

# engineering TUBE DATA

F-6691  
POWER TRIODE



*Components Division*

## DESCRIPTION

The F-6691 is a three electrode tube designed for use as an industrial oscillator. The anode is capable of dissipating 17 kilowatts during Continuous Commercial Service. Cooling is accomplished by forced air. The cathode is a thoriated tungsten filament and may be operated on d-c or single phase a-c. Maximum ratings apply up to 30 megacycles.

## ELECTRICAL

Filament Voltage	5.0 volts
Filament Current	260 amperes
Filament Starting Current	1000 amperes
Filament Cold Resistance	.002 ohms
Filament Heating Time	15 seconds
Amplification Factor	
$E_c = -100$ v. $I_b = 1.5$ amps	21
Peak Cathode Current, Note 1	40 amperes
Direct Inter-electrode Capacitance	
Grid-Plate	55 $\mu$ f
Grid-Filament	57 $\mu$ f
Plate-Filament	5.0 $\mu$ f

Note 1: Represents maximum usable cathode current (plate current plus grid current) for any condition of operation.

## MECHANICAL

Mounting Position	Vertical, anode down		
Type of Cooling	Forced Air		
Maximum Incoming Air Temperature	45 °C		
Required Air Flow on Anode			
Plate Dissipation - kw	17	14	12
Air Flow - cfm	1000	800	700
Pressure - inches of water	3.5	2.3	1.7
Net Weight, approximate	39 lbs		

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MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Radio-Frequency Power Amplifier & Oscillator - Class C Telegraphy  
(Key down conditions per tube without Amplitude Modulation)

Maximum CCS Ratings, Absolute Values:	Below 2 mc	2 mc to 30 mc
D-C Plate Voltage	15,000	12,500 max. volts
D-C Grid Voltage	-2,000	-2,000 max. volts
D-C Plate Current	6	6 max. amps
D-C Grid Current	.8	.8 max. amps
Plate Input	60	54 max. kw
Plate Dissipation	17	17 max. kw

Typical Operation

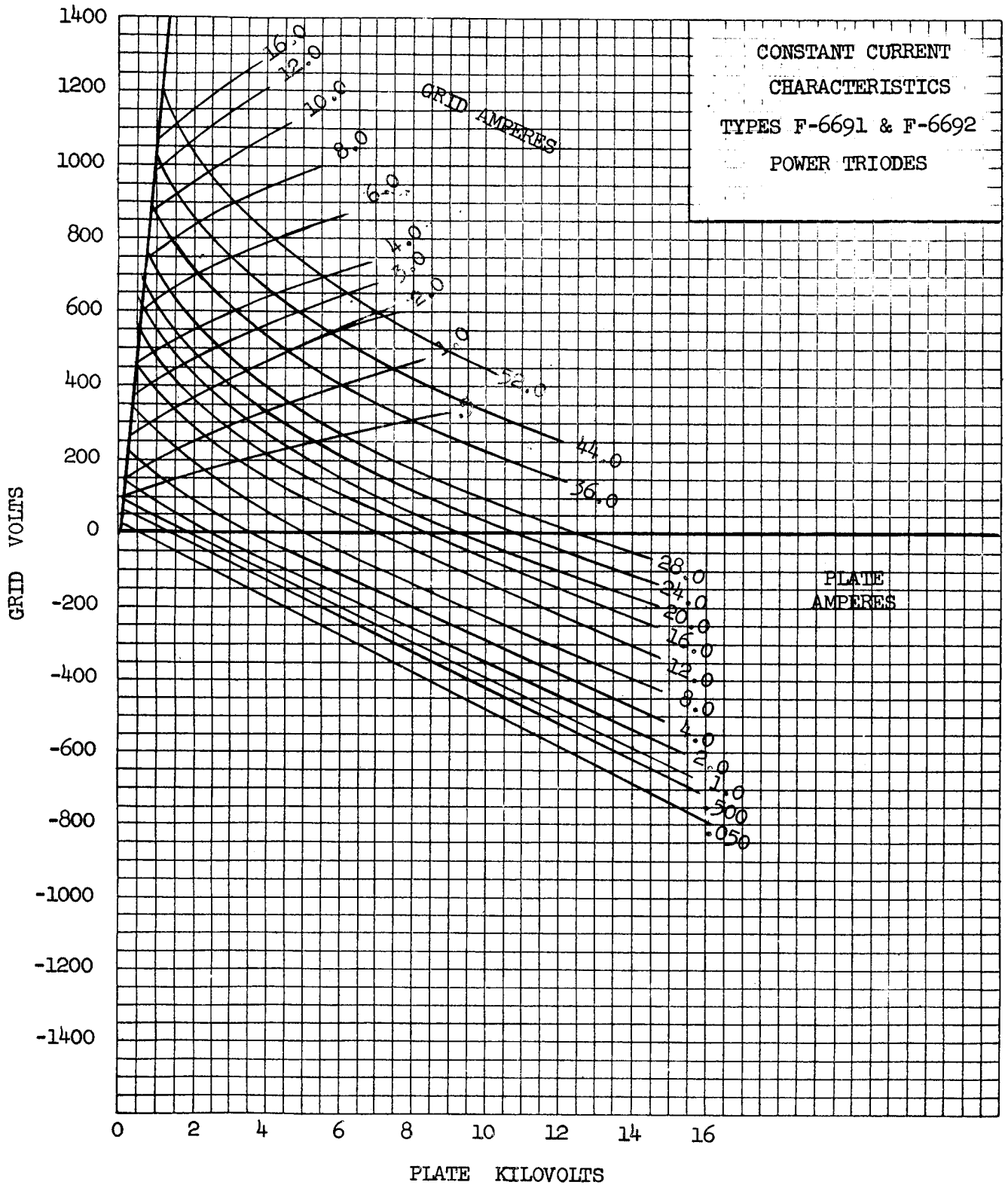
D-C Plate Voltage	15,000	12,500	10,000	7,500 volts
D-C Grid Voltage	-1,600	-1,300	-1,100	-800 volts
Peak R-F Grid Voltage	2140	1820	1600	1360 volts
D-C Plate Current	3.9	4.25	4.1	5.4 amps
D-C Grid Current, approx.	.570	.500	.750	.690 amps
Driving Power, approx.	1200	900	1200	935 watts
Power Output, approx.	47.0	42.0	32.5	30.0 kw

Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 per cent of the carrier conditions.

RATINGS VERSUS FREQUENCY

Maximum ratings apply up to 30 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tabulation below (other maximum ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

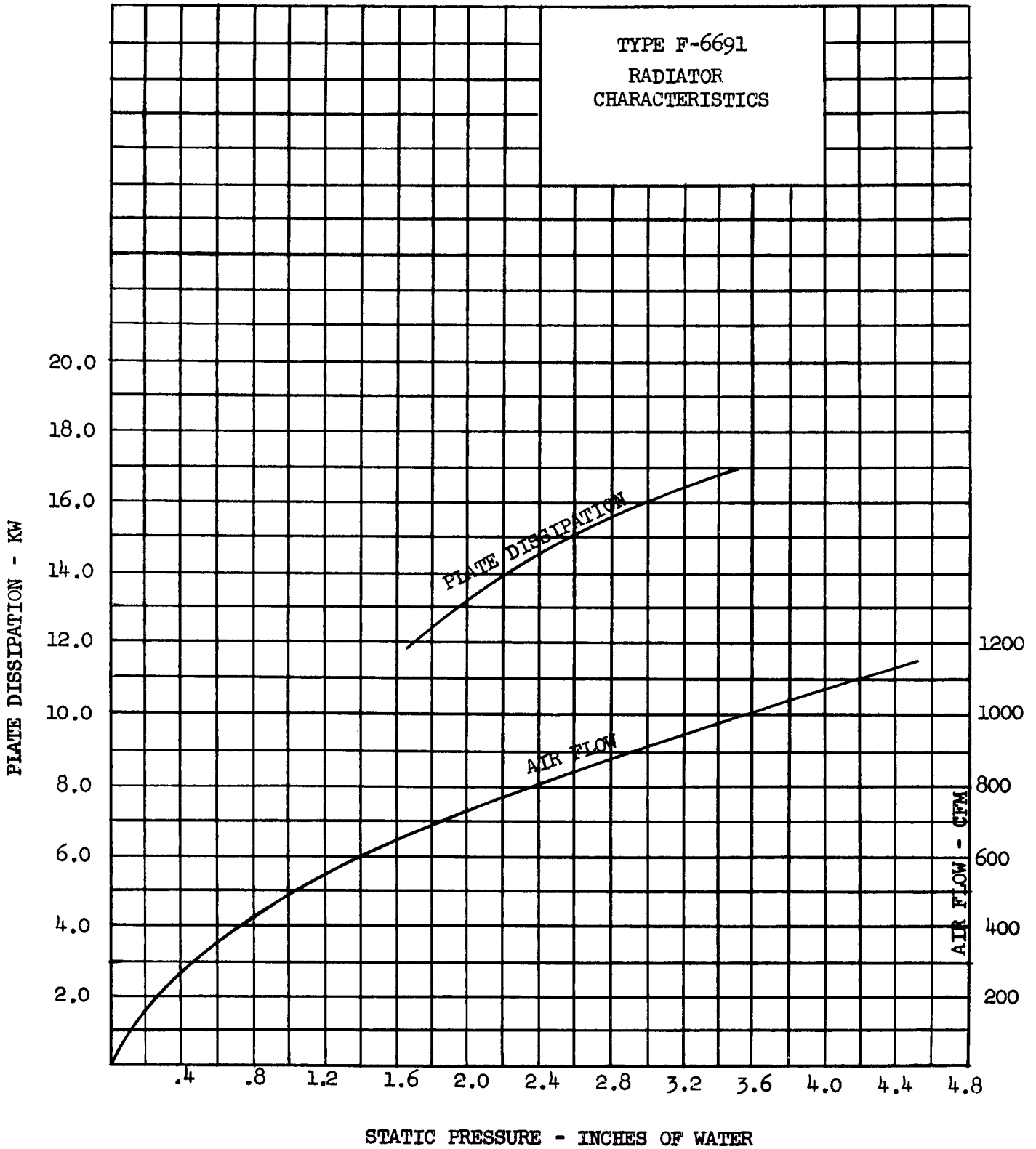
Frequency	30	40	50 megacycles
Percentage of Maximum Rated Plate Voltage & Plate Input	100	80	50 per cent



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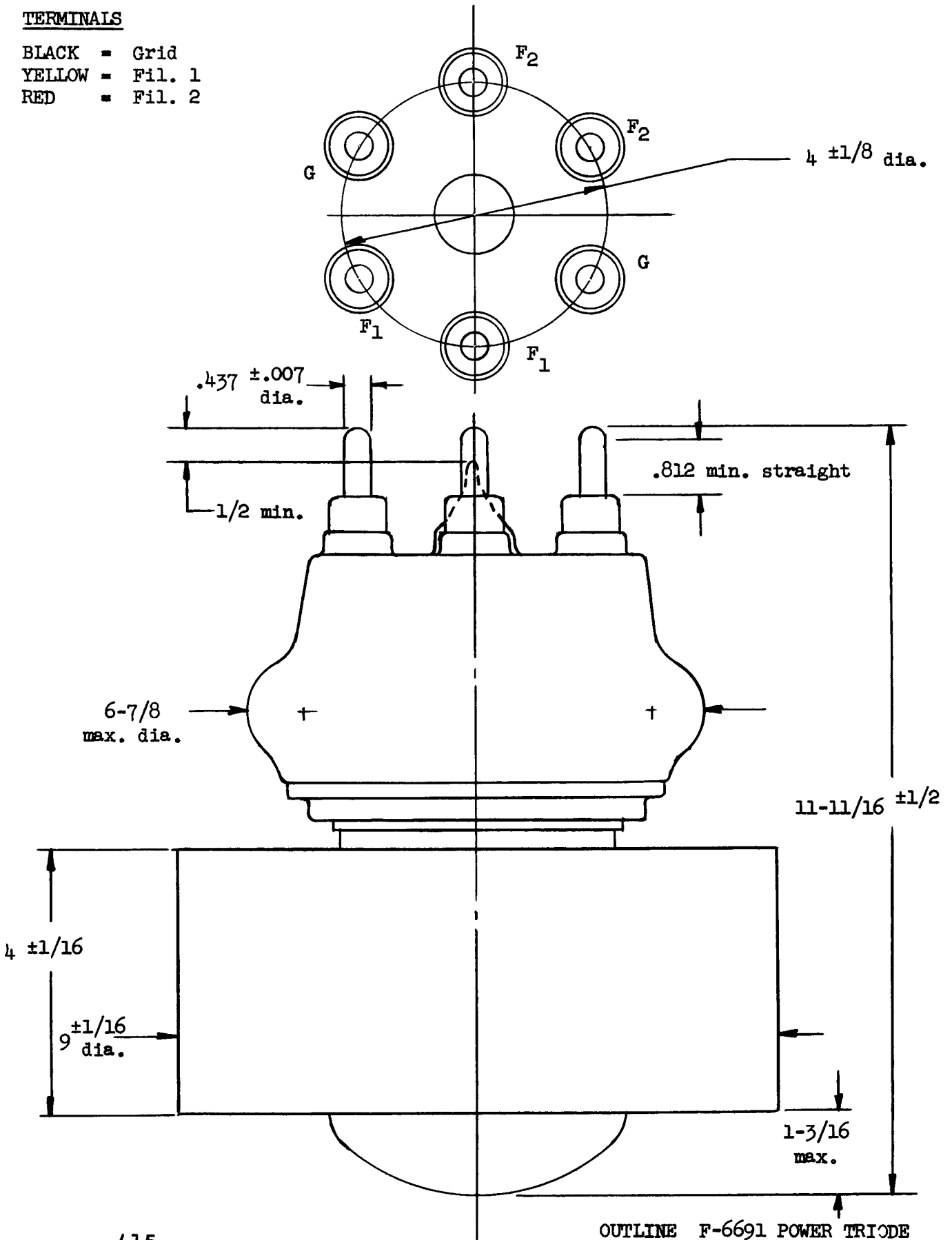
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TERMINALS

- BLACK = Grid
- YELLOW = Fil. 1
- RED = Fil. 2



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OUTLINE F-6691 POWER TRIODE

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