



ELECTRONIC TUBE REFERENCE

F5666

Power - Triode (over 1000V 100W) electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Rugged water-cooled power triode for RF amplification, oscillation, Class B modulation, and industrial RF-heating service. Approximately 12.5 kW plate dissipation and high-voltage capability support substantial continuous professional RF power.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	11 V / 120 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
AMPLIFICATION FACTOR	21
MAXIMUM PLATE VOLTAGE	10000 V
MAXIMUM PLATE DISSIPATION	12500 W
MAXIMUM CATHODE CURRENT	7.5 A
Published maximum ratings and characteristics audited; remaining numeric data retained densely in parameter table.	

Federal F-5666 rugged water-cooled power triode for RF amplifier, oscillator, Class B modulator and RF-heating service; 12.5 kW dissipation.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 ITT

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1962 ITT

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value	12.5 W	12.5 Kilowatts Plate Dissipation
place the Type	889	place the Type 889-A. The anode (heavy wall de-
Operation at	50	Operation at 50 megacycles is permissible with plate
) Filament Voltage	11 V	) Filament Voltage 11.0 Volts
p Filament Current	120 A	p Filament Current 120 Amperes
D Filament Starting Current	180 mA	D Filament Starting Current 180 Amperes Max.
) Filament Cold Resistance	83	) Filament Cold Resistance .0083 Ohms
) Peak Cathode Current	7.5 A	) Peak Cathode Current 7.5 Amperes
Grid-Plate	17.5	Grid-Plate 17.5 ppf
Grid-Filament	23.3	Grid-Filament 23.3 pput
Plate-Filament	2.7	Plate-Filament 2.7 ppuf
Water Flow on Anode	5	Water Flow on Anode 5 GPM
Water Temperature	70	Water Temperature 70° C
Temperature	160	Temperature 160° C
DC Plate Voltage [1]	10000 V	DC Plate Voltage 10,000 VVolts DC Plate Voltage 8,000 Volts
DC Plate Voltage [2]	8000 V	DC Plate Voltage 10,000 VVolts DC Plate Voltage 8,000 Volts
Maximum Signal DC Plate DC Grid Voltage —	1500 V	Maximum Signal DC Plate DC Grid Voltage — 1,500 Volts
Current**	2 A	Current** 2 Amperes
DC Plate Current	1 A	DC Plate Current 1.0 Ampere
Maximum Signal Plate Input**	16	Maximum Signal Plate Input** 16 Kilowatts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC Grid Current	350 mA	DC Grid Current 0.35 Ampere
Plate Dissipation**	12.5 W	Plate Dissipation** 12.5 Kilowatts
Plate Input	8	Plate Input 8 Kilowatts
Plate Dissipation	7.5 W	Plate Dissipation 7.5 Kilowatts
DC Plate VYoltage	7500	DC Plate VYoltage 7,500 Volts
DC Plate Voltage [1]	6000 V	DC Plate Voltage 6,000 7,500 Volts
DC Plate Voltage [2]	7500 V	DC Plate Voltage 6,000 7,500 Volts
DC Grid Voltage	-300 V	DC Grid Voltage —300 Volts
DC Grid Voltage [1]	-900 V	DC Grid Voltage —900 —1,200 Volts
DC Grid Voltage [2]	-1200 V	DC Grid Voltage —900 —1,200 Volts
Peak A-F Grid to Grid Voltage	1700	Peak A-F Grid to Grid Voltage 1,700 Volts
Peak R-F Grid Voltage [1]	1420 V	Peak R-F Grid Voltage 1,420 1,700 Volts
Peak R-F Grid Voltage [2]	1700 V	Peak R-F Grid Voltage 1,420 1,700 Volts
Zero Signal DC Plate Current	400 mA	Zero Signal DC Plate Current 0.4 Ampere
DC Plate Current [1]	1 A	DC Plate Current 1.0 .88 Ampere
DC Plate Current [2]	88 A	DC Plate Current 1.0 .88 Ampere
Maximum Signal DC Plate Current	3.2 mA	Maximum Signal DC Plate Current 3.2 Amperes
DC Grid Current, approx [1]	100 mA	DC Grid Current, approx. 0.1 .08 Ampere
DC Grid Current, approx [2]	8 A	DC Grid Current, approx. 0.1 .08 Ampere
Driving Power, approx [1]	140 W	Driving Power, approx. 140 140 Watts
Driving Power, approx [2]	140 W	Driving Power, approx. 140 140 Watts
Plate to Plate	5000	Plate to Plate 5,000 Qhms
Power Output, approx [1]	4 W	Power Output, approx. 4 5 Kilowatts
Power Output, approx [2]	5 W	Power Output, approx. 4 5 Kilowatts
DC Plate Voltage	10000 V	DC Plate Voltage 10,000 Volts
RADIO-FREQUENCY POWER AMPLIFIER DC Grid Voltage —	1500 V	RADIO-FREQUENCY POWER AMPLIFIER DC Grid Voltage — 1,500 Volts
—CLASS B TELEPHONY DC Plate Current	2 A	—CLASS B TELEPHONY DC Plate Current 2 Amperes
(Carrier conditions per tube for use with a maximum DC Grid Current	0.35 mA	(Carrier conditions per tube for use with a maximum DC Grid Current 0.35 Ampere

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Ratings Plate Dissipation	12.5 W	Maximum Ratings Plate Dissipation 12.5 Kilowatts
Plate Input [1]	10 V	Plate Input 10 Kilowatts DC Plate Voltage 6,000 7,500 9,000 Volts
Plate Input [2]	6000 V	Plate Input 10 Kilowatts DC Plate Voltage 6,000 7,500 9,000 Volts
Plate Input [3]	7500 V	Plate Input 10 Kilowatts DC Plate Voltage 6,000 7,500 9,000 Volts
Plate Input [4]	9000 V	Plate Input 10 Kilowatts DC Plate Voltage 6,000 7,500 9,000 Volts
Plate Dissipation [1]	12.5 V	Plate Dissipation 12.5 Kilowatts Filament Voltage 10.6 10.7 10.8 Volts
Plate Dissipation [2]	10.6 V	Plate Dissipation 12.5 Kilowatts Filament Voltage 10.6 10.7 10.8 Volts
Plate Dissipation [3]	10.7 V	Plate Dissipation 12.5 Kilowatts Filament Voltage 10.6 10.7 10.8 Volts
Plate Dissipation [4]	10.8 V	Plate Dissipation 12.5 Kilowatts Filament Voltage 10.6 10.7 10.8 Volts
DC Grid Voltage [1]	-500 V	DC Grid Voltage —500 —600 —750 Yolts
DC Grid Voltage [2]	-600 V	DC Grid Voltage —500 —600 —750 Yolts
DC Grid Voltage [3]	-750 V	DC Grid Voltage —500 —600 —750 Yolts
Voltage [1]	1200 V	Voltage 1,200 1,400 1,700 Volts
Voltage [2]	1400 V	Voltage 1,200 1,400 1,700 Volts
Voltage [3]	1700 V	Voltage 1,200 1,400 1,700 Volts
DC Plate Voltage	9000 V	DC Plate Voltage 9,000 Volts
DC Plate Current [1]	1.6 A	DC Plate Current 1.6 1.8 2.0 Amps.
DC Plate Current [2]	1.8 A	DC Plate Current 1.6 1.8 2.0 Amps.
DC Plate Current [3]	2 A	DC Plate Current 1.6 1.8 2.0 Amps.
DC Grid Voltage	-350 V	DC Grid Voltage —350 Volts
DC Grid Current, approx [1]	19 A	DC Grid Current, approx. .19 .20 .21 Amps.
DC Grid Current, approx [2]	20 A	DC Grid Current, approx. .19 .20 .21 Amps.
DC Grid Current, approx [3]	21 A	DC Grid Current, approx. .19 .20 .21 Amps.
Peak R-F Grid Voltage	450 V	Peak R-F Grid Voltage 450 Volts
Driving Power, approx [1]	220 W	Driving Power, approx. 220 270 340 Watts
Driving Power, approx [2]	270 W	Driving Power, approx. 220 270 340 Watts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Driving Power, approx [3]	340 W	Driving Power, approx. 220 270 340 Watts
DC Plate Current	800 mA	DC Plate Current 0.8 Ampere
Power Output, approx [1]	6.3 kW	Power Output, approx. 6.3 8.9 12.2 KW.
Power Output, approx [2]	8.9 kW	Power Output, approx. 6.3 8.9 12.2 KW.
Power Output, approx [3]	12.2 kW	Power Output, approx. 6.3 8.9 12.2 KW.
Driving Power, Approximatet	110 W	Driving Power, Approximatet 110 Watts
Power Output, Approximate	2.5 W	Power Output, Approximate 2.5 Kilowatts
of the audio-frequency envelope does not exceed	115	of the audio-frequency envelope does not exceed 115% of the
Federal's F	5666 W	Federal's F-5666 is a "must" for equip-FEDERAL POWER TRIODE
;e GRID CHARACTERISTICS F	5666	;e GRID CHARACTERISTICS F-5666
FEDERAL POWER TRIODE Federal's F	5666 W	FEDERAL POWER TRIODE Federal's F-5666 has the rugged de-
The long life qualities of F	5666 W	The long life qualities of F-5666 are FEDERAL POWER TRIODE



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

1962 ITT Industrial and Transmitting Tubes

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1962 ITT INDUSTRIAL AND TRANSMITTING TUBES

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
FilamentStartingCurrent	180 A	—
Peak Cathode Current	7.5 A	—
AnodeCoolingMethod	Water	—
MaximumOperatingFrequency	22.5 MHz full rating; 50 MHz reduced rating	—
Maximum Anode Dissipation	12500 W	Absolute maximum / applicable service

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
GridPlateCapacitance	17.5 pF	—
GridFilamentCapacitance	23.3 pF	—
PlateFilamentCapacitance	2.7 pF	—