6FQ7

TWIN TRIODE

DESCRIPTION AND RATING

The 6FQ7 is a general-purpose, medium-mu twin triode of the 9-pin miniature type intended particularly for use as a vertical-deflection oscillator or horizontal-deflection oscillator in television receivers.

GENERAL

ELECTRICAL

Heater Characteristics and Ratings

	Series Heater Operation*	Parallel Heater Operation*	
Heater Voltage, AC or DC	6.3†	6.3 ± 0.6	Volts
Heater Current	0.6 ± 0.04	0.6‡	Amperes
Heater Warm-up Time§	11	....	Seconds

Direct Interelectrode Capacitances, approximate¶

	Section 1	Section 2	
Grid to Plate: (g to p)	3.6	3.8	pf
Input: g to (h+k)	2.4	2.4	pf
Output: p to (h+k)	0.34	0.26	pf
Plate to Plate: (1p to 2p)	1.0		pf

MECHANICAL

Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin
Outline Drawing—EIA 6-3

Maximum Diameter	7/8	Inches
Maximum Over-all Length	2 5/8	Inches
Maximum Seated Height	2 3/8	Inches

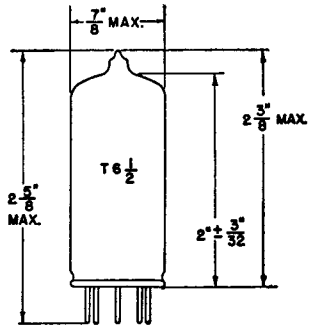
MAXIMUM RATINGS

Design-Maximum ratings are limiting values of operating and environmental conditions applicable to a bogey electron tube of a specified type as defined by its published data and should not be exceeded under the worst probable conditions.

The tube manufacturer chooses these values to provide acceptable serviceability of the tube, making allowance for the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration.

The equipment manufacturer should design so that initially and throughout life no design-maximum value for the intended service is exceeded with a bogey tube under the worst probable operating conditions with respect to supply-voltage variation, equipment component variation, equipment control adjustment, load variation, signal variation, environmental conditions, and variations in the characteristics of all other electron devices in the equipment.

PHYSICAL DIMENSIONS

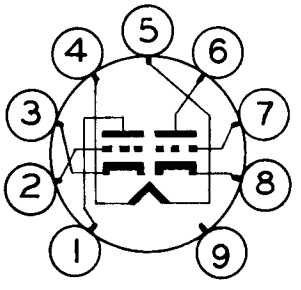


EIA 6-3

TERMINAL CONNECTIONS

Pin 1—Plate (Section 2)
Pin 2—Grid (Section 2)
Pin 3—Cathode (Section 2)
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate (Section 1)
Pin 7—Grid (Section 1)
Pin 8—Cathode (Section 1)
Pin 9—No Connection

BASING DIAGRAM



EIA 9LP

MAXIMUM RATINGS (Cont'd)

DESIGN-MAXIMUM VALUES, EACH SECTION CLASS A_1 AMPLIFIER

Plate Voltage	330	Volts
Positive DC Grid Voltage	0	Volts
Plate Dissipation, Either Plate	4.0	Watts
Plate Dissipation, Both Sections Operating	5.7	Watts
Cathode Current	22	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid Circuit Resistance		
With Fixed Bias	1.0	Megohms

HORIZONTAL-DEFLECTION OSCILLATOR ⁂

DC Plate Voltage	330	Volts
Peak Negative-Pulse Grid Voltage	660	Volts
Plate Dissipation, Either Plate	4.0	Watts
Plate Dissipation, Both Sections Operating	5.7	Watts
DC Cathode Current	22	Milliamperes
Peak Cathode Current	330	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid Circuit Resistance	2.2	Megohms

VERTICAL-DEFLECTION OSCILLATOR ⁂

DC Plate Voltage	330	Volts
Peak Negative-Pulse Grid Voltage	440	Volts
Plate Dissipation, Either Plate	4.0	Watts
Plate Dissipation, Both Sections Operation	5.7	Watts
DC Cathode Current	22	Milliamperes
Peak Cathode Current	77	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200	Volts
Grid Circuit Resistance	2.2	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER, EACH SECTION

Plate Voltage	90	250	Volts
Grid Voltage	0	−8.0	Volts
Amplification Factor	20	20	
Plate Resistance, approximate	6700	7700	Ohms
Transconductance	3000	2600	Micromhos
Plate Current	10	9.0	Milliamperes
Grid Voltage, approximate Ib = 10 Microamperes	−7.0	−18	Volts
Plate Current, approximate Ec = −12.5 Volts		1.3	Milliamperes

* For parallel heater operation, the equipment designer should design the equipment so that the heater voltage is centered at the specified bogey value, with heater supply variations restricted to maintain heater voltage within the specified tolerance. For series heater operation, the equipment designer should design the equipment so that heater current is centered at the specified bogey value, with heater supply variations restricted to maintain heater current within the specified tolerance.

† Heater voltage for a bogey tube at If = 0.6 amperes.

‡ Heater current of a bogey tube at Ef = 6.3 volts.

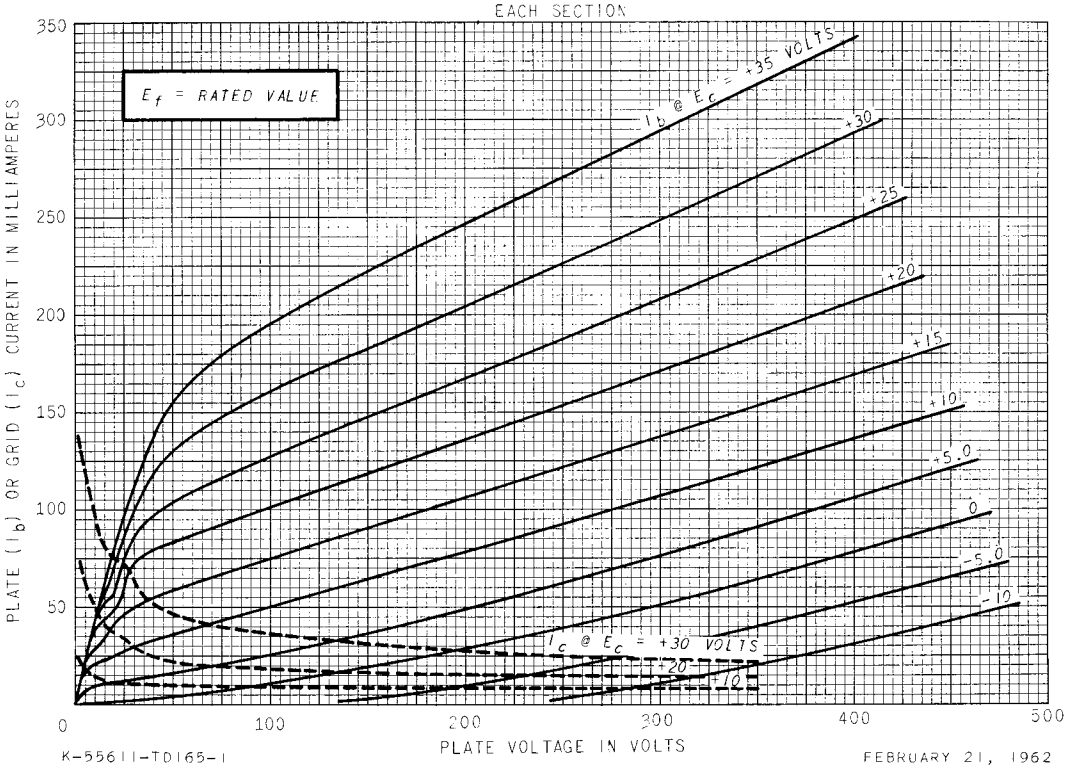
§ The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

¶ Without external shield.

⁂ For operation in a 525-line, 30-frame television system as described in "Standards of Good Engineering Practice Concerning Television Broadcast Stations," Federal Communications Commission. The duty cycle of the voltage pulse must not exceed 15 percent of one scanning cycle.

AVERAGE PLATE CHARACTERISTICS

EACH SECTION



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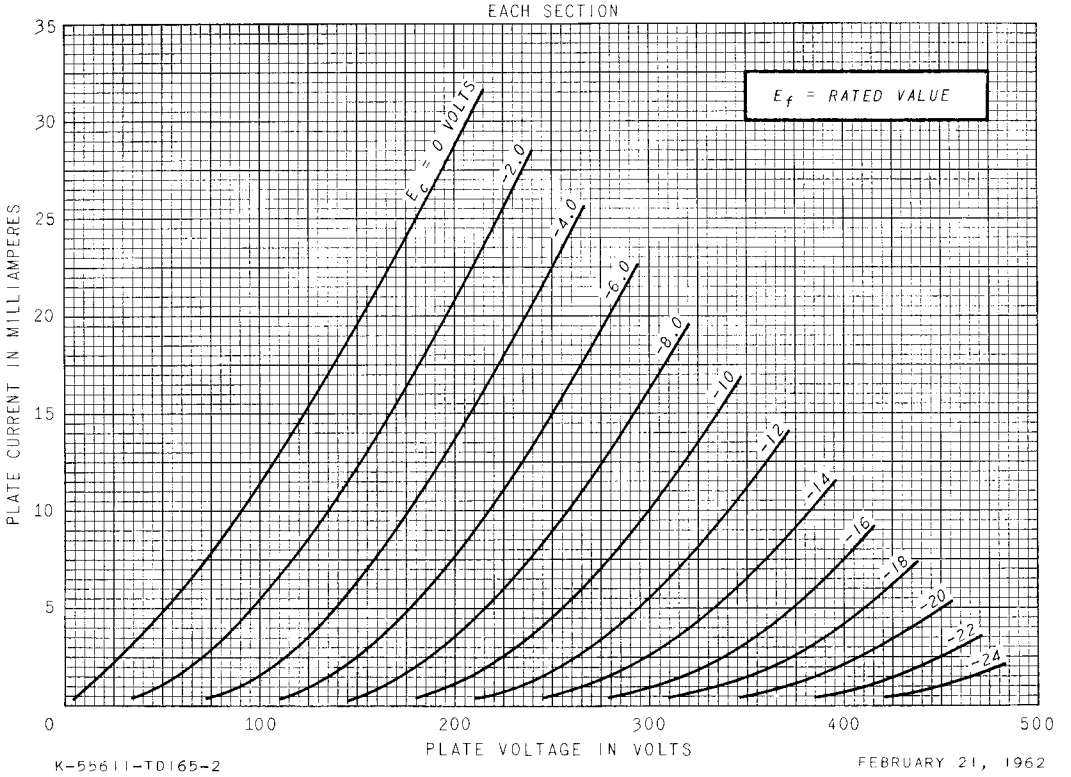
AVERAGE PLATE CHARACTERISTICS

EACH SECTION



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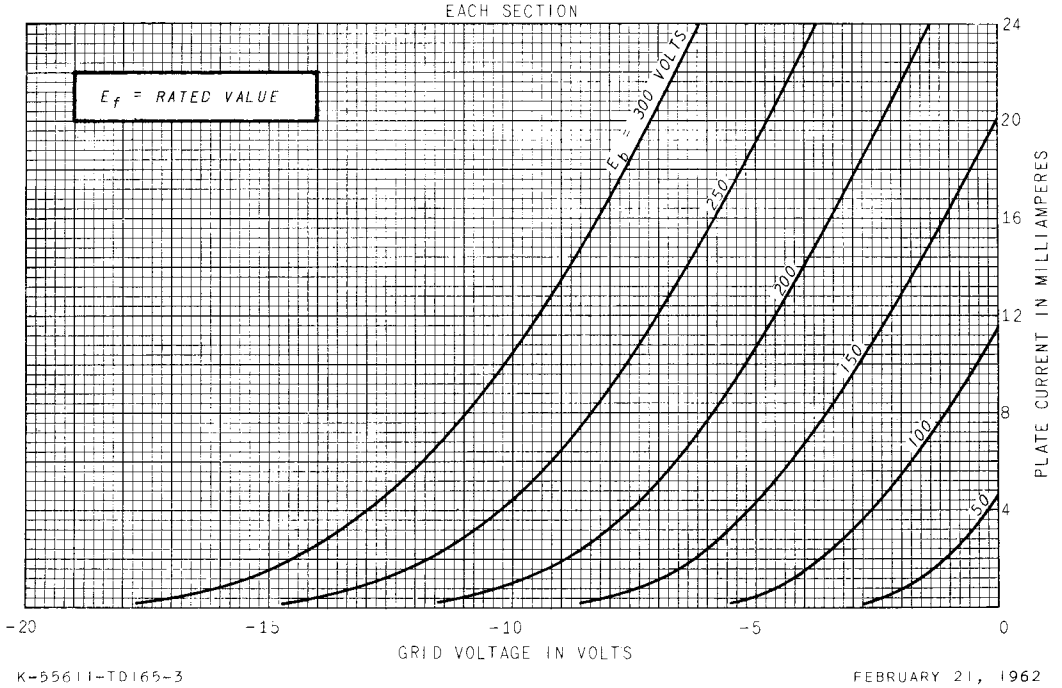
AVERAGE TRANSFER CHARACTERISTICS

EACH SECTION

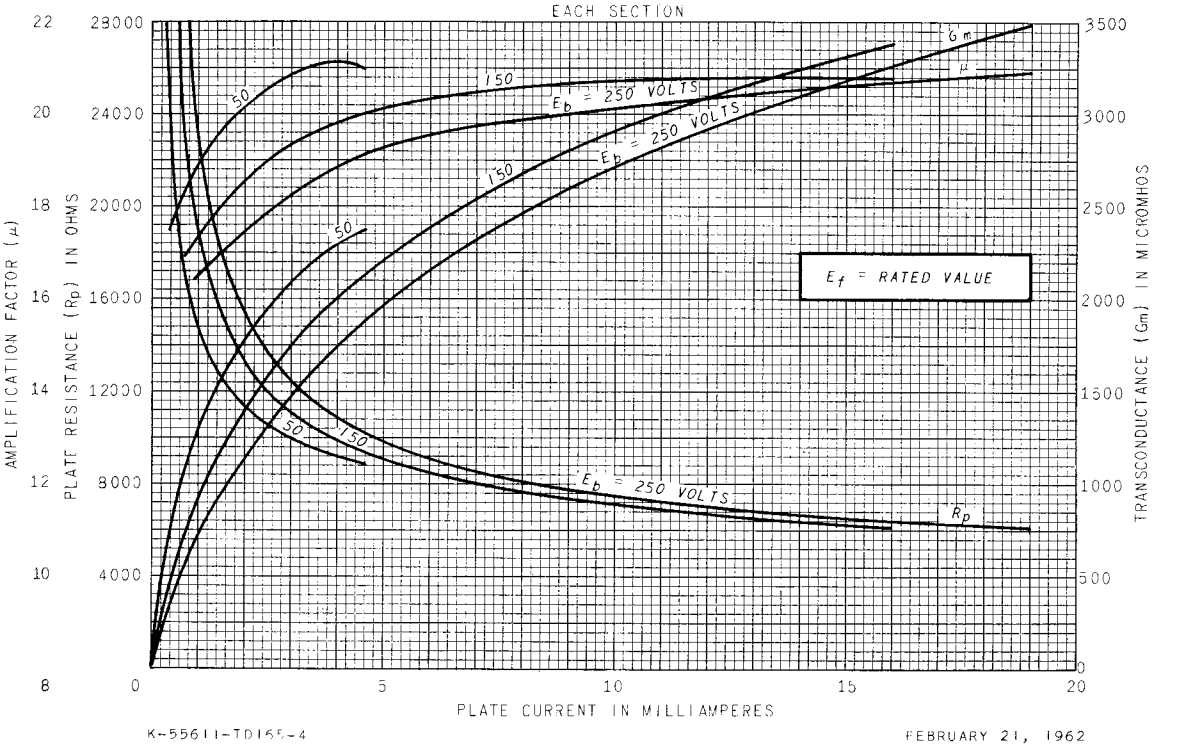


K-55611-TD165-3

FEBRUARY 21, 1962

AVERAGE CHARACTERISTICS

EACH SECTION



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FEBRUARY 21, 1962

RECEIVING TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky