text{fd.}$
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	.98	1.2 max.	Amps				
Anode Voltage (with respect to Cathode)	120	250 max.	Volts				
Anode Current	0.15	1.0 max.	Ma				
Cathode Current	14.0	20 max.	Ma				
*Helix Voltage	Zero	Zero	Volts				
Helix Current	3.0	5.0 max.	Ma				
*Cathode Voltage (with respect to Helix)	-220 to -1850	-150 to -2100	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-2519 will operate over the frequency range of 2.375 to 5.353 Gcs. with a 3 db reduction in the rated minimum output power.

NOTE 2 This value is determined by selecting the 290 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	9.90	9.95 max.	Inches	Output Cable Length (to end of Type "N" Connector)	15	14 min./16 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				

Additional information for specific applications can be obtained from the

Electron Tube Applications Section
ITT Electron Tube Division
Post Office Box 104
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