

F 4181

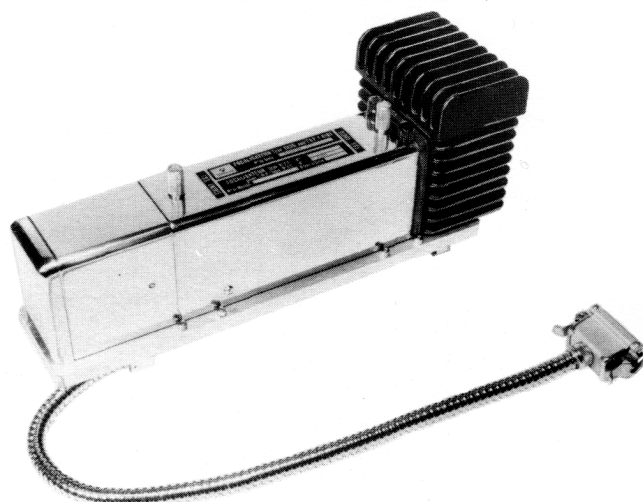
TRAVELING WAVE TUBE

The F4181 traveling wave tube is a medium power amplifier for radio link communications systems. This tube delivers at least 16 W from 5925 to 6425 MHz, with a gain greater than 37 dB. The saturated output power is more than 25 W.

Depressed collector operation reduces power consumption.

The tube and its permanent magnet are cooled by conduction and may be used either in horizontal or vertical position.

The F4181 is easily interchangeable in the permanent magnet (FOC.1235) ; the tube should be inserted in the magnet and properly centered with respect to the positioning marks. When electrical connections are made, final alignment is provided by means of 2 knobs, to obtain correct focusing. This mechanical adjustment optimizes the collector position in the magnet. Furthermore, the F4181 allows optimization of input and output VSWR.



GENERAL CHARACTERISTICS

Electrical (1)

	min.	max.	
Frequency	5.925	6.425	GHz
Heater voltage	6.2	6.4	V
Heater current	0.8	1.1	A
Output power, saturation	25	—	W
Gain	37	42	dB
Helix voltage	3.55	3.85	kV
Helix current	—	2	mA
Anode voltage	—	1.80	kV
Anode current	-0.5	+0.5	mA
Collector voltage	2.20	2.40	kV
Noise factor	—	30	dB

(1) All voltages are referred to the cathode.



Mechanical

Operating position	horizontal or vertical
Weight (approx.)	8 kg
RF connections	UG 344/U flanges
Supply connections	Souriau plug ref. 8540-400-261
Cooling	conduction

ABSOLUTE RATINGS

(non simultaneous values)

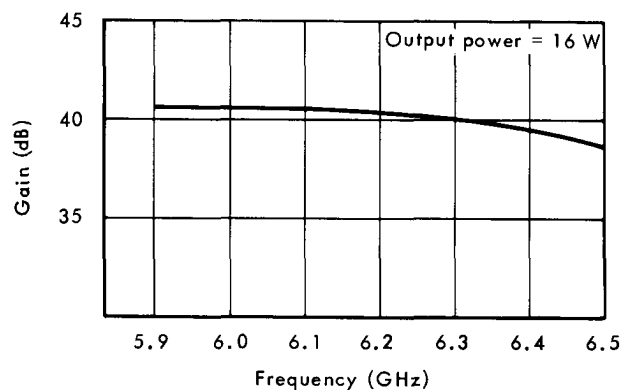
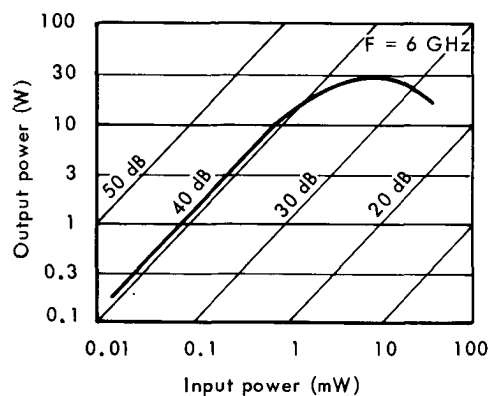
	min.	max.	
Heater voltage	6.0	6.6	V
Heater surge current	—	2.0	A
Warm-up time	—	3	mn
Ambient temperature	−10	+50	°C
Helix voltage	3.5	4.0	kV
Helix current	—	3	mA
Anode voltage	—	2.0	kV
Anode current	−1	+1	mA
Collector voltage	2.0	2.5	kV
Collector current	—	60	mA
Collector dissipation	—	130	W
Drive power	—	10	mW
Output power	—	30	W
Load VSWR	—	2: 1	

TYPICAL OPERATION

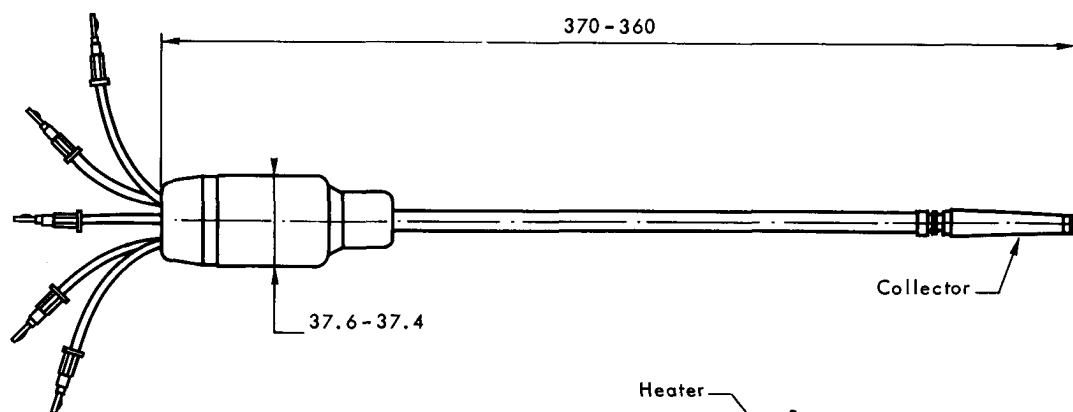
Frequency	6	GHz
Heater voltage	6.3	V
Heater current	0.95	A
Drive power	1.6	mW
Output power	16	W
Gain	40	dB
Helix voltage	3.60	kV
Helix current	0.6	mA
Anode voltage	1.55	kV
Anode current	0	mA
Collector voltage	2.30	kV
Collector current	50	mA



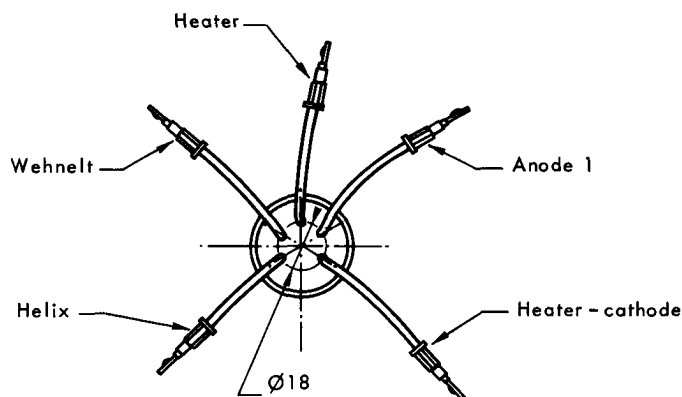
CHARACTERISTIC CURVES



OUTLINE DRAWING

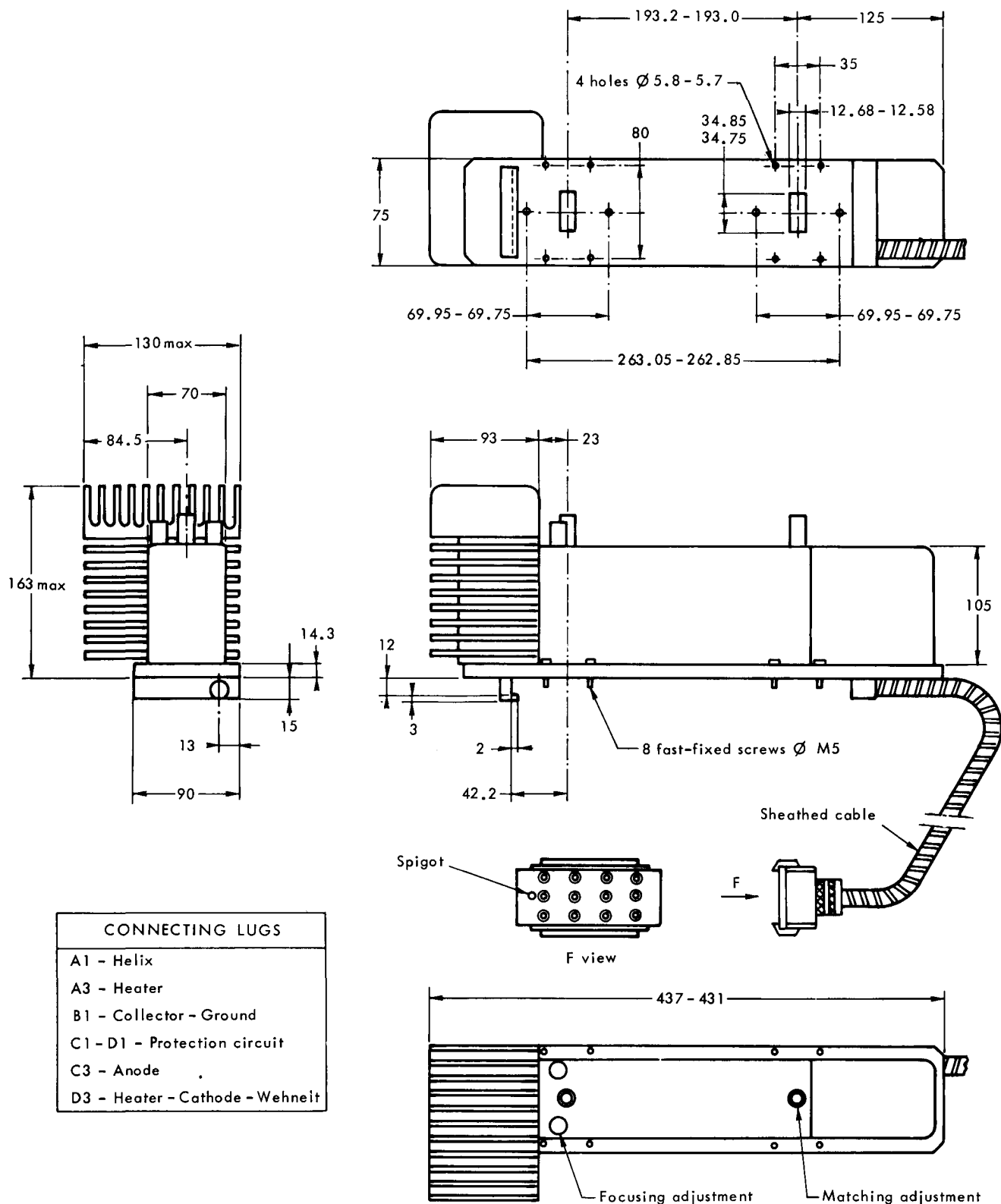


Lead connections	
Brown	Heater
Yellow	Heater-cathode
Blue	Anode
Green	Wehnelt
Orange	Helix




THOMSON-CSF
 GROUPEMENT TUBES ELECTRONIQUES

OUTLINE DRAWING



CONNECTING LUGS

- A1 - Helix
- A3 - Heater
- B1 - Collector - Ground
- C1 - D1 - Protection circuit
- C3 - Anode
- D3 - Heater - Cathode - Wehnelt

Dimensions in mm.

