

Type HY60

60 - 1



GENERAL CHARACTERISTICS

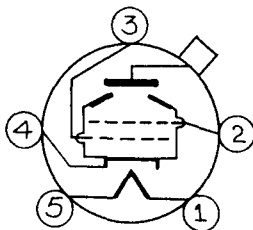
Heater Voltage (A.C. or D.C.)	6.3 volts
Heater Current	0.5 amp.
Mutual Conductance	4100 umhos
Average Amp. Factor	218
Bulb	ST-14
Max. Overall Length	5"
Max. Diameter	1-13/16"
Net Weight	2-1/4 oz.
Cap	Small Metal
Base	Med. 5 pin ceramic

INTERELECTRODE CAPACITANCE

Grid to Plate (ext. shield)	0.19 uuf
Input Electrodes	11.0 uuf
Output Electrodes	10.2 uuf

BASE PIN CONNECTIONS

- 1 - Heater
- 2 - Screen Grid
- 3 - Control Grid
- 4 - Cathode
- 5 - Heater



TOP VIEW

R.F. AMPLIFIER, OSCILLATOR CLASS AB₁
AUDIO AMPLIFIER, FREQUENCY DOUBLER.

Hytron HY60 is a heater-cathode type transmitting tube of Beam-Tetrode design incorporating efficient inter-electrode shielding and high insulation factor. The HY60 affords extremely high power-sensitivity as an audio-amplifier and very high plate efficiency as an R.F. oscillator, amplifier, or frequency doubler. Surprisingly high output is obtainable from a single HY60 as a crystal oscillator due to the small transfer of energy from plate to grid and high amplification factor. Because of its well suited characteristics, the HY60 operates as a Class "C" doubler at high efficiency and with relatively high power output. The small physical size, low filament consumption and high operating efficiency of the HY60 make the tube highly desirable for portable use. The internal structure of the HY60 permits operation at maximum ratings at frequencies up to 60 megacycles. The maximum plate dissipation of the HY60 is 15 watts.

HYTRON HY60

AS PUSH-PULL AUDIO AMPLIFIER CLASS "AB₁"

D.C. Plate Voltage	300 max. volts
D.C. Screen Voltage	300 max. volts
Plate and Screen Dissipation (total)*	12.5 max. watts

Typical Operation - Values are for 2 tubes:

D.C. Plate Voltage	250	300	volts
D.C. Screen Voltage	250	300	volts
D.C. Grid Voltage ^o	-15	-20	volts
Peak A.F. Grid to Grid Voltage	30	40	volts
Zero Signal Plate Current	70	78	ma.
Zero Signal Screen Current	5	5	ma.
Max. Signal Plate Current	79	90	ma.
Max. Signal Screen Current	12	13.5	ma.
Load Resistance per Tube	2500	2000	ohms
Effective Load Resistance Plate to Plate	10000	8000	ohms
Max. Signal Driving Power***	0.2	0.23	watts
Max. Signal Power Output	8.5	13	watts

AS RADIO FREQUENCY DOUBLER - MULTIPLIER

D.C. Plate Voltage	350 max. volts
D.C. Screen Voltage	200 max. volts
D.C. Grid Voltage	-150 max. volts
D.C. Plate Current	60 max. ma.
D.C. Grid Current	5 max. ma.
Plate Input	21 max. watts
Screen Input	2.0 max. watts
Plate Dissipation	15 max. watts

Typical Operation:

D.C. Plate Voltage	275	350	volts
D.C. Screen Voltage	200	200	volts
D.C. Grid Voltage	-100	-100	volts
Peak R.F. Grid Voltage	125	125	volts
D.C. Plate Current	44	50	ma.
D.C. Screen Current	3.7	3.0	ma.
D.C. Grid Current (Approx.)**	2.0	2.0	ma.
Screen Resistor	20000	50000	ohms
Grid Resistor	50000	50000	ohms
Driving Power (Approx.)**	0.3	0.3	watts
Power Output (Approx.)	6.0	8.0	watts

AS PLATE AND SCREEN MODULATED R.F. POWER AMPLIFIER
CLASS "C" TELEPHONY

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

D.C. Plate Voltage	325 max. volts
D.C. Screen Voltage (Grid #2)	225 max. volts
D.C. Grid Voltage (Grid #1)	-150 max. volts
D.C. Plate Current	60 max. ma.
D.C. Grid Current	5 max. ma.
Plate Input	20 max. watts
Screen Input	2.0 max. watts
Plate Dissipation	12 max. watts

Typical Operation:

D.C. Plate Voltage	250	325	volts
D.C. Screen Voltage	160	200	volts
D.C. Grid Voltage (Grid #1)	-45	-45	volts
Peak R.F. Grid Voltage	70	70	volts
D.C. Plate Current	35	45	ma.
D.C. Screen Current	6	8.5	ma.
D.C. Grid Current (Approx.):**	2.0	2.0	ma.
Screen Resistor##	15000	15000	ohms
Grid Resistor	22500	22500	ohms
Driving Power (Approx.):**	0.2	0.2	watts
Power Output (Approx.)	5.5	10	watts

AS R.F. AMPLIFIER AND OSCILLATOR CLASS "C" TELEGRAPHY
(Key down conditions per tube without modulation^{oo})

D.C. Plate Voltage	425 max.	volts
D.C. Screen Voltage (Grid #2)	200 max.	volts
D.C. Grid Voltage (Grid #1)	-150 max.	volts
D.C. Plate Current	60 max.	ma.
D.C. Grid Current	4 max.	ma.
Plate Input	26 max.	watts
Screen Input	2.5 max.	watts
Plate Dissipation	15 max.	watts

Typical Operation:

D.C. Plate Voltage	300	425	volts
D.C. Screen Voltage	200	200	volts
D.C. Grid Voltage (Grid #1)	-45	-62.5	volts
Peak R.F. Grid Voltage	70	70	volts
D.C. Plate Current	60	55	ma.
D.C. Screen Current	7.5	7.0	ma.
D.C. Grid Current (Approx.):**	2.5	2.5	ma.
Screen Resistor	13500	32000	ohms
Grid Resistor	18000	25000	ohms
Driving Power (Approx.):**	0.2	0.25	watts
Power Output (Approx.)	12.5	16	watts

* Averaged over any audio-frequency cycle of sine-wave form.

o The type of input coupling should not introduce too much resistance in the grid circuit. Transformer or impedance coupling devices are recommended. When the grid circuit has a resistance not higher than 50,000 ohms fixed bias may be used; for higher values, cathode bias is required. With cathode bias, the grid circuit may have a resistance not to exceed 0.5 megohm, provided the heater voltage does not exceed 10% higher than the rated value under operating conditions.

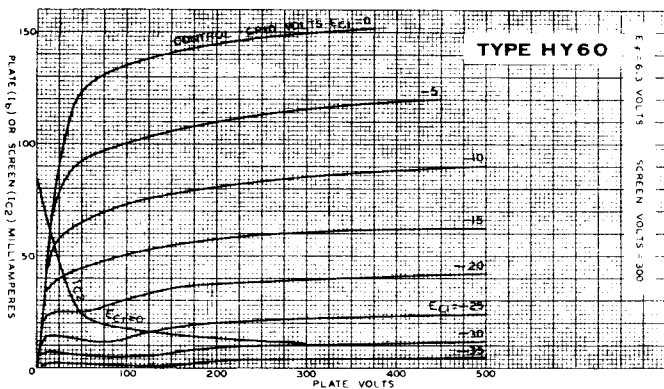
Connected to modulated plate voltage supply.

*** Driver stage should be capable of supplying grids of the class AB stage with the specified peak values at low distortion.

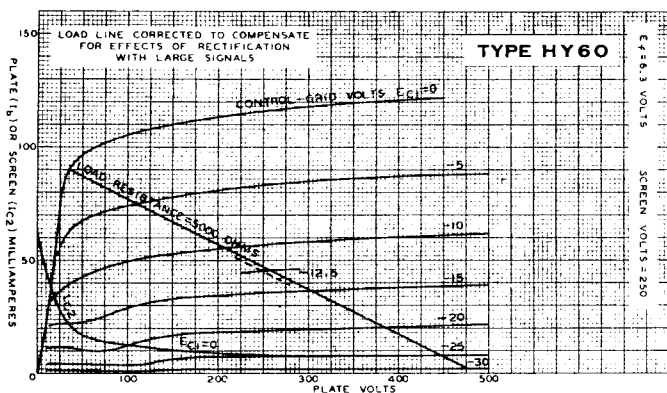
oo Modulation essentially negative may be used if the positive peak of the audio-frequency envelope does not exceed 115% of the carrier conditions.

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

AVERAGE PLATE CHARACTERISTICS
WITH E_{c1} AS VARIABLE



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