



ELECTRONIC TUBE REFERENCE

F5680

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

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

TRIODE

Thoriated-tungsten power triode for modulation, RF amplification, oscillation, and high-voltage pulse applications. Wide electrode spacing and absence of internal insulators improve voltage capability while substantial dissipation supports professional power service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	13 V / 36 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Triode	
AMPLIFICATION FACTOR	25
MAXIMUM PLATE VOLTAGE	6000 V
MAXIMUM PLATE DISSIPATION	2500 W
MAXIMUM CATHODE CURRENT	35 A
Published maximum ratings and characteristics audited; remaining numeric data retained densely in parameter table.	

Three-electrode power tube for modulator, amplifier and oscillator service; wide element spacing and no internal insulators make it suitable for high-voltage pulse applications.

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	2.5 W	2.5 Kilowatts Plate Dissipation
Rating	2.5	Rating 2.5 kilowatts. The cathode is a thoriated
tungsten filament. Maximum ratings apply up to	30	tungsten filament. Maximum ratings apply up to 30
p Filament Voltage	13 V	p Filament Voltage . 13.0 Volts
p Filament Current	36 A	p Filament Current 36 Amperes
) Filament Starting Current	72 A	) Filament Starting Current 72 Amperes
) Filament Cold Resistance	40	) Filament Cold Resistance .040 Ohms
Grid-Plate	12	Grid-Plate 12.0 uuf
Grid-Filament	15	Grid-Filament 15.0 uuf
Plate-Filament	1.8	Plate-Filament 1.8 uuf
Air Temperature	45	Air Temperature 45° C
Temperature	150	Temperature 150° C
Frequency [1]	30	Frequency 30 50 Megacycles
Frequency [2]	50	Frequency 30 50 Megacycles
Published value	2.5 W	2.5 Kilowatts Plate Dissipation Plate Input
AND MODULATOR—CLASS B DC Plate Voltage	5000 V	AND MODULATOR—CLASS B DC Plate Voltage 5,000 Volts
Maximum Ratings, Absolute Values DC Grid Voltage	-800 V	Maximum Ratings, Absolute Values DC Grid Voltage —800 Volts
DC Plate Voltage [1]	6000 V	DC Plate Voltage 6,000 Volts Peak R-F Grid Voltage 1,370 Volts
DC Plate Voltage [2]	1370 V	DC Plate Voltage 6,000 Volts Peak R-F Grid Voltage 1,370 Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Signal DC Plate Current* [1]	2 mA	Maximum Signal DC Plate Current* 2.0 Amperes DC Plate Current 0.74 Amperes
Maximum Signal DC Plate Current* [2]	0.74 mA	Maximum Signal DC Plate Current* 2.0 Amperes DC Plate Current 0.74 Amperes
Maximum Signal Plate Input* [1]	6 mA	Maximum Signal Plate Input* 6.0 Kilowatts DC Grid Current, Approximate 0.10 Amperes
Maximum Signal Plate Input* [2]	0.1 mA	Maximum Signal Plate Input* 6.0 Kilowatts DC Grid Current, Approximate 0.10 Amperes
Plate Dissipation* [1]	2.5 W	Plate Dissipation* 2.5 Kilowatts Driving Power, Approximate 130 Woatts
Plate Dissipation* [2]	130 W	Plate Dissipation* 2.5 Kilowatts Driving Power, Approximate 130 Woatts
Power Output, Approximate	2.7 W	Power Output, Approximate 2.7 Kilowatts
DC Plate Voltage	5000 V	DC Plate Voltage 5,000 Volts RADIO-FREQUENCY POWER AMPLIFIER AND
DC Grid Voltage –	150 V	DC Grid Voltage — 150 Volts OSCILLATOR—CLASS C TELEGRAPHY
Peak A-F Grid-to-Grid Voltage	1260 V	Peak A-F Grid-to-Grid Voltage 1,260 Volts {Key-down conditions per tube without amplitude modulation)t
Zero Signal DC Plate Current	400 mA	Zero Signal DC Plate Current 0.4 Amperes
Maximum Signal DC Plate Current	2.25 mA	Maximum Signal DC Plate Current 2.25 Amperes
Effective Load Resistance, DC Plate Voltage	6000 V	Effective Load Resistance, DC Plate Voltage 6,000 Volts
Plate to Plate [1]	4000 V	Plate to Plate 4,000 Ohms DC Grid Voltage — 2,000 Volts
Plate to Plate [2]	2000 V	Plate to Plate 4,000 Ohms DC Grid Voltage — 2,000 Volts
Maximum Signal Driving Power, DC Plate Current	2 mA	Maximum Signal Driving Power, DC Plate Current 2.0 Amperes
Approximate [1]	175 mA	Approximate 175 Watts DC Grid Current 0.2 Amperes
Approximate [2]	0.2 mA	Approximate 175 Watts DC Grid Current 0.2 Amperes
Maximum Signal Power Output, Plate Input	12 W	Maximum Signal Power Output, Plate Input 12 Kilowatts
Approximate [1]	7.2 W	Approximate 7.2 Kilowatts Plate Dissipation 2.5 Kilowatts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Approximate [2]	2.5 W	Approximate 7.2 Kilowatts Plate Dissipation 2.5 Kilowatts
RADIO-FREQUENCY POWER AMPLIFIER—CLASS B DC Plate Voltage	6000 V	RADIO-FREQUENCY POWER AMPLIFIER—CLASS B DC Plate Voltage 6,000 Volts
(Carrier conditions per tube for use with a maximum DC Grid Voltage	-800 V	(Carrier conditions per tube for use with a maximum DC Grid Voltage —800 Volts
modulation factor of [1]	1	modulation factor of 1.0} Peak R-F Grid VVoltage 1,510 Volts
modulation factor of [2]	1510	modulation factor of 1.0} Peak R-F Grid VVoltage 1,510 Volts
Maximum Ratings, Absolute Values DC Plate Current	1.4 mA	Maximum Ratings, Absolute Values DC Plate Current 1.4 Amperes
DC Grid Current, Approximate	0.16 mA	DC Grid Current, Approximate 0.16 Amperes
DC Plate Voltage	6000 V	DC Plate Voltage 6,000 Volts
Driving Power, Approximate	225 W	Driving Power, Approximate 225 Woatts
DC Plate Current	1.5 A	DC Plate Current 1.5 Amperes
Power Output, Approximate	6 W	Power Output, Approximate 6 Kilowatts
Plate Input	3.75	Plate Input 3.75 Kilowatts
Plate Dissipation [1]	2.5 W	Plate Dissipation 2.5 Kilowatts of the envelope does not exceed 115 per cent of the carrier
Plate Dissipation [2]	115 W	Plate Dissipation 2.5 Kilowatts of the envelope does not exceed 115 per cent of the carrier
DC Grid Voltage —	160 V	DC Grid Voltage — 160 Volts RADIO FREQUENCY POWER AMPLIFIER AND
Peak R-F Grid Voltage	300 V	Peak R-F Grid Voltage 300 Volts OSCILLATOR—PULSED OPERATION
DC Plate Current	560 mA	DC Plate Current 0.56 Amperes
DC Grid Current, Approximate	0 mA	DC Grid Current, Approximate 0.0 Amperes Maximum Ratings, Absolute Values
Driving Power, Approximate** [1]	47 V	Driving Power, Approximate** 47 Watts DC Plate Voltage 17,500 Volts
Driving Power, Approximate** [2]	17500 V	Driving Power, Approximate** 47 Watts DC Plate Voltage 17,500 Volts
Power Output, Approximate [1]	1 V	Power Output, Approximate 1 Kilowatt DC Grid Voltage — 5,000 Volts
Power Output, Approximate [2]	5000 V	Power Output, Approximate 1 Kilowatt DC Grid Voltage — 5,000 Volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
**At crest of audio-frequency cycle with modulation factor of [1]	1 A	**At crest of audio-frequency cycle with modulation factor of 1.0 Peak Cathode Current 35 Amperes
**At crest of audio-frequency cycle with modulation factor of [2]	35 A	**At crest of audio-frequency cycle with modulation factor of 1.0 Peak Cathode Current 35 Amperes
Plate Dissipation\$	1.2 W	Plate Dissipation\$ 1.2 Kilowatts
PLATE-MODULATED RADIO-FREQUENCY POWER Duty Cycle	30 W	PLATE-MODULATED RADIO-FREQUENCY POWER Duty Cycle .030
DC Plate Voltage [1]	5000 V	DC Plate Voltage 5,000 Volts DC Plate Voltage 15,500 Volts
DC Plate Voltage [2]	15500 V	DC Plate Voltage 5,000 Volts DC Plate Voltage 15,500 Volts
DC Grid Voltage – [1]	2000 V	DC Grid Voltage — 2,000 Volts DC Grid Voltage (during pulse)] —750 Volts
DC Grid Voltage – [2]	-750 V	DC Grid Voltage — 2,000 Volts DC Grid Voltage (during pulse)] —750 Volts
DC Plate Current [1]	1.5 A	DC Plate Current 1.5 Amperes DC Plate Current 0.20 Amperes
DC Plate Current [2]	200 mA	DC Plate Current 1.5 Amperes DC Plate Current 0.20 Amperes
DC Grid Current [1]	200 mA	DC Grid Current 0.2 Amperes DC Grid Current .013 Amperes
DC Grid Current [2]	13 A	DC Grid Current 0.2 Amperes DC Grid Current .013 Amperes
Plate Input [1]	7.5	Plate Input 7.5 Kilowatts Duty Cycle .023
Plate Input [2]	23	Plate Input 7.5 Kilowatts Duty Cycle .023
Plate Dissipation [1]	1.6 W	Plate Dissipation 1.6 Kilowatts Peak Power Outpur 90 Kilowatts
Plate Dissipation [2]	90 W	Plate Dissipation 1.6 Kilowatts Peak Power Outpur 90 Kilowatts



SOURCE DATA APPENDIX

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
Maximum full-rating frequency	30 MHz	—
Cooling method	forced air	—

TUBE TINKER

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