



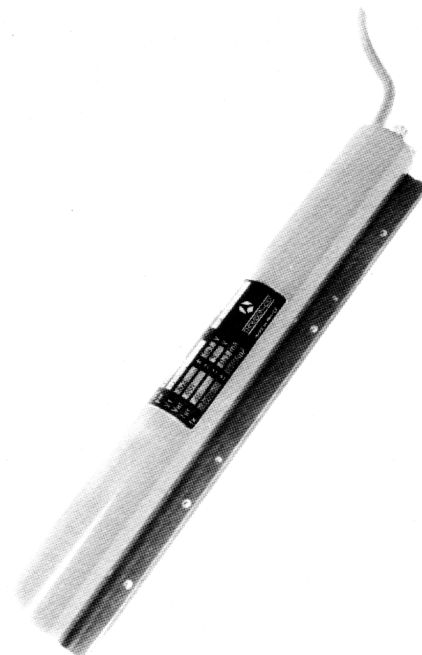
F4026B TRAVELING WAVE TUBE

The F4026B is a wide band, low noise, high gain, traveling wave tube which provides a saturated power output of 10 to 30 mW, from 6.9 to 11.1 GHz.

The typical noise figure is 12 dB and the small signal gain at least 40 dB.

The F4026B features periodic permanent magnet focusing, small size, light weight. Specifically intended for military airborne applications, an all ceramic and metal construction makes it highly rugged and ensures satisfactory operation under the most severe environmental conditions.

The F4026B traveling wave tube incorporates a voltage distributing network preset at the factory for optimum combination of noise figure and gain. Furthermore, power supply voltage requirements are reduced to heater voltage and high voltage.



GENERAL CHARACTERISTICS

Electrical

	min.	avg.	max.	
Heater voltage	-	6.3	-	V
Heater current	0.4	-	0.6	A
High voltage supply	-	1200	-	V
Current supply	3	-	7	mA
Small signal gain (1)	35	-	-	dB
Saturated power output	10	-	30	mW
Insertion loss	70	-	-	dB
Input VSWR (2)	-	-	1.8 : 1	
Output VSWR (2)	-	-	2.0 : 1	
Stray magnetic field at 2 m	-	-	4	γ

(1) For $P_i = -45$ dBm

(2) Tube not supplied.

Mechanical

RF connections	ATI coaxial socket, mini-ultra ref : 2008
Supply connections	DEUTSCH connector RSM 07.12.14.P.A.5205
Operating position	any
Weight	1.5 kg



ABSOLUTE RATINGS
(non simultaneous)

	min.	max.	
Heater voltage	6.2	6.4	V
High voltage supply			
- for the rated performances	1190	1210	V
- for tube life	1100	1300	V
Peak input power (3)	-	1	kW
Average input power	-	0.1	W
Warm-up time	120	-	s
Ambient temperature	-55	+110	°C
Depression	3	-	bar

(3) with pulse duration $\leq 50 \mu s$.

TYPICAL OPERATION

Heater voltage		6.3	V	
Heater current		0.42	A	
High voltage supply		1200	V	
Current supply		3.5	mA	
Cathode current		510	μA	
Collector current		460	μA	
Frequency	6.9	9.4	11.1	GHz
Noise figure	12.3	11.0	11.0	dB
Small signal gain (4)	40	43	40	dB
Saturated power output	10	15	10.5	mW
Input VSWR	1.30 : 1	1.40 : 1	1.70 : 1	
Output VSWR	1.40 : 1	1.22 : 1	1.65 : 1	

(4) For $P_i = -45 \text{ dBm}$

OPERATING INSTRUCTION

Electro-magnet

The F4026B is focused by an integral periodic permanent magnet. Before applying voltages, check that environmental magnetic field is less than 10 gauss, if not, tube performances are not guaranteed.

Helix grounding

After installation, the tube helix should be connected to ground by means of a DC short or a crystal rectifier.

Application of voltages

Before applying voltages, check that high voltage and heater voltage delivered by the supply unit are within the specified values indicated on the tube label. The meters used for this control should present an isolation from ground of at least 1500 V and accuracy of at least $\pm 1 \%$.

After applying heater voltage wait two minutes before applying the high voltage. A micro-ammeter connected according to the diagramm given page 3 indicates if the tube is operating correctly, with respect to the values specified on the tube label. This metter should feature :

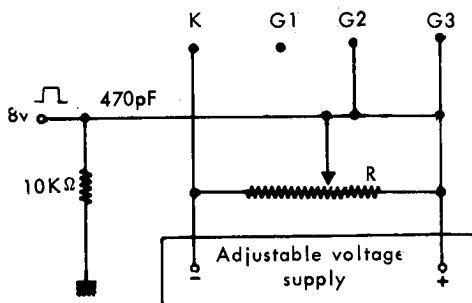
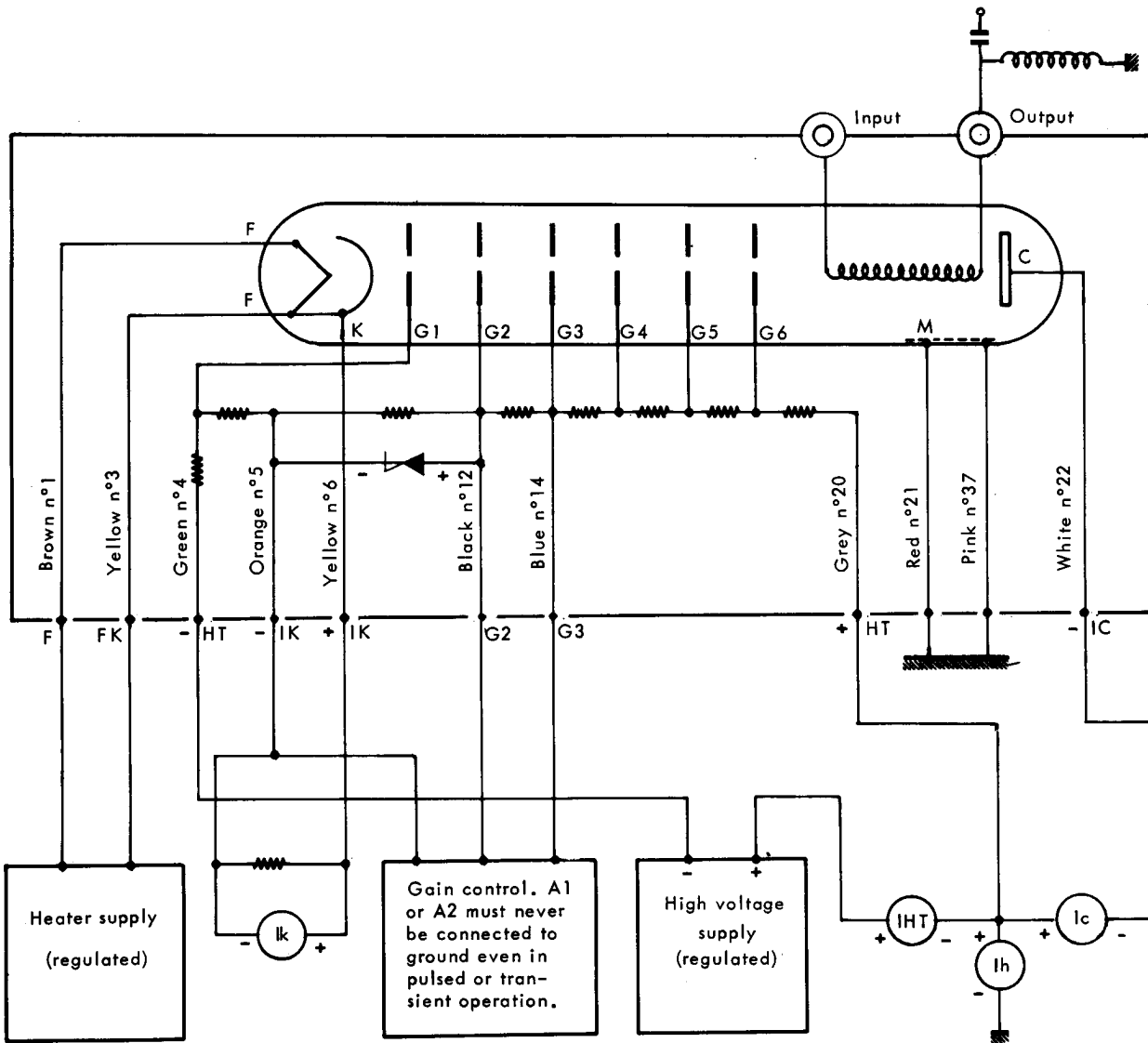
- full scale deviation : 1000 μA
- internal resistance $\leq 1000 \Omega$
- isolation : 1500 V dc operating voltage.

Input power

The tube helix can be damaged if the input power (peak and average values) exceeds the limits given in the paragraph "Absolute Ratings".



SUPPLY DIAGRAM

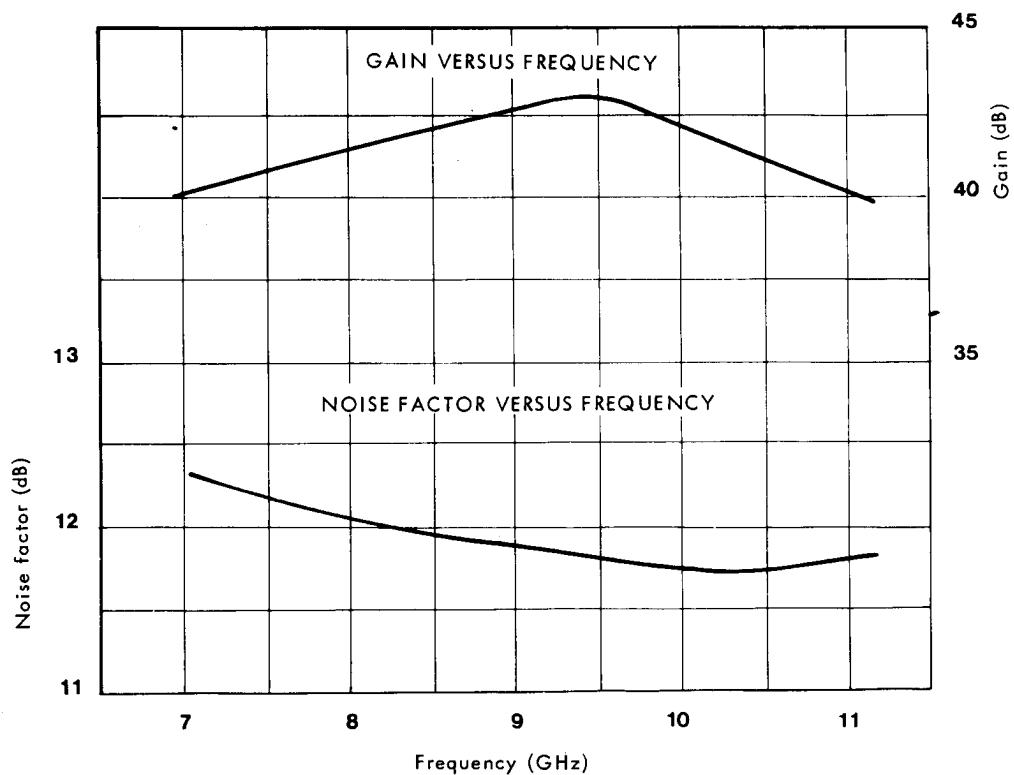
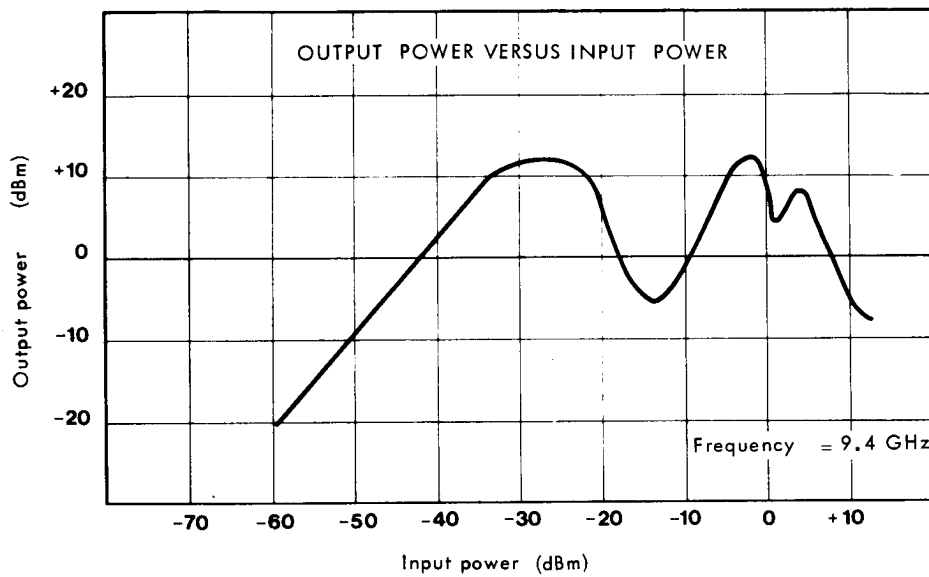


PULSE OPERATION

- The control pulse is applied to G2 through the 470pF capacitor..
- The TWT cut off conditions are G2 and G3 voltage decreased to 0 volt in a constant ratio fixed by R and given by the nominal values.

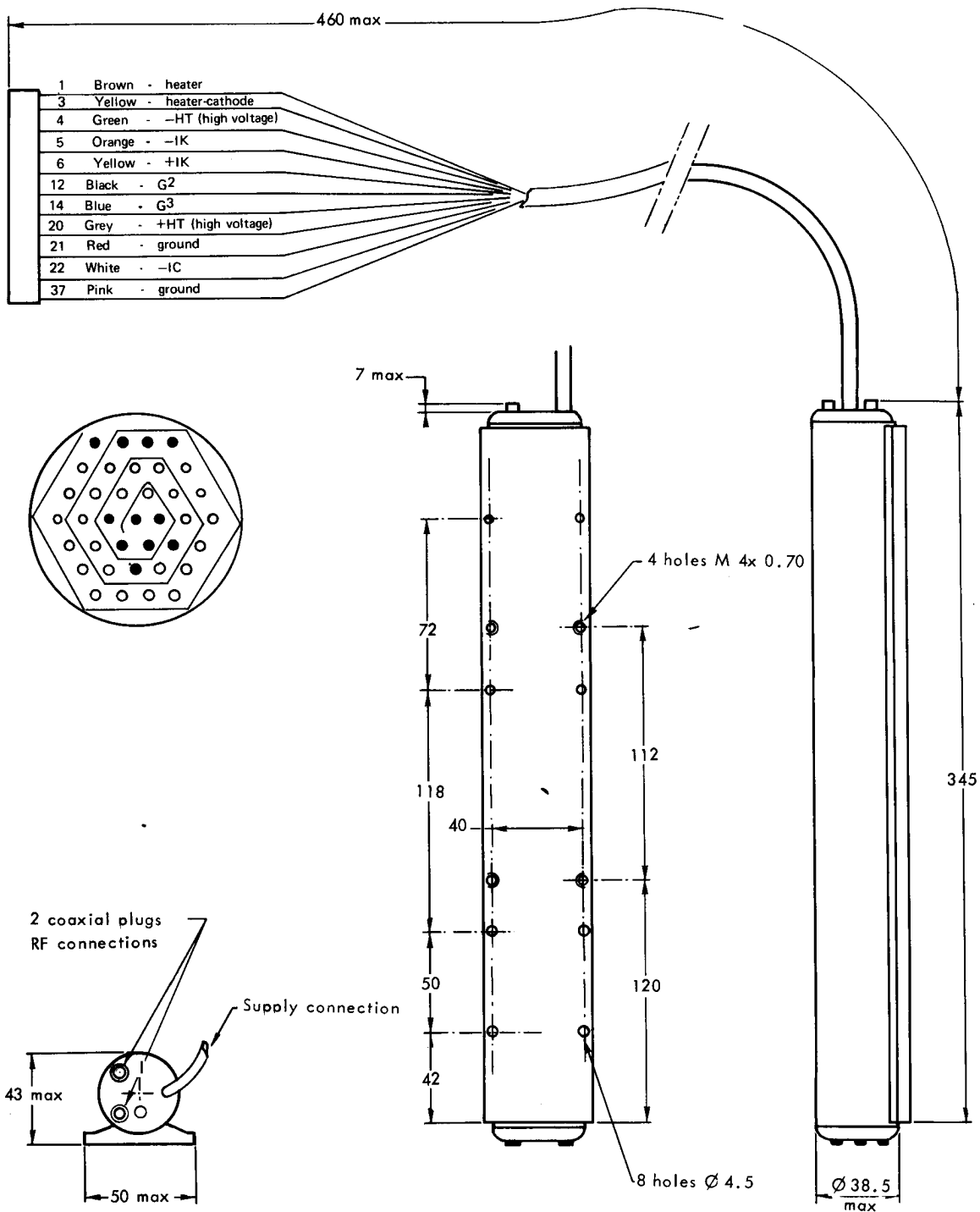


CHARACTERISTIC CURVES

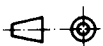




OUTLINE DRAWING



Dimensions in mm.





THOMSON-CSF

GROUPEMENT TUBES ELECTRONIQUES