HIGH-MU TRIODE TETRODE TYPES 6JA8 AND 10JA8

The 6JA8 and 10JA8 are 9-pin miniature high-mu triode and tetrode types designed for service in color and black-and-white television receivers. The triode unit is designed for service as a sync separator, sync clipper and phase inverter while the tetrode unit is designed for operation as a video amplifier.

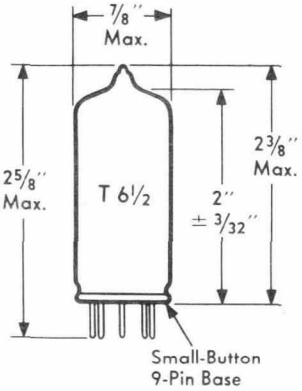
The 10JA8 has been designed for use in receivers which employ series-connected heaters, especially in television receivers where the picture-tube heater is in series with other heaters. When it is employed in this type of circuit with other tubes having a heater current rating of 450 ma., heater voltage surges across individual tubes are minimized inasmuch as the heater warm-up characteristic is controlled.

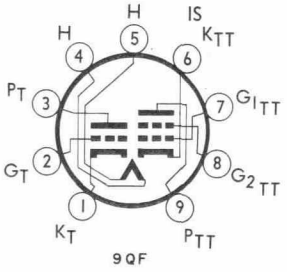
ELECTRICAL

	6JA8	10JA8		
Cathodes	Coated Unipotential			
Heater:				
Voltage (ac or dc)	6.3 ± 10%	10.5		Volts
Current	0.75	0.45 ± 6%		Ampere
Warm-up Time (Approx.) (Note 1)	–	11		Seconds
Direct Interelectrode Capacitances: (Unshielded)				
Triode:				
Grid to Plate	4.0			μμf
Input	2.5			μμf
Output	0.4			μμf
Pentode:				
Grid 1 to Plate	0.1		max.	μμf
Input	11			μμf
Output	4.8			μμf
Coupling:				
Pentode Grid 1 to Triode Plate	0.005		max.	μμf
Pentode Plate to Triode Grid	0.018		max.	μμf
Pentode Plate to Triode Plate	0.17		max.	μμf

MECHANICAL

Bulb	T-6½
Base	Miniature 9-Pin (JEDEC E9-1)
Outline	6-3
Basing	9QF
Mounting Position	Any





RATINGS

Design Maximum Values

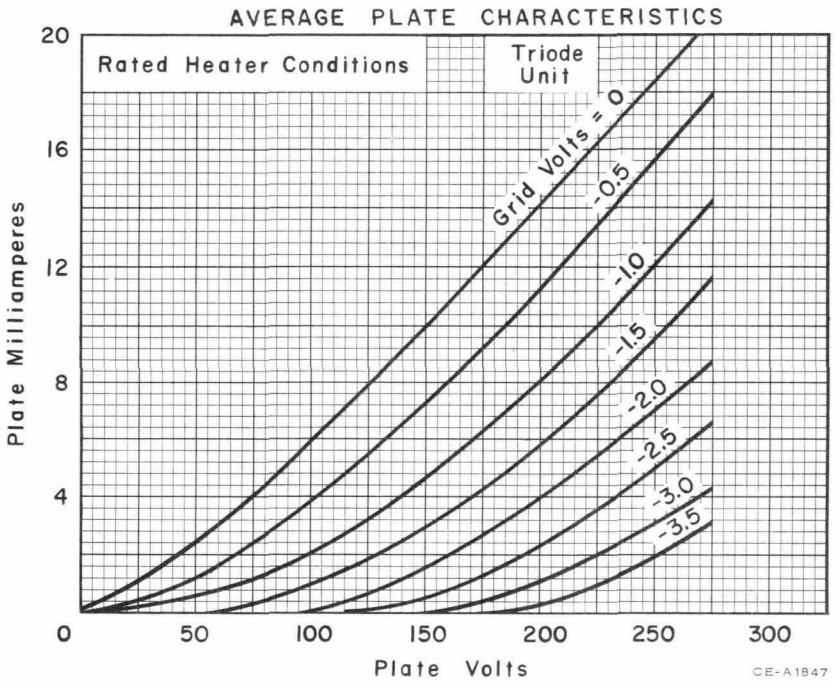
	Triode	Tetrode		
Plate Voltage	300	330	max.	Volts
Grid 2 Supply Voltage	–	330	max.	Volts
Grid 2 Voltage	–		See Grid 2 Input Rating Curve	
Plate Dissipation	1	5	max.	Watts
Grid 2 Dissipation	–	1.5	max.	Watts
Positive Grid 1 Bias Voltage	0	0	max.	Volts
Grid 1 Circuit Resistance				
Fixed Bias	0.5	0.25	max.	Megohm
Cathode Resistor Bias	1.0	1.0	max.	Megohm
Heater-Cathode Voltage:				
Heater Negative with Respect to Cathode				
Total DC + Peak	200	200	max.	Volts
Heater Positive with Respect to Cathode				
DC Component	100	100	max.	Volts
Total DC + Peak	200	200	max.	Volts

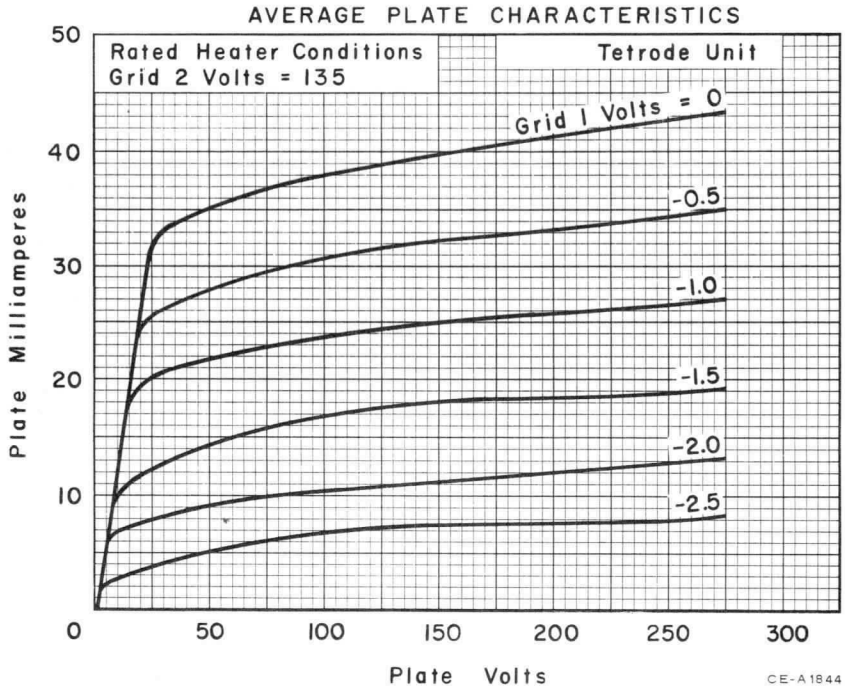
CHARACTERISTICS AND TYPICAL OPERATION

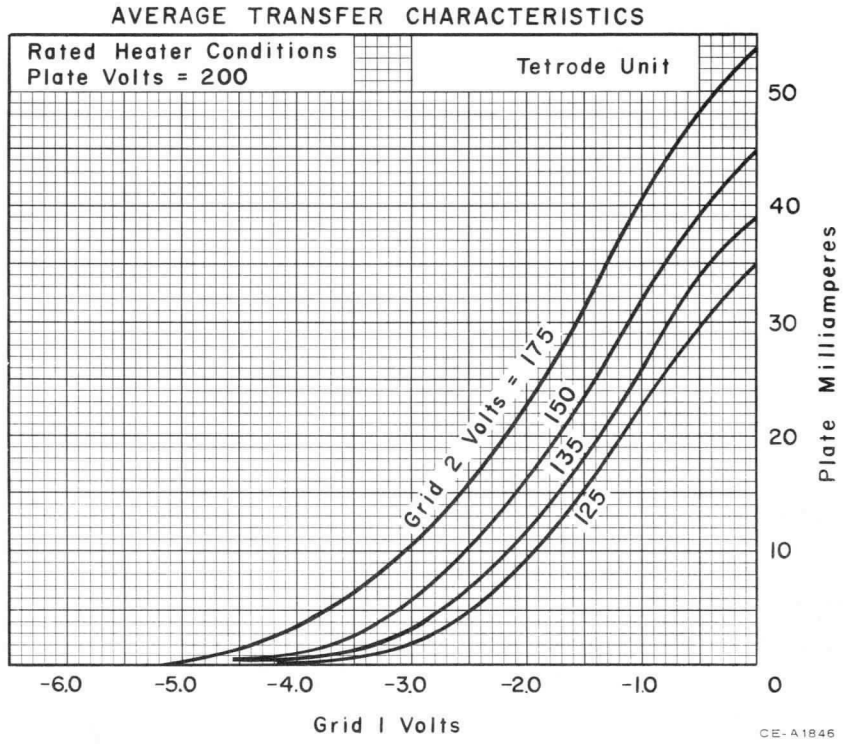
Triode Unit:				
Plate Voltage		135	200	Volts
Grid Voltage		–2	–2	Volts
Amplification Factor		60	70	–
Plate Resistance		23000	17000	Ohms
Transconductance		2600	4000	μmhos
Plate Current		2	4	Ma.
Grid 1 Cutoff Voltage		–4.8	–7	Volts
Tetrode Unit:				
Plate Voltage	30	135	200	Volts
Grid 2 Voltage	135	135	135	Volts
Grid 1 Voltage	0	–1.5	–1.5	Volts
Plate Resistance	–	6600	7000	Ohms
Transconductance	–	12600	14000	μmhos
Plate Current (Note 2)	32	17	18	Ma.
Grid 2 Current (Note 2)	14	4.2	4	Ma.
Grid 1 Cutoff Voltage (Note 3)	–	–5	–5	Volts

NOTES

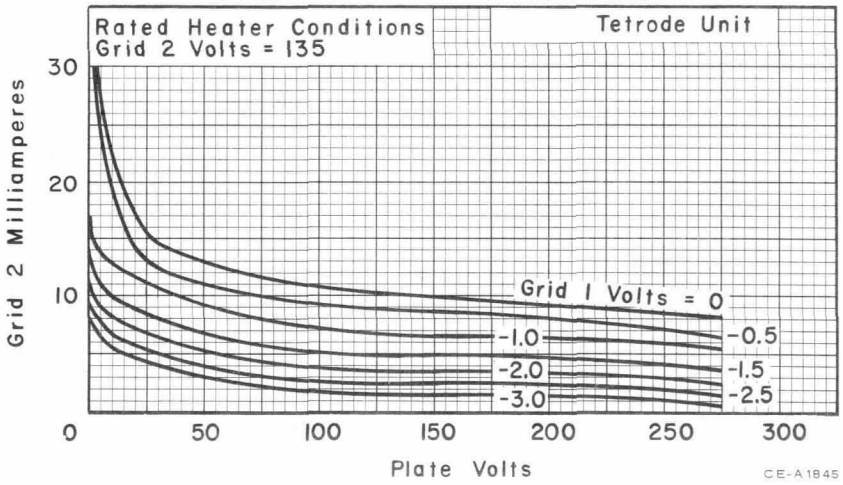
1. Heater Warm-Up Time is defined as the time required for the voltage across the heater to reach 80% of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times rated heater voltage divided by rated heater current.
2. The zero-bias values can be measured by a method involving a re-current waveform such that the plate and grid 2 dissipation will be kept within ratings to prevent damage to the tube.
3. For plate current of 10 microamperes.



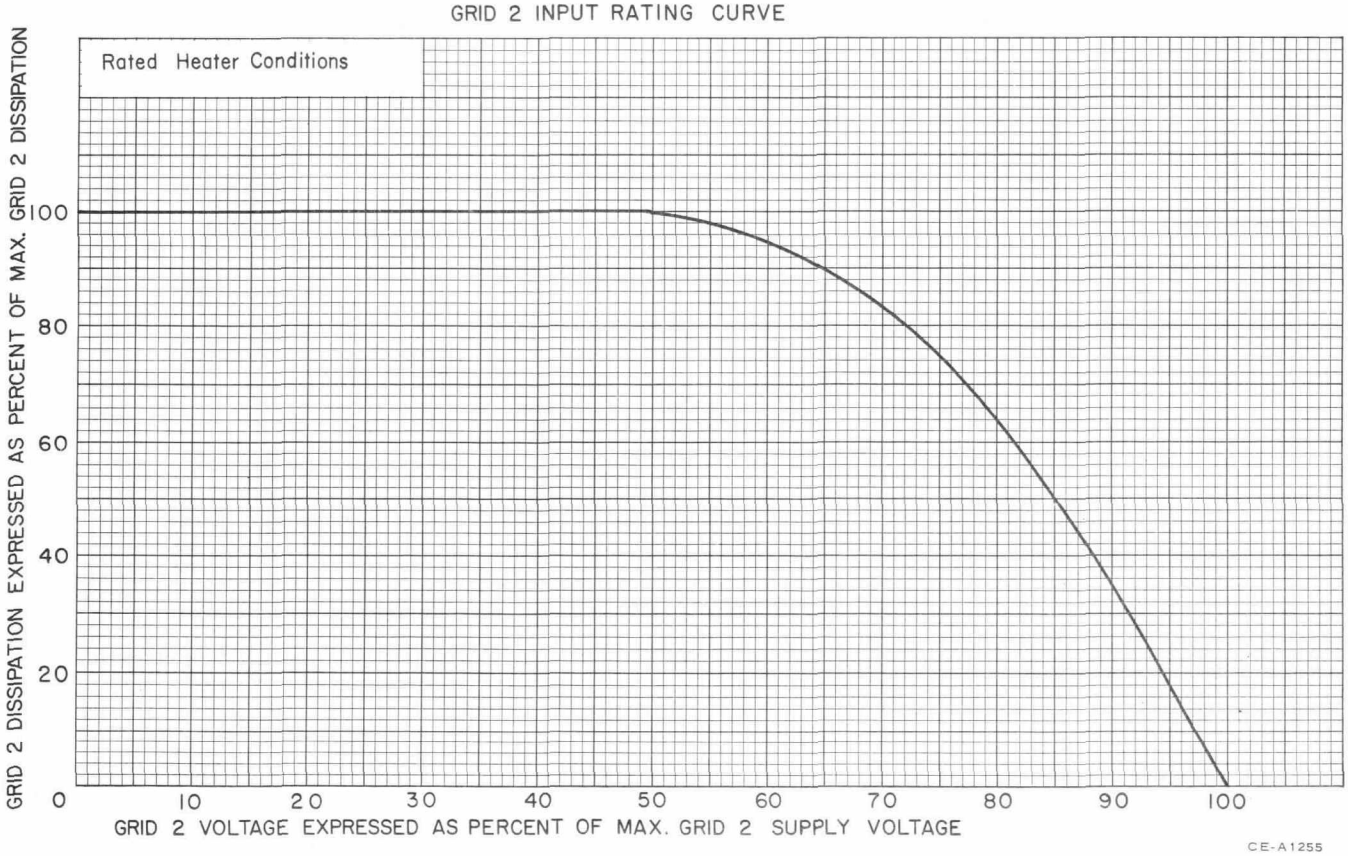

AVERAGE PLATE CHARACTERISTICS
Rated Heater Conditions
Grid 2 Volts = 135
Tetrode Unit
Grid 1 Volts = 0
-0.5
-1.0
-1.5
-2.0
-2.5
Plate Milliamperes
0
10
20
30
40
50
50
100
150
200
250
300
Plate Volts
CE-A1844


AVERAGE TRANSFER CHARACTERISTICS
Rated Heater Conditions
Plate Volts = 200
Tetrode Unit
Grid 2 Volts = 175
150
135
125
Plate Milliamperes
0
10
20
30
40
50
-6.0
-5.0
-4.0
-3.0
-2.0
-1.0
Grid 1 Volts
CE-A1846

AVERAGE GRID 2 CHARACTERISTICS



GRID 2 INPUT RATING CURVE



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