

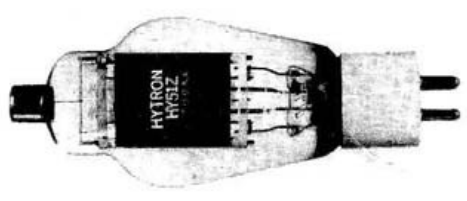


11 - 39
Type HY51Z

Engineering Bulletin
51 - 2

PHYSICAL DATA

Plate Processed Graphite
Grid Molybdenum-Nickel
Filament Thoriated Tungsten
Insulation Processed Lava
Base Large 4 Pin UX Ceramic
Plate Lead Large Metal Top Cap
Max. Overall Length 6-9/16"
Max. Diameter 2-7/16"
Bulb ST-19
Net Weight 3 1/4 oz.



ELECTRICAL DATA

Filament Voltage 7.5 volts
Filament Current 5.5 amp.
D.C. Plate Voltage 1000 volts max.
Plate Dissipation 65 watts max.
Max. Plate Current 175 ma. max.
Max. Grid Current 35 ma. max.
Average Amp. Factor 85
Mutual Conductance 7200 umhos
Plate Resistance 11800 ohms

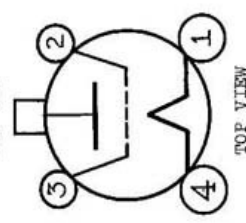
INTER-ELECTRODE CAPACITANCE

Grid to Plate 7.5 mmf.
Grid to Filament 6.0 mmf.
Plate to Filament 2.0 mmf.

BASE PIN CONNECTIONS

- 1 - Filament
- 2 - Control Grid
- 3 - Control Grid
- 4 - Filament

PLATE
TOP CAP



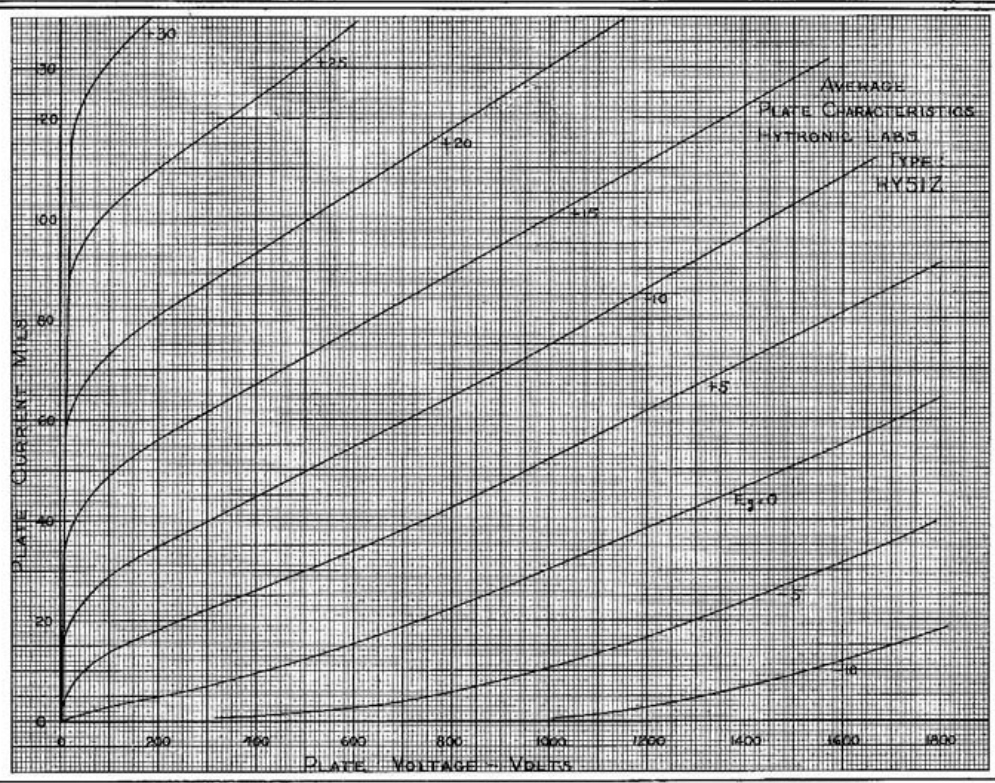
TOP VIEW

ZERO-BIAS CLASS "B" MODULATOR, R. F. POWER AMPLIFIER
HIGH EFFICIENCY TRIODE

The Hytron HY51Z tube is a high efficiency triode of rugged construction. Because of its high value of transconductance it operates at high efficiency as an R. F. Amplifier requiring low driving power. The internal structure permits operation at maximum ratings at frequencies up to 60 megacycles. As a class "B" audio power amplifier, two type HY51Z's, may be operated at zero-bias up to maximum ratings.

Product of HYTRON LABORATORIES Salem, Mass.

CONTINUOUS-DUTY RATINGS
USED IN THIS BULLETIN



DIVISION OF
HYTRON CORPORATION - SALEM, MASS., U.S.A.



HYTRON TYPE HY51Z

GENERAL DESCRIPTION

The construction of the HY51Z is similar to that of higher priced tubes. A large, sturdy graphite anode with plate lead at the top of the bulb isolates the plate from all stem wires. The entire mount is rigidly shock supported through a specially designed stem at the bottom and heavy mica snubbers in the dome of the bulb. All insulating material is of specially processed Lava. Increased stem life is enhanced through the use of filament lead radiators which prevent to a great extent radiation of filament heat into the stem.

The materials and workmanship embodied in this fine product have been carefully prepared and are the result of lengthy research in the problems surrounding Amateur Radio. The quality and resulting performance of this and other Hytron tubes is definitely assured through 18 years of successful manufacturing experience in the radio tube field.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS.A.F. Power Amplifier and Modulator Class "B"

D.C. Plate Voltage 1000 max. volts
 Maximum Signal D.C. Plate Current* 175 max. ma.
 Maximum Signal Plate Input* 175 max. watts
 Plate Dissipation* 65 watts max.

*Averaged over any Audio Frequency Cycle.

Typical Operation Two Tubes:

(Unless otherwise specified, values are for 2 tubes.)

D.C. Plate Voltage	850	1000	volts
D.C. Grid Voltage	0	0	
Static Plate Current	48	64	ma.
Peak A.F. Grid to Grid Voltage	150	175 approx.	volts
Maximum Signal D.C. Plate Current	300	300	ma.
Load Resistance per Tube	1375	1725	ohms
Effective Load Resistance Pl. to Pl.	5300	6900	ohms
Maximum Signal Driving Power	4.0	5.0 approx.	watts
Maximum Signal Power Output	160	190 approx.	watts

R. F. POWER AMPLIFIER CLASS "B" TELEPHONY

(Carrier conditions per tube for use with a maximum modulation factor of 1.0)

D.C. Plate Voltage	1000	max. volts
D.C. Plate Current	100	max. ma.
Plate Input	100	max. ma.
Plate Dissipation	60	max. watts

Typical Operation:

D.C. Plate Voltage	850	1000	volts
D.C. Grid Voltage	0	0	
Peak R.F. Grid Voltage	60	60	volts
D.C. Plate Current	90	100	ma.
D.C. Grid Current**	7	6 approx.	ma.
Driving Power Required**	8	5.5 approx.	watts
Power Output	25	30 approx.	watts

R. F. POWER AMPLIFIER AND OSCILLATOR CLASS "C" TELEPHONY
 (Carrier conditions per tube for use with maximum modulation factor of 1.0)

D.C. Plate Voltage	850	max. volts
D.C. Grid Voltage	-100	max. volts
D.C. Plate Current	150	max. ma.
D.C. Grid Current	35	max. ma.
Plate Input	128	max. watts
Plate Dissipation	50	max. watts

Typical Operation:

D.C. Plate Voltage	600	850	volts
D.C. Grid Voltage	-27	-30	volts
Peak R.F. Grid Voltage	150	160	volts
D.C. Plate Current	135	135	ma.
D.C. Grid Current	35	35 approx.	ma.
Driving Power Required	9.0	9.0 approx.	watts
Power Output	54	77 approx.	watts
Grid Leak Bias Resistor	775	850 approx.	ohms

R. F. POWER AMPLIFIER AND OSCILLATOR CLASS "C" TELEGRAPHY
 (Carrier conditions per tube without modulation)

D.C. Plate Voltage	1000	max. volts
D.C. Grid Voltage	-150	max. volts
D.C. Plate Current	175	max. ma.
D.C. Grid Current	55	max. ma.
Plate Input	175	max. watts
Plate Dissipation	65	max. watts

Typical Operation:

D.C. Plate Voltage	850	1000	volts
D.C. Grid Voltage	-20	-22½	volts
Peak R.F. Grid Voltage	160	170	volts
D.C. Plate Current	135	150	ma.
D.C. Grid Current**	35	35 approx.	ma.
Driving Power Required**	5	5 approx.	watts
Power Output**	85	110 approx.	watts
Grid Leak Bias Resistor#	925	1000 approx.	ohms

**Subject to wide variations controlled by circuit constants and operating characteristics of associated input and output circuits.

The HY51Z may be used as a power frequency doubler. Efficient doubler operation requires grid bias voltages approximately four times that required for Class "C" Telephony operation. Accordingly Grid leak bias resistor values will be four times that specified under Class "C" Telephony conditions.