



ELECTRON TUBE DEPARTMENT ■ COMPONENTS DIVISION
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION, CLIFTON, NEW JERSEY

**F-7526
TRAVELING
WAVE TUBE**

DESCRIPTION:

THE F-7526 IS A 50 MW CW TRAVELING WAVE AMPLIFIER TUBE HAVING 30 DB GAIN AND 8.0 TO 12.0 KMC 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 FEMALE TNC CONNECTORS. THE TUBE IS PACKAGED IN AN OIL COOLED SOLENOID WITH INTEGRAL COLLECTOR COOLER, WHICH IS REQUIRED TO PROVIDE A UNIFORM MAGNETIC FIELD. A CONVERGENT BEAM GUN AND OXIDE COATED CATHODE ARE USED. THE TUBE IS SUITABLE FOR EITHER CW OR PULSE SERVICE.

ELECTRICAL INFORMATION:

HEATER VOLTAGE	6.3 (^{+5%} _{-5%})	VOLTS
HEATER CURRENT	0.85	AMPERE
MAXIMUM FREQUENCY	12.0	KMC
MINIMUM FREQUENCY	8.0	KMC
MINIMUM COLD TRANSMISSION LOSS	50	DB
CAPACITANCE		
CONTROL ELECTRODE TO ALL ELEMENTS	15	UUF (MAX.)

ELECTRICAL RATINGS, ABSOLUTE VALUES:

MAXIMUM ANODE VOLTAGE (NOTE 1)	1600	VOLTS
MAXIMUM HELIX CURRENT (NOTE 2)	2	MA
MAXIMUM COLLECTOR DISSIPATION (BEAM POWER)	15	WATTS
MAXIMUM CONTROL ELECTRODE VOLTAGE (NOTE 3)	-500	VOLTS

SOLENOID DATA:

SOLENOID CURRENT	.6 TO 1.13	AMPS
SOLENOID VOLTAGE	150 TO 200	VDC
TYPE OF COOLANT	OS 45	OIL
PRESSURE MAXIMUM	100	PSI
FLOW	1	GALLON/MIN.

MECHANICAL:

TYPE OF CATHODE	OXIDE COATED UNIPOTENTIAL
GUN CONNECTIONS	FLYING LEADS
R-F CONNECTIONS	FEMALE TNC
MOUNTING POSITION	ANY

TYPICAL OPERATION:

ANODE VOLTAGE	1400	VOLTS
ANODE CURRENT	5	MA
HELIX CURRENT	0.5	MA
CONTROL ELECTRODE VOLTAGE (NOTE 3)	-15	VOLTS
SOLENOID CURRENT	0.9	AMPS
SOLENOID VOLTAGE	170	VOLTS
POWER OUTPUT	50	MW NOMINAL
GAIN	30	DB NOMINAL
DUTY CYCLE (NOTE 3)		
R-F	VARIABLE TO 1.0	
BEAM	1.0	

NOTE 1: ALL VOLTAGE SHOWN ARE WITH RESPECT TO CATHODE. ANODE, COLLECTOR AND OUTER COAX CONDUCTOR OF THE R-F TERMINALS ARE CONNECTED INTERNALLY TO THE SHELL AND ARE OPERATED AT GROUND POTENTIAL. THE HELIX IS CONNECTED TO THE CENTER CONDUCTOR OF THE COAX LINE AND A D.C. CONNECTION FROM THE HELIX TO THE SHELL MUST BE PROVIDED EXTERNALLY IN THE R-F CIRCUITRY.

NOTE 2: THE HELIX CURRENT SHOULD BE MINIMIZED AND MUST BE LESS THAN THE MAXIMUM RATING. IT IS DESIRABLE TO MONITOR THIS CURRENT DURING OPERATION AND TO PROVIDE OVERLOAD PROTECTION. IN PULSED BEAM OPERATION, THE PEAK HELIX CURRENT MAY EXCEED 2 MA, BUT CARE SHOULD BE TAKEN TO OPERATE AT REASONABLY LOW VALUES AND AVERAGE CURRENT MUST NOT EXCEED 2 MA.

NOTE 3: THE CONTROL ELECTRODE VOLTAGE IS ADJUSTED FOR BEST TRANSMISSION FOR CW OPERATION (NORMALLY ABOUT -5 VOLTS). BEAM GATE OFF CAN BE ACCOMPLISHED BY APPLYING VOLTAGE OF -400 TO -500 VOLTS. THE TUBE SHOULD NOT BE OPERATED WITH CONTROL ELECTRODE VOLTAGE IN THE RANGE OF APPROXIMATELY -5 TO -400 VOLTS. FOR GATED BEAM (PULSE) THE VALUES OF POWER OUTPUT, ANODE CURRENT AND HELIX CURRENT BECOME PEAK VALUES.

ADDITIONAL INFORMATION FOR SPECIFIC APPLICATIONS CAN BE OBTAINED FROM THE:

ELECTRON TUBE APPLICATIONS SECTION
ITT COMPONENTS DIVISION
POST OFFICE BOX 7065
ROANOKE, VIRGINIA

