

ELECTRONIC TUBE REFERENCE

4022AR

Voltage - Triode (single) electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
TRIODE

Closer-limit directly heated oxide-filament triode built to the 4022-AR specification, with published audio operating, output, and harmonic-performance data.

GENERAL CHARACTERISTICS

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

SECTION RATINGS

SECTION1 Triode	
PLATE RESISTANCE	5500 Ω
TRANSCONDUCTANCE	0.0022 S
AMPLIFICATION FACTOR	12
MAXIMUM PLATE VOLTAGE	190 V
Published ratings/characteristics promoted; remaining useful source values represented as parameters.	

Standard Valves 4022AR 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 triode made to the closer-limit 4022-AR specification.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1937 Standard Valves

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	9.6 pF	Published specification
Anode-Filament Capacitance	4.3 pF	Published specification
Grid-Filament Capacitance	8.1 pF	Published specification

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Characteristic Anode Voltage	130 V	For impedance/amplification factor/transconductance values
Characteristic Grid Bias	-4.5 V	For impedance/amplification factor/transconductance values

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output Power	67 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=6500ohm
Second Harmonic Below Fundamental	27 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=6500ohm
Third Harmonic Below Fundamental	47 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=6500ohm
Output Power	65 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=13000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Second Harmonic Below Fundamental	35 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=13000ohm
Third Harmonic Below Fundamental	48 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=13000ohm
Output Power	63 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=19500ohm
Second Harmonic Below Fundamental	38 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-6V; AnodeCurrent=3.5mA; LoadResistance=19500ohm
Output Power	120 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=5000ohm
Second Harmonic Below Fundamental	18 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=5000ohm
Third Harmonic Below Fundamental	30 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=5000ohm
Output Power	90 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=10000ohm
Second Harmonic Below Fundamental	20 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=10000ohm
Third Harmonic Below Fundamental	35 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=10000ohm
Output Power	75 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=15000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Second Harmonic Below Fundamental	33 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-4.5V; AnodeCurrent=6.5mA; LoadResistance=15000ohm
Output Power	60 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=4000ohm
Second Harmonic Below Fundamental	16 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=4000ohm
Third Harmonic Below Fundamental	35 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=4000ohm
Output Power	50 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=8000ohm
Second Harmonic Below Fundamental	16 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=8000ohm
Third Harmonic Below Fundamental	36 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=8000ohm
Output Power	30 mW	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=12000ohm
Second Harmonic Below Fundamental	26 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=12000ohm
Third Harmonic Below Fundamental	45 dB	TypicalOperatingConditions; PlateVoltage=130V; GridBias=-3V; AnodeCurrent=10.6mA; LoadResistance=12000ohm
Output Power	110 mW	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=4000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Second Harmonic Below Fundamental	34 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=4000ohm
Third Harmonic Below Fundamental	40 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=4000ohm
Output Power	100 mW	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=8000ohm
Second Harmonic Below Fundamental	38 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=8000ohm
Third Harmonic Below Fundamental	45 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=8000ohm
Output Power	80 mW	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=12000ohm
Second Harmonic Below Fundamental	41 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-6V; AnodeCurrent=8.8mA; LoadResistance=12000ohm
Output Power	120 mW	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=4000ohm
Second Harmonic Below Fundamental	20 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=4000ohm
Third Harmonic Below Fundamental	33 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=4000ohm
Output Power	100 mW	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=8000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Second Harmonic Below Fundamental	20 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=8000ohm
Third Harmonic Below Fundamental	37 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=8000ohm
Output Power	85 mW	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=12000ohm
Second Harmonic Below Fundamental	40 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=12000ohm
Third Harmonic Below Fundamental	50 dB	TypicalOperatingConditions; PlateVoltage=160V; GridBias=-4.5V; AnodeCurrent=13.2mA; LoadResistance=12000ohm
Output Power	160 mW	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=4000ohm
Second Harmonic Below Fundamental	34 dB	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=4000ohm
Third Harmonic Below Fundamental	41 dB	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=4000ohm
Output Power	125 mW	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=8000ohm
Second Harmonic Below Fundamental	33 dB	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=8000ohm
Third Harmonic Below Fundamental	44 dB	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=8000ohm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Output Power	85 mW	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=12000ohm
Second Harmonic Below Fundamental	46 dB	TypicalOperatingConditions; PlateVoltage=190V; GridBias=-6V; AnodeCurrent=16.2mA; LoadResistance=12000ohm



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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	4 V	—
Heater/filament current	250 mA	—
Plate resistance	5500 ohm	—
Transconductance	0.0022 A/V	—
Amplification factor	12	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum direct anode voltage	190 V	—

TUBE TINKER

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