

2E25

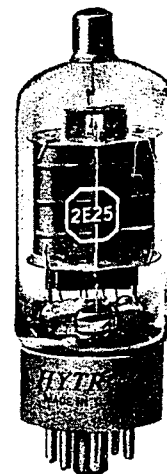


**CLASS C R-F BEAM TETRODE,
FREQUENCY MULTIPLIER,
A-F AMPLIFIER & MODULATOR**



GENERAL CHARACTERISTICS

Filament	thoriated tungsten	
Voltage a-c or d-c	6.0 ± 5%	volts
Current	1.0	ampere
Transconductance	2500	μmhos
Ave amp factor (G ₁ to G ₂)	6	
<i>Direct interelectrode capacitances</i>		
Grid to plate (maximum)	0.15	μμf
Input	8.5	μμf
Output	6.0	μμf
Maximum overall length	4-3/16	inches
Maximum diameter	1-7/16	inches
Bulb	ST-11	
Cap	small metal	
Base	7-pin medium short-shell octal low-loss phenolic	
Mounting position	- filament plane must be vertical	



A-F POWER AMPLIFIER AND MODULATOR - CLASS A₁

Maximum Ratings, Design-Center Values.

D-c plate potential	400	max	volts
D-c screen grid potential	250	max	volts
D-c plate input power*	10.5	max	watts
D-c screen grid input power	2.5	max	watts
Plate dissipation*	10.5	max	watts

Typical Operation - Average Characteristics

A-c filament potential φ	6.0	6.0	volts
D-c plate potential	300	250	volts
D-c screen grid potential	250	250	volts
D-c control grid potential φ _c	(a) -25	(b) -22.5	volts
Peak a-f control grid potential	(c) 600	500	ohms
Zero signal d-c plate current	25	22.5	volts
Max signal d-c plate current	34.5	38.5	ma
Zero signal d-c screen grid current	37	40	ma
Max signal d-c screen grid current	3	4	ma
Load resistance	8.4	9.6	ma
Total harmonic distortion	7000	5000	ohms
Max signal plate power output	11	7	percent
	6	4.75	watts

A-F POWER AMPLIFIER AND MODULATOR - CLASS AB₂

Maximum Ratings, Absolute Values.

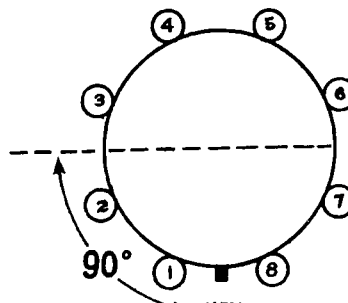
D-c plate potential	450	max	volts
D-c screen grid potential	250	max	volts
Peak positive a-f control grid potential	60	max	volts
Max signal d-c plate current ψ	75	max	ma
Max signal plate input power ψ	33	max	watts
Max signal screen grid input power ψ	5	max	watts
Plate dissipation ψ	15	max	watts

Typical Operation - Average Characteristics

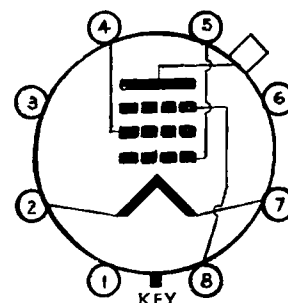
Unless otherwise specified the values are for two tubes

A-c filament potential φ	6.0	volts
D-c plate potential	450	volts
D-c screen grid potential	250	volts
D-c control grid potential φ _c	(a) -30	volts
Peak a-f control grid to control grid potential	142	volts
Zero signal d-c plate current	44	ma
Max signal d-c plate current	150	ma
Zero signal d-c screen grid current	10	ma
Max signal d-c screen grid current	40	ma
Max signal d-c control grid current	3	ma
Effective load resistance (plate to plate)	6000	ohms
Max signal control grid driving power	0.42	watts
Max signal plate power output	40	watts

FILAMENT PLANE



BASE PIN LAYOUT



Pin	Connection	Pin	Connection
1	None	5	Control Grid
2	Filament	6	None
3	None	7	Filament
4	Screen Grid	8	Beam Plates ◊

Cap — Plate

R. F. POWER AMPLIFIER AND OSCILLATOR CLASS C TELEGRAPHY AND FREQUENCY MODULATION Key-down conditions per tube without amplitude modulation

Maximum Ratings, Absolute Values.

D-c plate potential	450	max	volts
D-c screen grid potential	250	max	volts
D-c control grid potential	-125	max	volts
D-c plate current	75	max	ma
D-c control grid current	4.5	max	ma
Peak positive r-f control grid potential	60	max	volts
D-c plate input power	33.5	max	watts
D-c screen grid input power	4	max	watts
Plate dissipation	15	max	watts

Typical Operation - Average Characteristics

D-c plate potential	450	450	volts
D-c screen grid potential	250	250	volts
D-c control grid potential	(a) -45	(b) -70	volts
Peak r-f control grid potential	(c) 480	23000	ohms
D-c plate current	90	75.0	ohms
D-c screen grid current	75	75	ma
D-c control grid current	15	15	ma
D-c control grid driving power (approx.)	3	3	ma
Plate power output Δ (approx.)	0.27	0.36	watts
	20	22	watts

HYTRON 2E25

PLATE AND SCREEN-GRID AMPLITUDE MODULATED R. F. POWER AMPLIFIER—CLASS C TELEPHONY

NOTES

Carrier conditions for use with a max modulation percentage of 100

Maximum Ratings, Absolute Values

D-c plate potential	400	max	volts
D-c screen grid potential	225	max	volts
D-c control grid potential	-125	max	volts
D-c plate current	75	max	ma
D-c control grid current	4.5	max	ma
Peak positive r-f control grid potential	60	max	volts
D-c plate input power +	24	max	watts
D-c screen grid input power +	2.7	max	watts
Plate dissipation +	10	max	watts

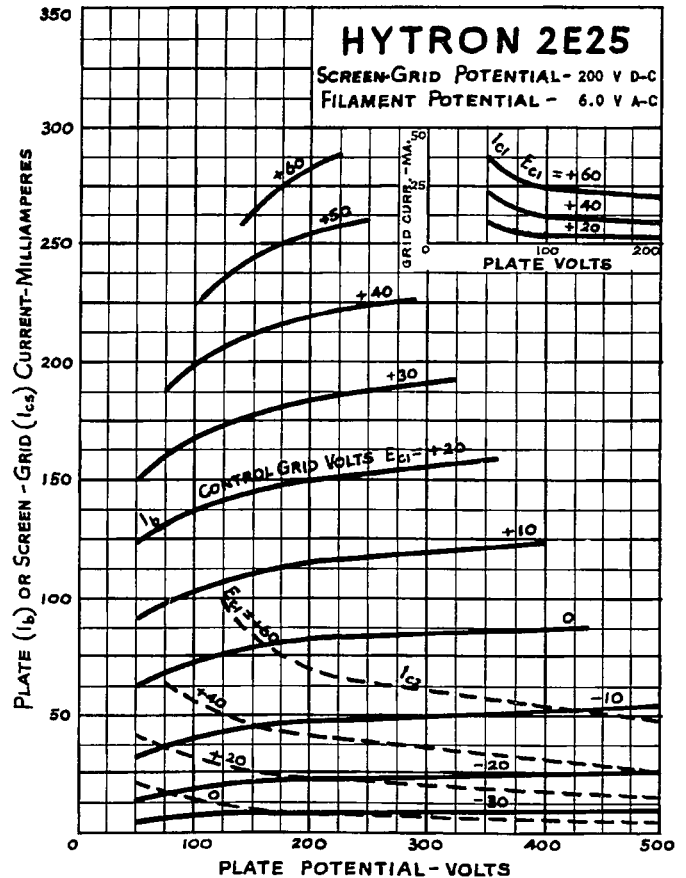
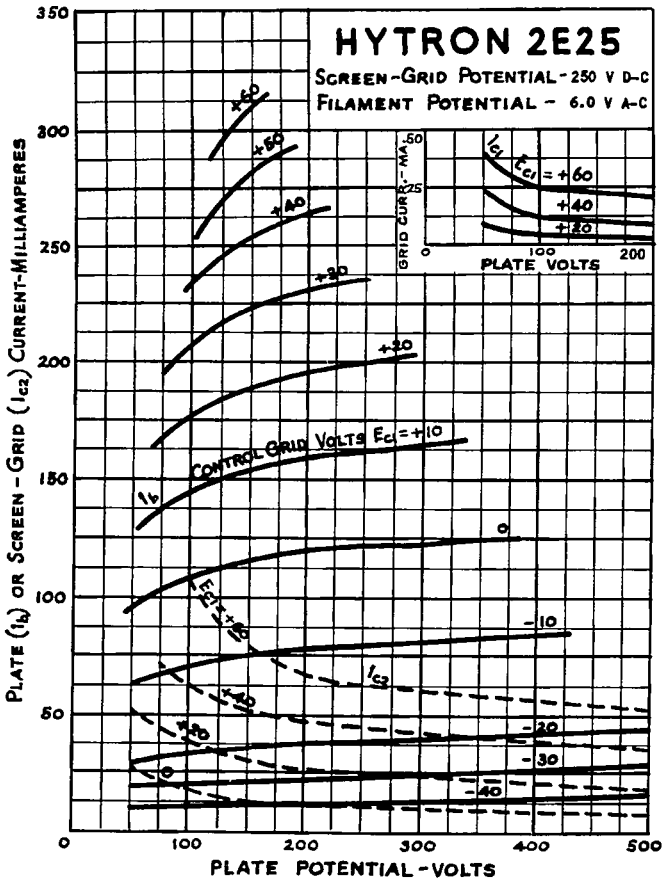
Typical Operation - Average Characteristics

D-c plate potential	400	volts
D-c screen grid potential	225	volts
D-c control grid potential #	(a) -70	volts
	(b) 23000	ohms
	(c) 1000	ohms
Peak r-f control grid potential	110	volts
D-c plate current	60	ma
D-c screen grid current	8.5	ma
Screen grid drooping resistor	20000	ohms
D-c control grid current	3	ma
Control grid driving power (approx.)	0.33	watts
Plate power output Δ (approx.)	15	watts

The plate supply must be switched off before or simultaneously with the filament in all applications. When the 2E25 is driven by a tube having an oxide-coated filament, provision must be made so that the tube (s) is not operated with plate and screen potential applied but without a bias voltage during the time interval required for the driver to come up to operating temperature. When the filament is heated from a transformer with a nominal 6.3-volt output, the filament connections may be made with small wire to introduce the necessary drop of 0.3 volts.

Tube conservation: When the standby period is generally less than 15 minutes, additional tube life can be obtained by reducing the filament potential to 80% of the nominal operating voltage during standby. For longer standby periods, the filament should be turned off.

- * Class A₁ dissipation rating based upon tubes having average plate current. In the case of tubes whose plate current is the maximum acceptable under the Hytron testing specification, dissipation will be 15 watts, with somewhat higher power output capability.
- φ When d-c is used on the filament, the bias should be reduced approximately 3½ volts, and the grid return made to negative leg of filament.
- # Obtained from (a) fixed supply (b) control grid resistor (c) cathode resistor, or by combination of methods.
- ψ Averaged over any a-f cycle of sine wave form.
- + When modulated 100% with a sine wave, the average power increases by 50%. With a complex wave form, such as is produced by speech or music, the average power increases approximately 20% to 25%.
- ◇ The beam plates should be connected to center tap of filament transformers, if a-c operated, or to negative side of filament, if d-c operated.
- Δ "Plate power output" includes circuit losses and r-f radiation losses, as well as useful power delivered to the load.



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