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HYTRON Engineering NEWS RELEASE

☐ CHIEF ENGINEER
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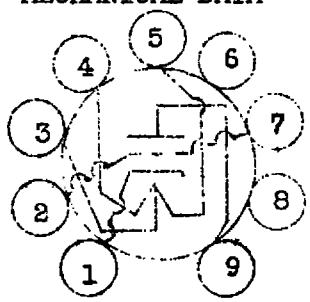
HYTRON TYPE 12A4
Medium-Mu Triode

The Hytron type 12A4 is a medium-mu triode having high perveance intended for use in television receivers and other applications where high peak currents must be developed with a low voltage power supply. It may also be used in circuits requiring a tube of high transconductance.

The high perveance is such as to make the 12A4 suitable for use as a vertical deflection amplifier in television receivers using large deflection angles and having low plate supply potentials. The tube is designed to withstand relatively high peak positive plate potentials of short duration. The 12A4 has characteristics similar to one section of the 12BH7 or 6SN7GT except that the power sensitivity and output are considerably greater. Approximately 15% more output at a given plate voltage supply may be obtained as a vertical deflection amplifier compared to the above types. It may be used in 300 mA series heater circuits or from a 6.3 volt source with the heaters connected in parallel.

MECHANICAL DATA

Coated unipotential cathode	
Outline drawing	Bulb T-6-1/2
Base	E9-1 small button 9-pin
Maximum diameter	7/8"
Maximum overall length	2-5/8"
Maximum seated height	2-3/8"
Mounting position	any
Pin connections	JETEC Basing 9-AG



TERMINAL CONNECTIONS

Pin 1: Cathode
Pin 2: Grid
Pin 3: Heater center tap
Pin 4: Heater
Pin 5: Heater
Pin 6: No connection
Pin 7: Grid
Pin 8: No connection
Pin 9: Plate

For further information write Commercial Engineering Department, Hytron Radio & Electronics Corp., Salem, Mass., or telephone Salem 2260

ELECTRICAL DATA

Direct interelectrode capacitances *		
Grid to plate (g to p)	4.9	uuf
Input (g to k+h)	6.7	uuf
Output (p to k+h)	3.8	uuf

Ratings, Class A-1 Amplifier, Design Center Maximum (Note A)
(Except as noted below)

Heater potential (a-c or d-c) **	12.6	volts
Maximum d-c plate potential	450	volts
Maximum negative d-c grid potential	-50	volts
Maximum peak heater-cathode potential	180	volts
Maximum cathode current	40	mA
Maximum plate dissipation (Note B)	6.5	watts
Maximum grid circuit resistance (cathode bias) (Note B)	2.5	megohms
Maximum grid circuit resistance (fixed bias) (Note B)	1.2	megohms

Typical Operating Conditions and Characteristics, Class A-1 Amplifier

Heater potential **	12.6	volts
Heater current **	300	mA
Plate potential	250	volts
Grid potential	-9.0	volts
Amplification factor	20	
Transconductance	7800	umho
Plate current	21	mA
Grid voltage (approx.) for Ib: 50 uA at Eb: 500	-33	volts

Ratings, Vertical Deflection Amplifier /, design Center Maximum (Note A)
(except as noted below)

Maximum d-c plate potential	450	volts
Maximum peak positive pulse plate potential (Note B)(Note C)	1000	volts
Maximum d-c negative grid potential	-50	volts
Maximum peak negative pulse grid potential (Note B)	-100	volts
Maximum d-c cathode current	30	mA
Maximum plate dissipation (Note B)	6.5	watts
Maximum peak heater-cathode potential	180	volts
Maximum grid circuit resistance (cathode bias) (Note B)	2.5	megohms
Maximum grid circuit resistance (fixed bias) (Note B)	1.2	megohm

Typical Operating Conditions and Characteristics, vertical deflection circuit /

Heater potential **	12.6	volts
D-C plate potential	250	volts
Cathode bias resistor (variable)	560	ohms
Grid input potential		
Peak to peak saw-tooth component (approx.)	25	volts
Negative peaking component (approx.)	30	volts
D-c plate current	15	mA
Plate output voltage		
Peak positive pulse component	450	volts
Peak to peak saw-tooth component	220	volts
Peak to peak saw-tooth current in yoke (50 millihenry inductance	360	mA

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* Measured with external shield #315

** Value given is for series connection. For parallel connection, values are: heater potential, 6.3 volts; heater current, 600 mA.

/ For operation in a 525 line, 30 frame system as described in " Standards of Good Engineering Practice for Television Broadcast Stations: Federal Communications Commission ". The duty cycles of the voltage pulse must not exceed 15% of one scanning cycle is 2.5 milliseconds.

Note A: This is the conventional system of receiving tube ratings.

Note B: These ratings are on the absolute maximum system ! Absolute maximum ratings are the limiting values above which the serviceability of the tube may be impaired from the viewpoint of life and satisfactory performance. Therefore, in order not to exceed these absolute ratings, the equipment designer has the responsibility of determing an average design value for each rating below the absolute value of that rating by an amount such that the absolute values will never be exceeded under any usual condition of line voltage variation, manufacturing variations (including components)in the equipment itself, or adjustments of controls.

Note C: The peaking resistor incorporated in the oscillator discharge circuit should be chosen so that this rating is not exceeded under any condition.