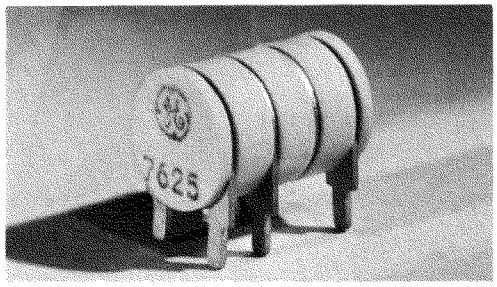


METAL-CERAMIC TRIODE

DESCRIPTION AND RATING

The 7625 is a high-mu triode of ceramic-and-metal planar construction primarily intended for low-level audio-frequency amplification.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

Heater Characteristics and Ratings

Heater Voltage, AC or DC*	6.3 ± 0.3	Volts
Heater Current†	0.215	Amperes

Direct Interelectrode Capacitances‡

Grid to Plate: (g to p)	1.3	pf
Input: g to (h+k)	1.5	pf
Output: p to (h+k)	0.03	pf
Heater to Cathode: (h to k)	1.5	pf

MECHANICAL

Mounting Position—Any

See Outline Drawing on page 3 for dimensions and electrical connections

MAXIMUM RATINGS

ABSOLUTE-MAXIMUM VALUES

DC Plate Voltage	275	Volts
Peak Plate Voltage	400	Volts
Positive Peak and DC Grid Voltage	0	Volts
Negative Peak and DC Grid Voltage	50	Volts
Plate Dissipation	0.85	Watts
DC Cathode Current	3.8	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	50	Volts
Heater Negative with Respect to Cathode	50	Volts
Grid Circuit Resistance, with Fixed Bias§	0.2	Megohms
Envelope Temperature at Hottest Point¶	250	C

Absolute-Maximum ratings are limiting values of operating and environmental conditions applicable to any 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 no allowance for equipment variations, environmental variations, and the effects of changes in operating conditions due to variations in the characteristics of the tube under consideration and of all other electron devices in the equipment.

The equipment manufacturer should design so that initially and throughout life no absolute-maximum value for the intended service is exceeded with any 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 the tube under consideration and of all other electron devices in the equipment.

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS

Plate Voltage	150	Volts
Cathode-Bias Resistor	1000	Ohms
Amplification Factor	80	
Plate Resistance, approximate	57000	Ohms
Transconductance	1400	Micromhos
Plate Current	0.95	Milliamperes
Grid Voltage, approximate Ib = 10 Microamperes, Eb = 250 Volts	−4.6	Volts

FOOTNOTES

* 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.

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

‡ Without external shield.

§ If resistance is used in the cathode or plate circuits, the grid-circuit resistance may be high as (200,000 + 500 RK + 10 RL) ohms, where RK is the cathode-bias resistance in ohms, and RL is the DC plate load resistance in ohms.

¶ Operation below the rated maximum envelope temperature is recommended for applications requiring the longest possible tube life. The 7625 is also capable of operation at envelope temperatures much higher than the rated maximum values. For specific recommendations concerning higher temperature operation, contact your General Electric tube sales representative.

SPECIAL PERFORMANCE TESTS

	Maximum	
Variable-Frequency Vibration Ef = 6.3 volts, Ebb = 150 volts, Ec = 0 volts d-c, Rk = 1000 ohms (bypassed), R_L = 10000 ohms; Note 1	15	Millivolts peak to peak
Low-Frequency Vibration Ef = 6.3 volts, Ebb = 150 volts, Ec = 0 volts d-c, Rk = 1000 ohms (bypassed), R_L = 10000 ohms, G = 15, F = 40 cps; Note 2	0.75	Millivolts RMS

Low Pressure Voltage Breakdown Test
Statistical sample tested for voltage breakdown at a pressure of 8mm Hg, to simulate an altitude of 100,000 feet. Tubes shall not give visual evidence of flashover or corona when 300 volts RMS, 60 cps, is applied between the plate and grid terminals.

Note 1: The variable-frequency vibration test shall be performed as follows:
- a. The frequency shall be increased from 100 to 2000 cps with approximately logarithmic progression in 3 ± 1 minutes. The return sweep (2000 to 100 cps) is not required.
- b. The tube shall be vibrated with simple harmonic motion in each of two planes; first, parallel to the cylindrical axis; second, perpendicular to the cylindrical axis and parallel to a line through the major axis of a terminal lug.
- c. The peak acceleration shall be maintained at 10 ± 1 G throughout the test.
- d. The vibrational output produced across R_L as a result of the vibration shall be coupled to a low-pass filter that has the following characteristics:
  - (1) A response within ± 1 db of the response at 1000 cps over the frequency range of 100 to 17000 cps.
  - (2) The response shall be down at least 1.5 db at 20000 cps and have a cut-off rate of at least 18 db per octave above 20000 cps.

Note 2: The tube shall be vibrated with harmonic motion in each of two planes, (1) parallel to the cylindrical axis and (2) perpendicular to the cyclindrical axis and perpendicular to a line through the major axis of a terminal lug.

DEGRADATION RATE TESTS

Fatigue
Statistical sample vibrated for a total of six hours, three hours in each of two planes, at a peak acceleration of 10 G. Frequency is continuously varied from 30 cps to 2000 cps and back to 30 cps, with a period of ten minutes. Tubes are operated during the test with Ef = 6.3 volts, Eb = 150 volts, and Rk = 82 ohms. Following the test, tubes are evaluated for low frequency vibrational output, heater-cathode leakage, transconductance, and negative grid current.

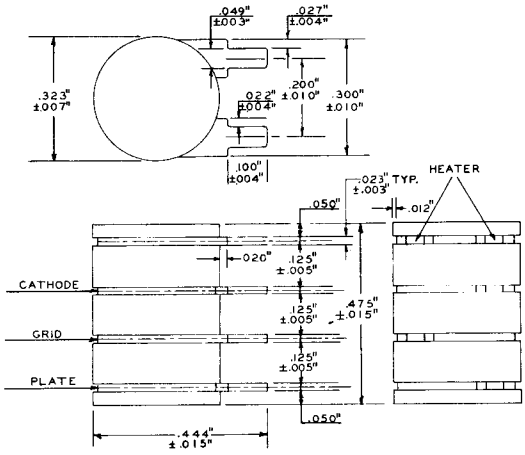
Shock
Statistical sample subjected to 5 impact accelerations of approximately 450 G in each of four positions. The accelerating forces are applied by the Navy-type, High Impact (flyweight) Shock Machine using a 30° hammer angle. Tubes are operated during the test with Ef = 6.3 volts, Eb = 150 volts, Ehk = +100 volts, Rg = 0.1 Meg, and Rk = 82 ohms. Following the test, tubes are evaluated for low frequency vibrational output, heater-cathode leakage, transconductance, and negative grid current.

Stability Life Test
The statistical sample subjected to the Intermittent Life Test is evaluated for percent change in transconductance of individual tubes, from the initial readings to readings following 2 hours and 20 hours of the life test.

Survival Rate Life Test
The statistical sample subjected to the Intermittent Life Test is evaluated for shorted and open elements and transconductance following approximately 100 hours of life test.

Intermittent Life Test
Statistical sample operated for 1000 hours under the following conditions: Ef = 6.3 volts (cycled—on 1¾ hours, off ¼ hour), Ebb = 300 volts, Ehk = +70 volts d-c, Rk = 82 ohms, R_L = 18000 ohms, and Rg = 0.1 meg. Tubes are evaluated, following 500 and 1000 hours of life test, for shorted or open elements, heater current, grid current, transconductance, heater-cathode leakage, and interelectrode leakage resistance.

DEGRADATION RATE TESTS (Continued)



Maximum eccentricity of insulators 0.010 in. from center line.

Interface Life Test

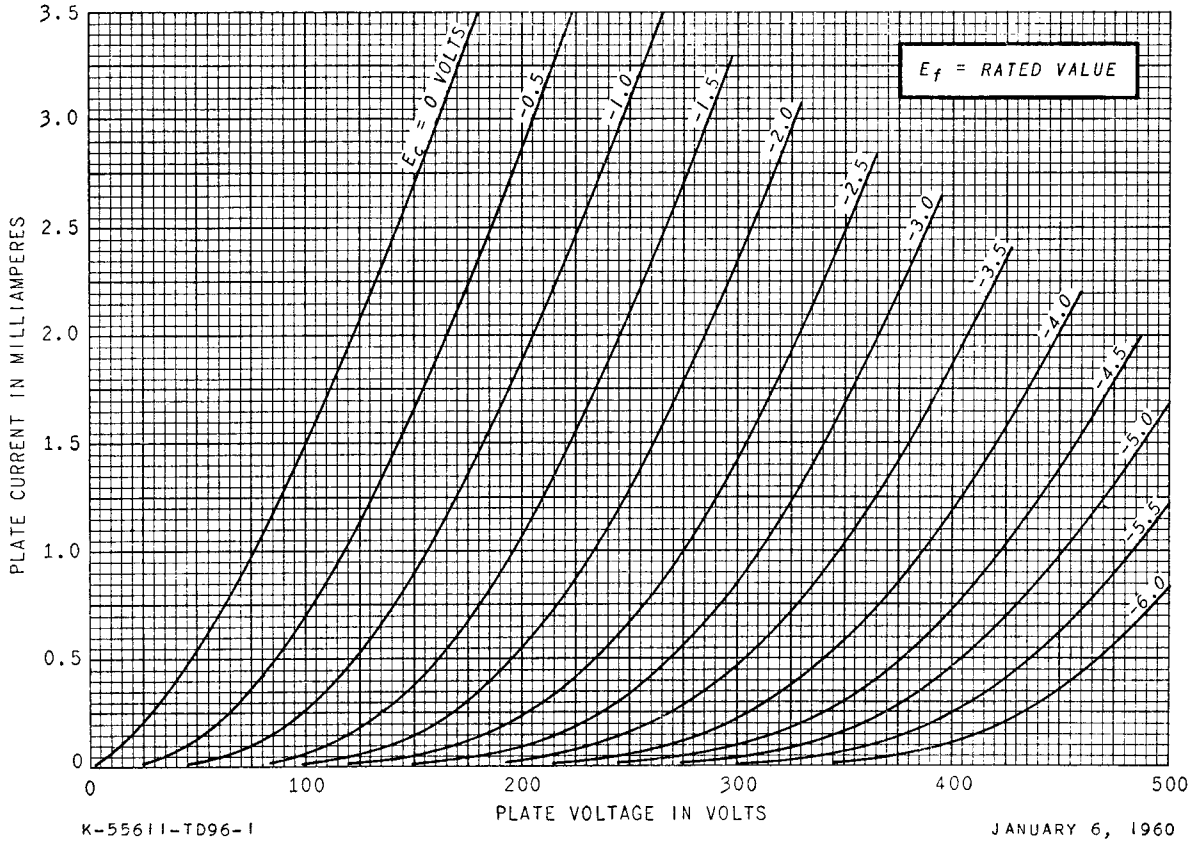
Statistical sample operated for 1000 hours with Ef = 6.6 volts, no other voltages applied, and evaluated for cathode interface resistance following the life test.

Heater-Cycling Life Test

Statistical sample operated for 2000 cycles minimum to evaluate and control heater-cathode defects. Conditions of test include Ef = 7.0 volts cycled for one minute on and one minute off, Eb = Ec = 0 volts, and Ehk = 70 volts with heater positive with respect to cathode. Following this test, tubes are evaluated for open heaters, heater-cathode shorts, and heater-cathode leakage current.

Note: The conditions for some of the indicated tests have deliberately been selected to aggravate tube failures for test and evaluation purposes. In no sense should these conditions be interpreted as suitable circuit operating conditions.

AVERAGE PLATE CHARACTERISTICS



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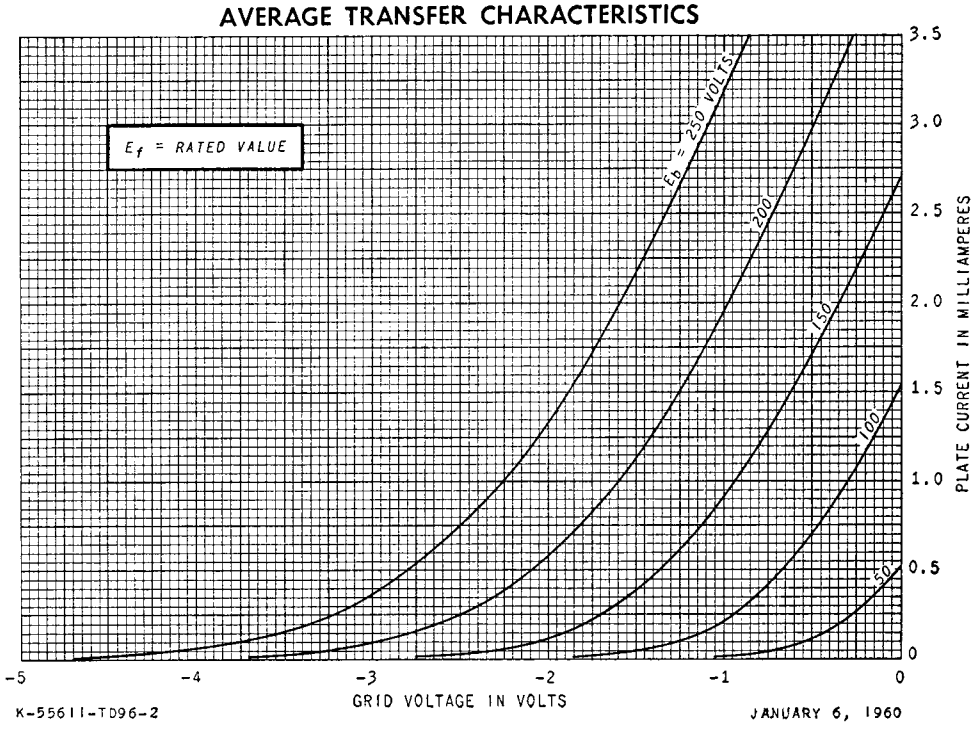
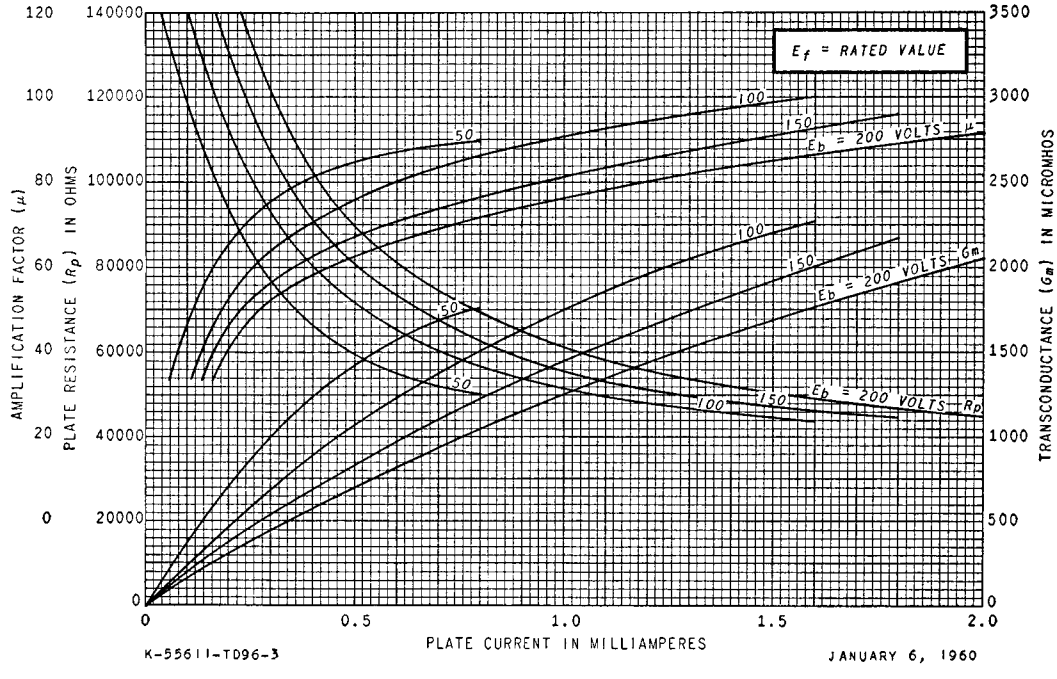
AVERAGE TRANSFER CHARACTERISTICS



AVERAGE CHARACTERISTICS



RECEIVING TUBE DEPARTMENT

GENERAL ELECTRIC

Owensboro, Kentucky