ELECTRONICS

6GX6
PENTODE
FOR FM DETECTOR APPLICATIONS

DESCRIPTION AND RATING

The 6GX6 is a miniature, dual-control pentode primarily intended for use as an FM detector in television receivers.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings

	Series Circuit*	Parallel Circuit‡	
Heater Voltage, AC or DC	6.3	6.3±0.6§	Volts
Heater Current	0.45±0.03§	0.45¶	Amperes
Heater Warm-up Time, average#	11	---	Seconds

Direct Interelectrode Capacitances∆

Grid Number 1 to Plate: (g1 to p)	0.026	pf
Grid Number 1 to All except Plate: (g1 to h + k + g2 + g3 + i.s.)	8.0	pf
Grid Number 1 to Grid Number 3: (g1 to g3)	0.12	pf
Grid Number 3 to Plate: (g3 to p)	1.6	pf
Grid Number 3 to All: (g3 to h + k + g1 + g2 + p + i.s.)	6.5	pf

MECHANICAL

Operating Position - Any
Envelope - T-5 1/2, Glass
Base - E7-1, Miniature Button 7-Pin
Outline Drawing - EIA 5-2

Maximum Diameter	0.750	Inches
Maximum Over-all Length	2.125	Inches
Maximum Seated Height	1.875	Inches

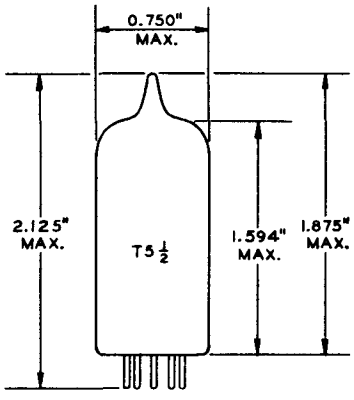
MAXIMUM RATINGS

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

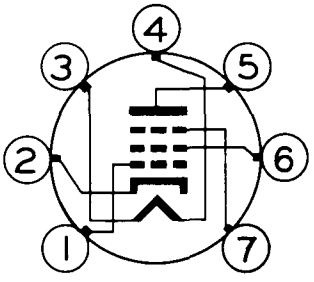


EIA 5-2

TERMINAL CONNECTIONS

Pin 1 - Grid Number 1
Pin 2 - Cathode and Internal Shield
Pin 3 - Heater
Pin 4 - Heater
Pin 5 - Plate
Pin 6 - Grid Number 2 (Screen)
Pin 7 - Grid Number 3 (Suppressor)

BASING DIAGRAM



EIA 7EN

MAXIMUM RATINGS (Cont'd)

DESIGN-MAXIMUM VALUES

Plate Voltage	300	Volts
Grid-Number 3 Voltage		
Positive Value (DC and Peak)	25	Volts
Negative Value (DC and Peak)	100	Volts
Screen Supply Voltage	300	Volts
Screen Voltage - See Screen Rating Chart		
Positive DC Grid-Number 1 Voltage	0	Volts
Negative DC Grid-Number 1 Voltage	50	Volts
Plate Dissipation	1.7	Watts
Grid-Number 3 Dissipation	0.1	Watts
Screen Dissipation	1.0	Watts
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-Number 1 Circuit Resistance		
With Fixed Bias	0.22	Megohms
With Cathode Bias	0.47	Megohms
Grid-Number 3 Circuit Resistance	0.68	Megohms

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Supply Voltage	150	Volts
Grid-Number 3 Supply Voltage	0	Volts
Screen Supply Voltage	100	Volts
Grid-Number 1 Supply Voltage	0	Volts
Cathode-Bias Resistor	180	Ohms
Plate Resistance, approximate	0.14	Megohms
Transconductance, Grid-Number 1 to Plate	3700	Micromhos
Transconductance, Grid-Number 3 to Plate	750	Micromhos
Plate Current	3.7	Milliamperes
Screen Current	3.0	Milliamperes
Grid-Number 1 Voltage, approximate		
Ib = 20 Microamperes	-4.5	Volts
Grid-Number 3 Voltage, approximate		
Ib = 20 Microamperes	-7.0	Volts

NOTES

* Operated with the heater in series with the heaters of other tubes having the same bogey heater current.

‡ Operated with the heater in parallel with the heaters of other tubes having the same bogey heater voltage.

§ For parallel heater operation, the equipment designer should design the equipment so that 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 current of a bogey tube at Ef = 6.3 volts.

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

Δ Without external shield.

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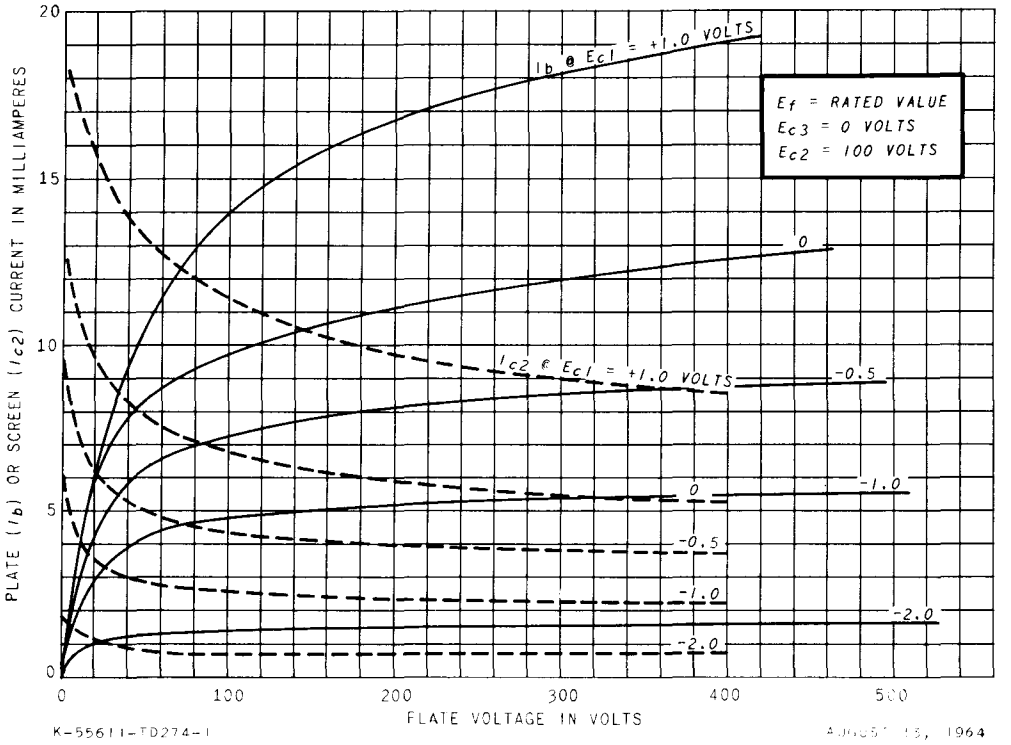
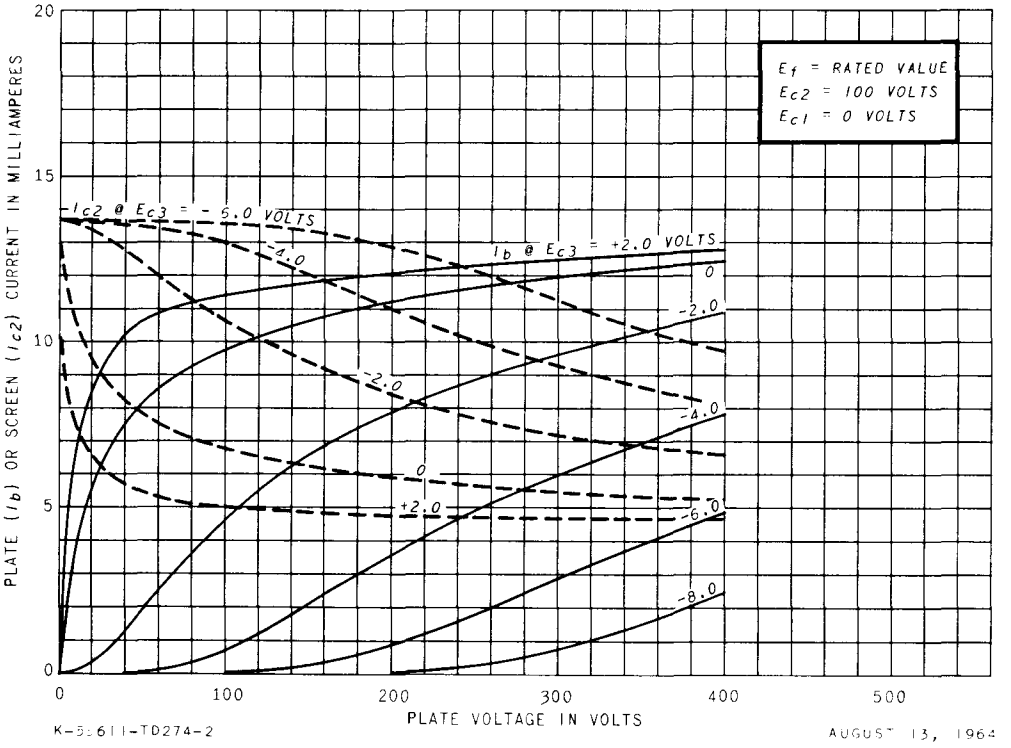
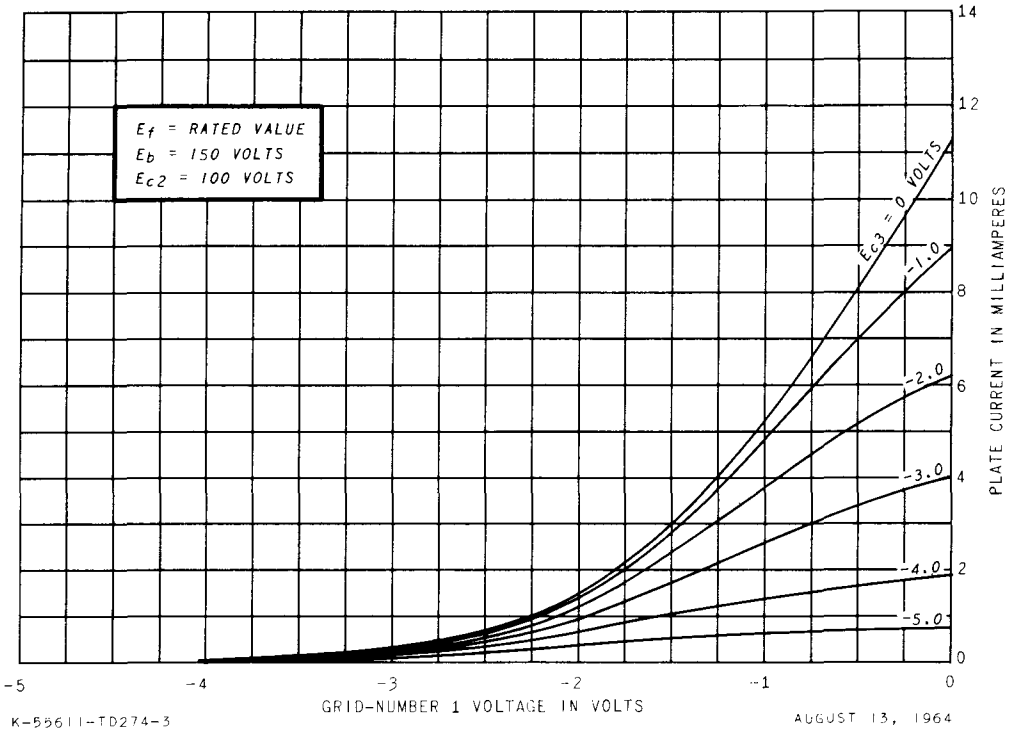
AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



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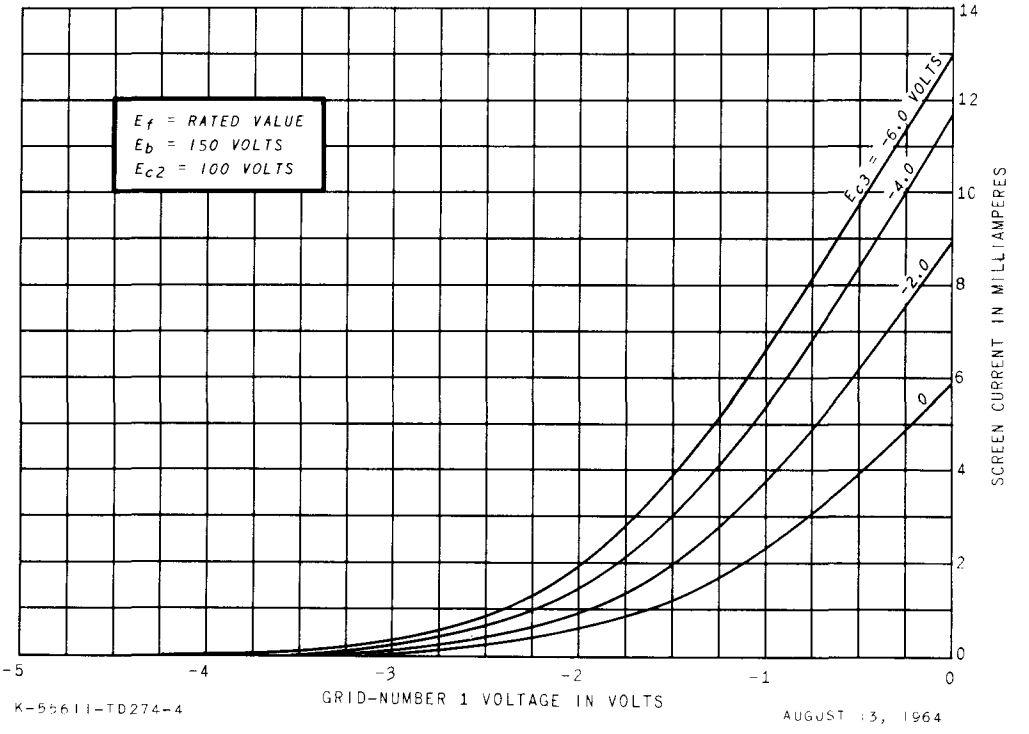

TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky