

## TUNG-SOL

## PENTODE

MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE

HEATER

**SERIES**  
12.6±1.3 VOLTS  
300 MA

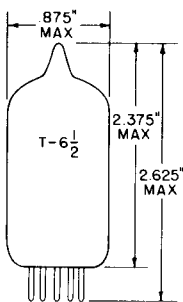
**PARALLEL**  
6.3 VOLTS  
600±40 MA.

AC OR DC

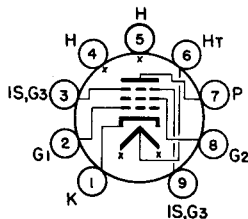
ANY MOUNTING POSITION

FOR 12.6 VOLT OPERATION APPLY HEATER VOLTAGE BETWEEN PINS #5 AND #4. FOR 6.3 VOLT OPERATION APPLY HEATER VOLTAGE BETWEEN PIN #6 AND PINS #4 AND #5 CONNECTED TOGETHER.

CONTROL OF HEATER CHARACTERISTICS APPLIES ONLY TO 600 MA. HEATER CONNECTION.



**GLASS BULB**  
MINIATURE BUTTON  
9 PIN BASE E9-1  
OUTLINE DRAWING  
JEDEC 6-3



**BOTTOM VIEW**

BASEING DIAGRAM  
JEDEC 9BF

THE 12BY7A IS A HIGH TRANSCONDUCTANCE PENTODE USING THE 9-PIN MINIATURE CONSTRUCTION. IT IS DESIGNED FOR SERVICE AS A VIDEO AMPLIFIER WHERE THE PLATE SUPPLY VOLTAGE IS LOW AND LARGE OUTPUT VOLTAGES ARE REQUIRED WITH LOW VALUE OF PLATE LOAD RESISTORS. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED.

### DIRECT INTERELECTRODE CAPACITANCES

WITH NO EXTERNAL SHIELD

GRID #1 TO PLATE: $G_1$ TO P	0.063	pf
INPUT: $G_1$ TO (H+K+ $G_2$ + $G_3$ +IS)	10.2	pf
OUTPUT: P TO (H+K+ $G_2$ + $G_3$ +IS)	3.5	pf

### RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

MAXIMUM HEATER-CATHODE VOLTAGE:

HEATER NEGATIVE WITH RESPECT TO CATHODE

TOTAL DC AND PEAK

200 VOLTS

HEATER POSITIVE WITH RESPECT TO CATHODE

DC

100 VOLTS

TOTAL DC AND PEAK

200 VOLTS

MAXIMUM PLATE SUPPLY VOLTAGE

→ 330 VOLTS

MAXIMUM NEGATIVE DC GRID #1 VOLTAGE

→ 55 VOLTS

MAXIMUM POSITIVE DC GRID #1 VOLTAGE

0 VOLTS

MAXIMUM GRID #3 VOLTAGE

0 VOLTS

MAXIMUM GRID #2 VOLTAGE

→ 190 VOLTS

MAXIMUM PLATE DISSIPATION

→ 6.5 WATTS

MAXIMUM GRID #2 DISSIPATION

→ 1.2 WATTS

MAXIMUM GRID #1 CIRCUIT RESISTANCE:

0.25 MEGOHM

MAXIMUM BIAS OPERATION

0.25 MEGOHM

CATHODE BIAS OPERATION

1 MEGOHM

HEATER WARM-UP TIME (APPROX.)<sup>A</sup>

11.0 SECONDS

<sup>A</sup> HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

→ INDICATES A CHANGE.

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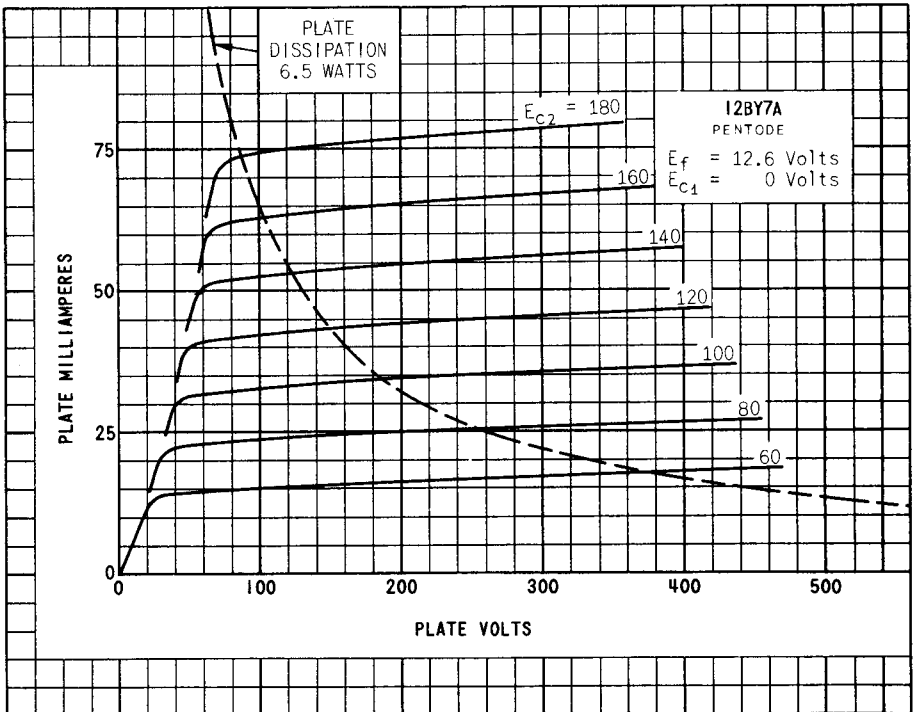
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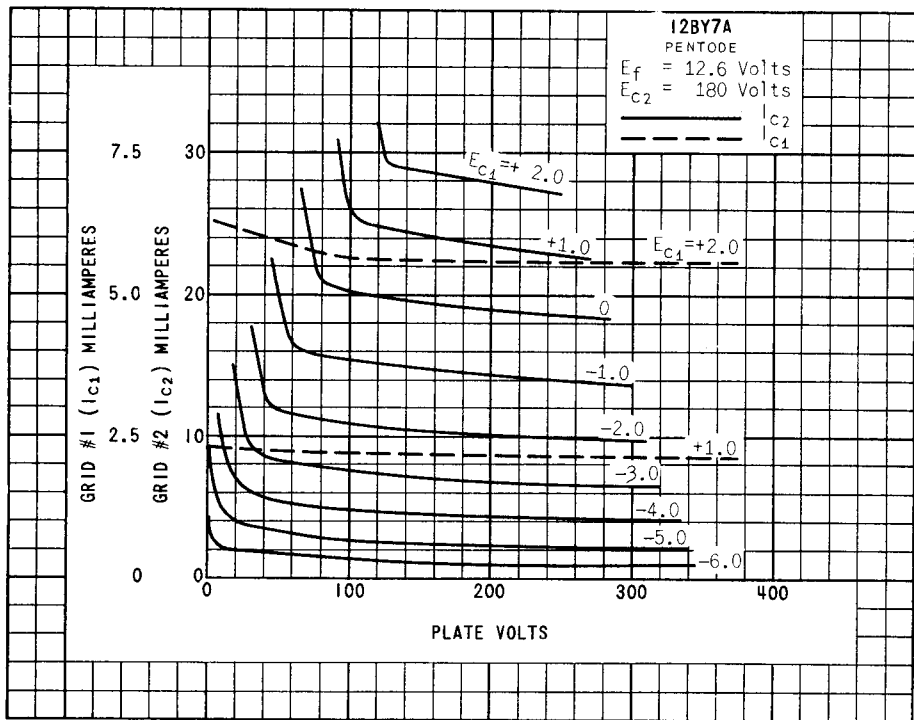
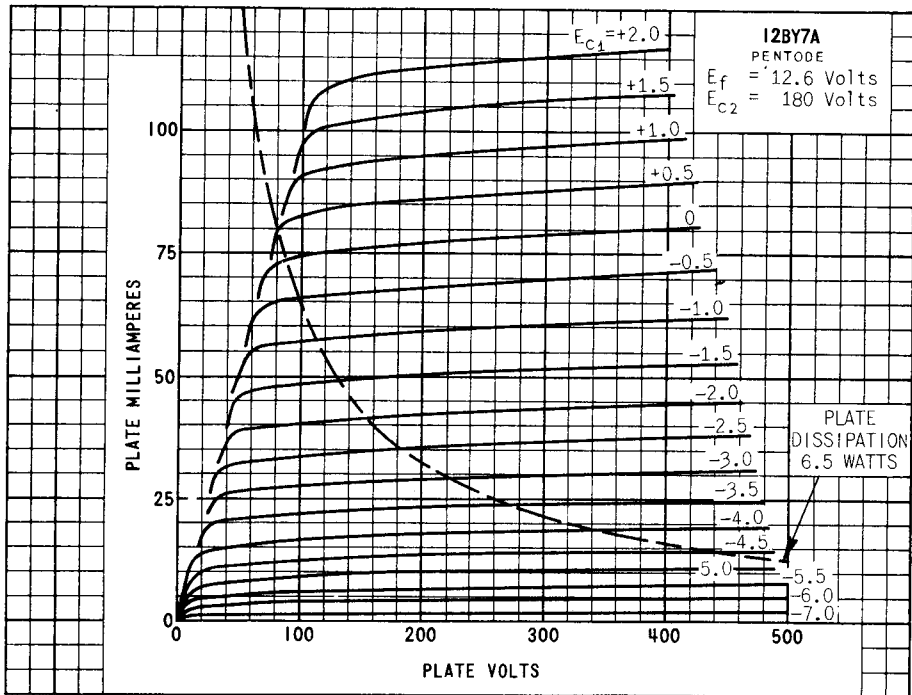
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**TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS**

CLASS  $A_1$  AMPLIFIER

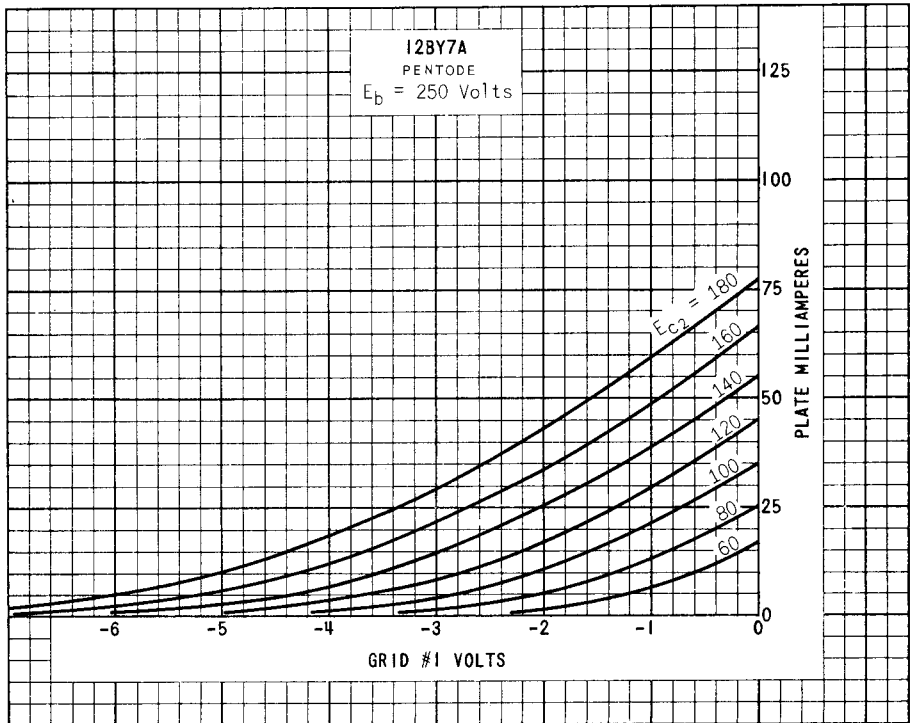
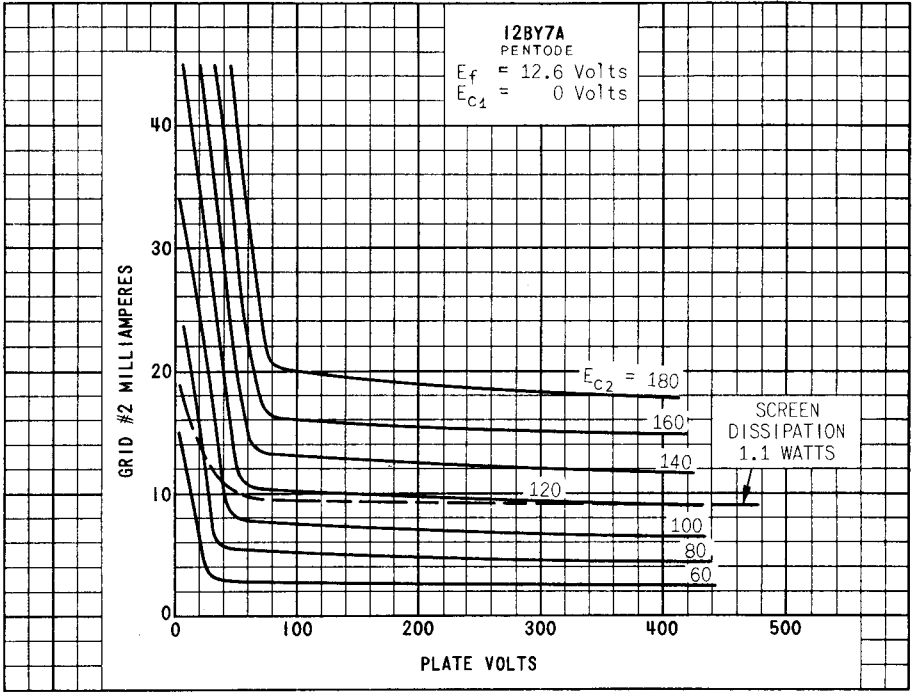
PLATE VOLTAGE	250	VOLTS
GRID #2 VOLTAGE	180	VOLTS
CATHODE RESISTOR	100	OHMS
PLATE CURRENT	26	MA.
GRID #2 CURRENT	5.7	MA.
PLATE RESISTANCE	93 000	OHMS
TRANSCONDUCTANCE	11 000	$\mu$ MHOS
AMPLIFICATION FACTOR	1 035	
GRID #1 VOLTAGE FOR $I_b = 20 \mu A.$	11.6	VOLTS
TRIODE AMPLIFICATION FACTOR	28.5	

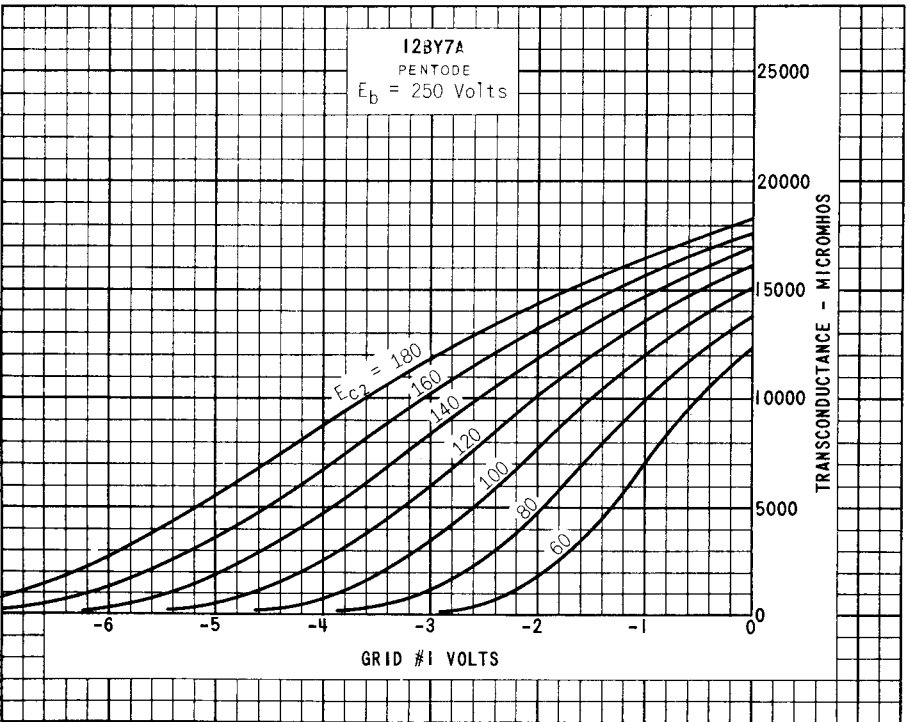
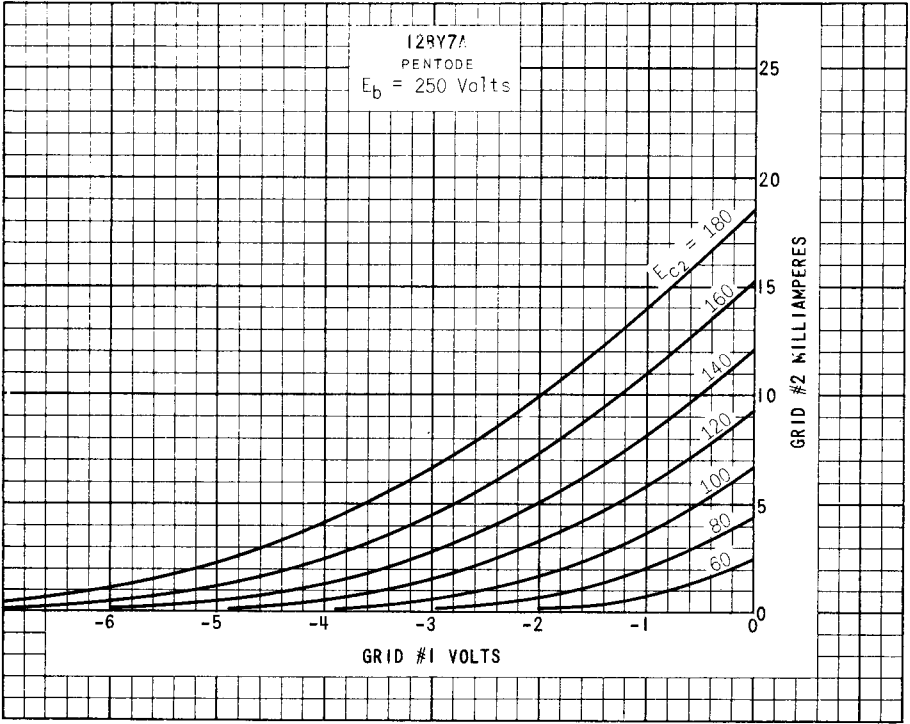




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# 12BY7A





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