ELECTRONIC TUBE REFERENCE

4020B

Voltage - Triode (single) electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
TRIODE

Directly heated high-mu oxide-filament triode with published audio operating conditions, load resistance, output, and harmonic-performance data.

General characteristics

BASE DESIGNATION	—	**BASE PINS**	4
NOMINAL HEATER	2 V / 250 mA	**PARALLEL HEATER**	— / —
HEATING	Direct	**SERIES OPERATION**	Not specified
CATHODE ARRANGEMENT	Separate cathodes	**SECTION CONSTRUCTION**	Similar

Section ratings

SECTION1 Triode	
PLATE RESISTANCE	50000 Ω
TRANSCONDUCTANCE	0.0006 S
AMPLIFICATION FACTOR	30

Published ratings/characteristics promoted; remaining useful source values represented as parameters.

Standard Valves 4020B is an oxide-coated directly heated triode. The sheet publishes its filament rating, static constants, interelectrode capacitances, and a table of typical anode/grid/load operating conditions with output and harmonic performance. Oxide-coated filament high-mu triode, Standard British 4-pin base.

SOURCE OPERATING CONDITIONS

1937 Standard Valves

SOURCE PDF

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

1937 STANDARD VALVES

Section 1 · Triode

CAPACITANCE

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-Anode Capacitance	**6.3 pF**	Published specification
Anode-Filament Capacitance	**4.4 pF**	Published specification
Grid-Filament Capacitance	**6.2 pF**	Published specification

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Characteristic Anode Current	**0.8 mA**	For impedance/amplification factor/transconductance values

OTHER

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output Voltage Peak	**18.5 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1V; AnodeCurrent=1.26mA; AnodeResistance=43000ohm; LoadResistance=43000ohm
Total Harmonics Below Fundamental	**34.5 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1V; AnodeCurrent=1.26mA; AnodeResistance=43000ohm; LoadResistance=43000ohm
Output Voltage Peak	**20.3 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1V; AnodeCurrent=1.26mA; AnodeResistance=43000ohm; LoadResistance=86000ohm
Total Harmonics Below Fundamental	**37 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1V; AnodeCurrent=1.26mA; AnodeResistance=43000ohm; LoadResistance=86000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output Voltage Peak	**20.6 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1V; AnodeCurrent=1.26mA; AnodeResistance=43000ohm; LoadResistance=129000ohm
Total Harmonics Below Fundamental	**37 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1V; AnodeCurrent=1.26mA; AnodeResistance=43000ohm; LoadResistance=129000ohm
Output Voltage Peak	**21.4 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1.5V; AnodeCurrent=0.92mA; AnodeResistance=46000ohm; LoadResistance=46000ohm
Total Harmonics Below Fundamental	**30 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1.5V; AnodeCurrent=0.92mA; AnodeResistance=46000ohm; LoadResistance=46000ohm
Output Voltage Peak	**25.4 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1.5V; AnodeCurrent=0.92mA; AnodeResistance=46000ohm; LoadResistance=92000ohm
Total Harmonics Below Fundamental	**35.3 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1.5V; AnodeCurrent=0.92mA; AnodeResistance=46000ohm; LoadResistance=92000ohm
Output Voltage Peak	**26.2 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1.5V; AnodeCurrent=0.92mA; AnodeResistance=46000ohm; LoadResistance=138000ohm
Total Harmonics Below Fundamental	**37 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-1.5V; AnodeCurrent=0.92mA; AnodeResistance=46000ohm; LoadResistance=138000ohm
Output Voltage Peak	**12.1 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-2V; AnodeCurrent=0.64mA; AnodeResistance=52000ohm; LoadResistance=52000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Total Harmonics Below Fundamental	**21.7 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-2V; AnodeCurrent=0.64mA; AnodeResistance=52000ohm; LoadResistance=52000ohm
Output Voltage Peak	**14.8 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-2V; AnodeCurrent=0.64mA; AnodeResistance=52000ohm; LoadResistance=104000ohm
Total Harmonics Below Fundamental	**28 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-2V; AnodeCurrent=0.64mA; AnodeResistance=52000ohm; LoadResistance=104000ohm
Output Voltage Peak	**17.6 V**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-2V; AnodeCurrent=0.64mA; AnodeResistance=52000ohm; LoadResistance=156000ohm
Total Harmonics Below Fundamental	**30.5 dB**	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-2V; AnodeCurrent=0.64mA; AnodeResistance=52000ohm; LoadResistance=156000ohm
Output Voltage Peak	**24 V**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-1.5V; AnodeCurrent=1.63mA; AnodeResistance=41000ohm; LoadResistance=41000ohm
Total Harmonics Below Fundamental	**35.2 dB**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-1.5V; AnodeCurrent=1.63mA; AnodeResistance=41000ohm; LoadResistance=41000ohm
Output Voltage Peak	**30.2 V**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-1.5V; AnodeCurrent=1.63mA; AnodeResistance=41000ohm; LoadResistance=82000ohm
Total Harmonics Below Fundamental	**38.2 dB**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-1.5V; AnodeCurrent=1.63mA; AnodeResistance=41000ohm; LoadResistance=82000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output Voltage Peak	**35 V**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-1.5V; AnodeCurrent=1.63mA; AnodeResistance=41000ohm; LoadResistance=123000ohm
Total Harmonics Below Fundamental	**38.5 dB**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-1.5V; AnodeCurrent=1.63mA; AnodeResistance=41000ohm; LoadResistance=123000ohm
Output Voltage Peak	**37 V**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-2V; AnodeCurrent=1.28mA; AnodeResistance=44000ohm; LoadResistance=44000ohm
Total Harmonics Below Fundamental	**29 dB**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-2V; AnodeCurrent=1.28mA; AnodeResistance=44000ohm; LoadResistance=44000ohm
Output Voltage Peak	**42 V**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-2V; AnodeCurrent=1.28mA; AnodeResistance=44000ohm; LoadResistance=88000ohm
Total Harmonics Below Fundamental	**35 dB**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-2V; AnodeCurrent=1.28mA; AnodeResistance=44000ohm; LoadResistance=88000ohm
Output Voltage Peak	**45.6 V**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-2V; AnodeCurrent=1.28mA; AnodeResistance=44000ohm; LoadResistance=132000ohm
Total Harmonics Below Fundamental	**36 dB**	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-2V; AnodeCurrent=1.28mA; AnodeResistance=44000ohm; LoadResistance=132000ohm

TUBE TINKER
ELECTRON TUBE DATABASE

SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1946 Standard Telephone and Cables

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

1946 STANDARD TELEPHONE AND CABLES

Section 1 · Triode

CHARACTERISTICS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater/filament voltage	**2 V**	—
Heater/filament current	**250 mA**	—
Plate resistance	**50000 ohm**	—
Transconductance	**0.0006 A/V**	—
Amplification factor	**30**	—

Tube Tinker

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