

**6216
BEAM PENTODE**

Five-Star Tube
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DESCRIPTION AND RATING

The 6216 is a miniature beam-power pentode designed for use as a filter reactor tube. It is also useful in Class A, B, and C amplifier applications and in electronically regulated power supplies.

GENERAL

ELECTRICAL

Cathode - Coated Unipotential

Heater Characteristics and Ratings
 Heater Voltage, AC or DC* . . . 6.3±0.6 Volts
 Heater Current† 1.2 Amperes

Direct Interelectrode Capacitances‡
 Grid-Number 1 to Plate: (g1 to p),
 maximum 0.370 pf
 Input: g1 to (h + k + g2 + b.p.). 13.25 pf
 Output: p to (h + k + g2 + b.p.) . 6.7 pf

MECHANICAL

Operating Position - Any
 Envelope - T-6 1/2, Glass
 Base - E9-1, Small Button 9-Pin
 Outline Drawing - EIA 6-3

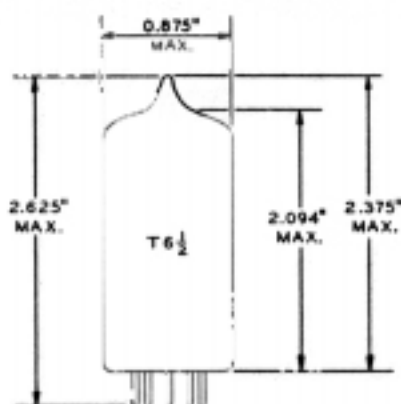
Maximum Diameter 0.875 Inches
 Maximum Over-all Length. 2.625 Inches
 Maximum Seated Height 2.375 Inches

MAXIMUM RATINGS

ABSOLUTE-MAXIMUM VALUES

Plate Voltage . . . . .	. 300	Volts
Screen Voltage. . . . .	. 200	Volts
Positive DC Grid-Number 1 Voltage . . . . .	. 0	Volts
Plate Dissipation. . . . .	. 10	Watts
Screen Dissipation . . . . .	. 2.2	Watts
DC Cathode Current . . . . .	. 110	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode	. 200	Volts
Heater Negative with Respect to Cathode	. 200	Volts
Grid-Number 1 Circuit Resistance		
With Fixed Bias . . . . .	. 0.1	Megohms
With Cathode Bias. . . . .	. 0.5	Megohms
Bulb Temperature at Hottest Point . . . . .	. 210	C

PHYSICAL DIMENSIONS

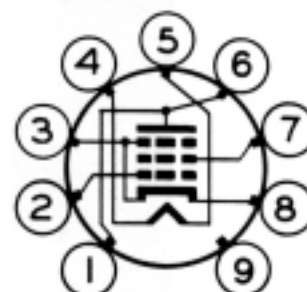


EIA 6-3

TERMINAL CONNECTIONS

- Pin 1 - Plate
- Pin 2 - Grid Number 1
- Pin 3 - Cathode and Beam Plates
- Pin 4 - Heater
- Pin 5 - Heater
- Pin 6 - Plate
- Pin 7 - Grid Number 2 (Screen)
- Pin 8 - Cathode and Beam Plates
- Pin 9 - No Connection

BASING DIAGRAM



EIA 9CE

MAXIMUM RATINGS (Cont'd)

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	100	Volts
Screen Voltage	100	Volts
Grid-Number 1 Voltage	-3.0	Volts
Grid-Number 1 Resistor	100000	Ohms
Plate Resistance, approximate	18500	Ohms
Transconductance	12500	Micromhos
Plate Current	72	Milliamperes
Screen Current	3.0	Milliamperes
Grid-Number 1 Voltage, approximate I _b = 50 Microamperes	-25	Volts

FILTER REACTOR SERVICE (See Circuit)

DC Plate Supply Voltage (Input to Filter)	400	Volts
DC Plate Voltage (Plate to Cathode)	60	Volts
DC Screen Voltage	100	Volts
DC Grid-Number 1 Voltage	-1.0	Volts
DC Output Voltage (Output from Filter)	335	Volts
DC Cathode Current	110	Milliamperes
Ripple Voltage, RMS, (At Filter Output)§	210	Millivolts

CLASS A₁ AMPLIFIER

Plate Voltage	200	Volts
Screen Voltage	100	Volts
Grid-Number 1 Voltage	-6.0	Volts
Peak AF Grid-Number 1 Voltage	6.0	Volts
Zero-Signal Plate Current	47	Milliamperes
Maximum-Signal Plate Current	51	Milliamperes
Zero-Signal Screen Current	2.0	Milliamperes
Maximum-Signal Screen Current	4.0	Milliamperes
Load Resistance	4500	Ohms
Total Harmonic Distortion, approximate	10	Percent
Maximum-Signal Power Output	3.8	Watts

OSCILLATOR OR AMPLIFIER—CLASS C

Frequency	50	Megacycles
DC Plate Voltage	300	Volts
DC Screen Voltage	150	Volts
DC Grid-Number 1 Voltage¶	-50	Volts
From a Grid Resistor of	22000	Ohms
Peak RF Grid-Number 1 Voltage	65	Volts
DC Plate Current	63	Milliamperes
DC Screen Current	8.0	Milliamperes
DC Grid-Number 1 Current, approximate	2.0	Milliamperes
Driving Power, approximate	0.3	Watts
Useful Power Output	8.8	Watts

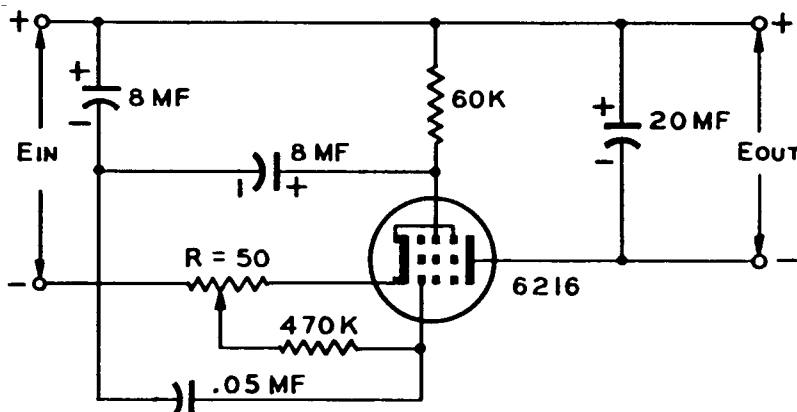
CHARACTERISTICS AND TYPICAL OPERATION (Cont'd)

FREQUENCY MULTIPLIER—DOUBLER

DC Plate Voltage	300	Volts
DC Screen Voltage#	---	Volts
DC Grid-Number 1 Voltage¶	-75	Volts
From a Grid Resistor of	75000	Ohms
DC Plate Current	50	Milliamperes
DC Screen Current	6.0	Milliamperes
DC Grid-Number 1 Current, approximate	1.0	Milliamperes
Driving Power, approximate	0.6	Watts
Useful Power Output	4.0	Watts

NOTES

- * 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 $E_f = 6.3$ volts.
- ‡ Without external shield.
- § Potentiometer "R" should be adjusted for minimum ripple.
- ¶ Obtained from fixed supply or by grid-number 1 resistor.
- # Obtained from 300 volts supply through 25000 ohm resistor.



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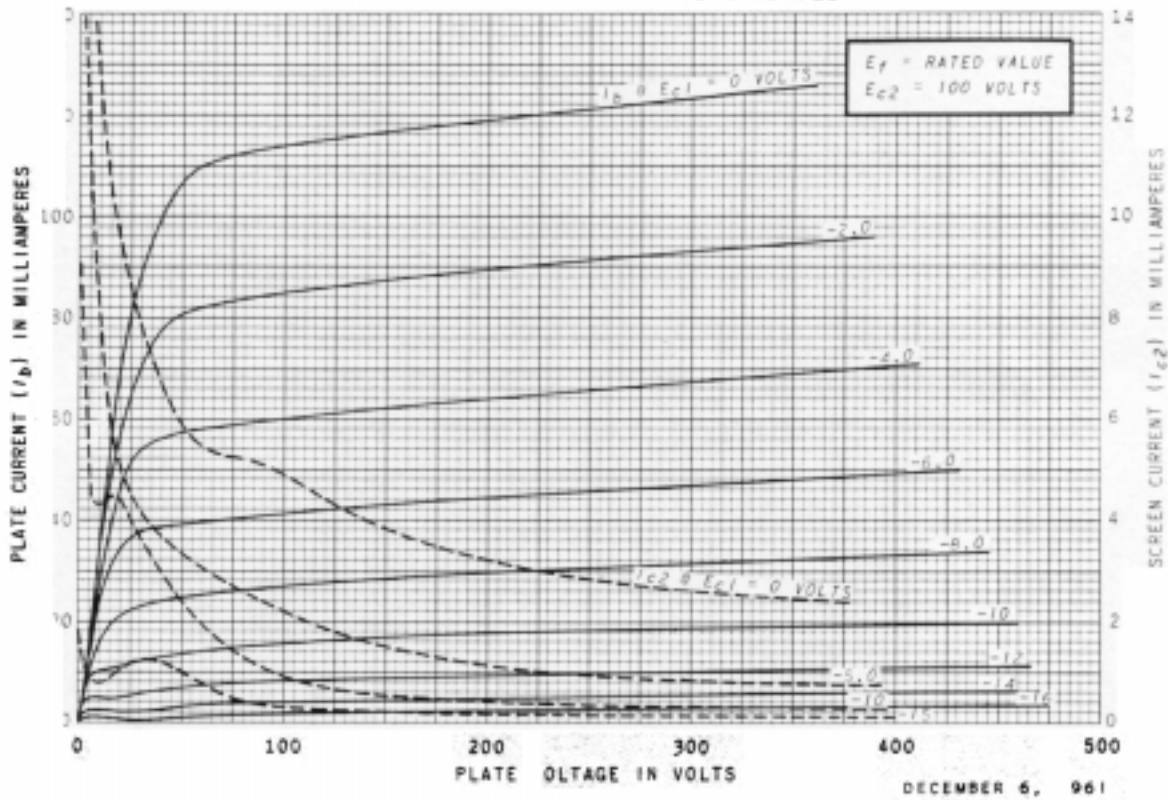
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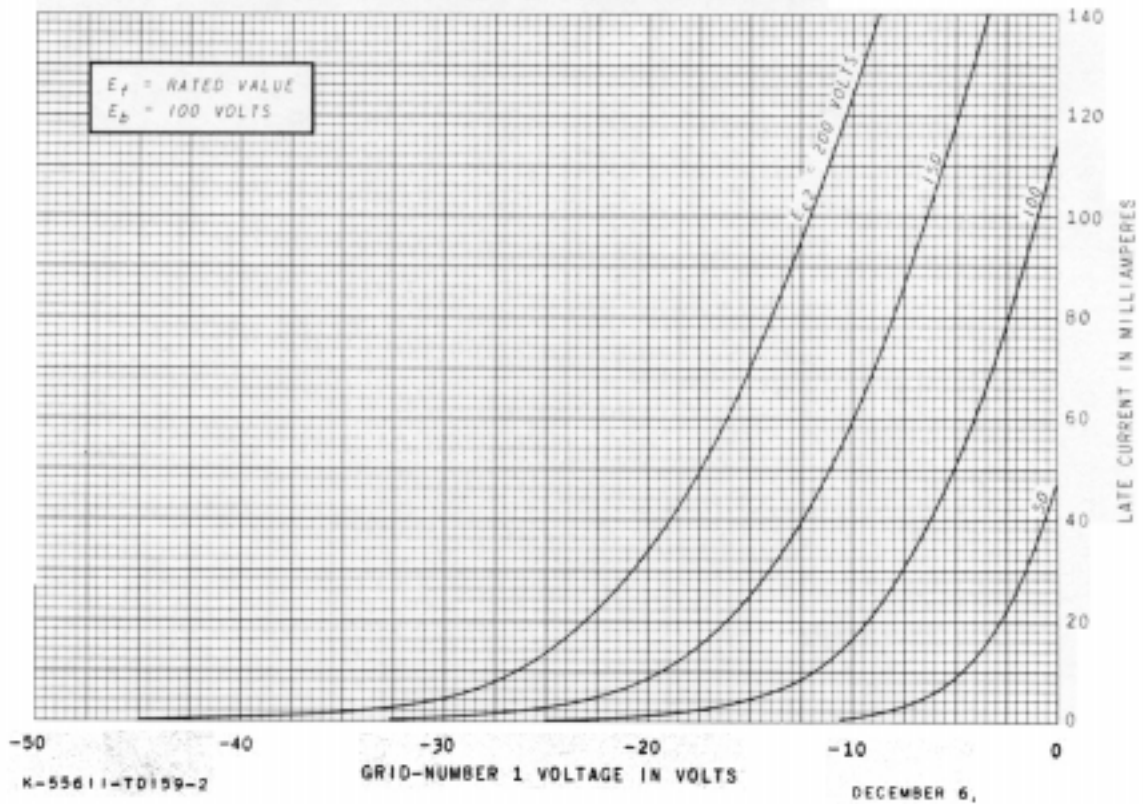
INITIAL CHARACTERISTICS LIMITS

	Minimum	Maximum	
Heater Current E _f = 6.3 volts .	1100	1300	Milliamperes
Plate Current (1) E _f = 6.3 volts, E _b = 100 volts, E _{c2} = 100 volts, E _{c1} = -3.0 volts .	. 55	95	Milliamperes
Plate Current (2) E _f = 6.3 volts, E _b = 45 volts, E _{c2} = 100 volts, E _{c1} = -3.0 volts	. 50		Milliamperes
Plate Current (3) E _f = 6.3 volts, E _b = 300 volts, E _{c2} = 200 volts, E _{c1} = -21.5 volts	. 21	45	Milliamperes
Screen Current E _f = 6.3 volts, E _b = 100 volts, E _{c2} = 100 volts, E _{c1} = -3.0 volts		6.0	Milliamperes
Transconductance E _f = 6.3 volts, E _b = 100 volts, E _{c2} = 100 volts, E _{c1} = -3.0 volts	10000	15000	Micromhos
Negative Grid-Number 1 Current E _f = 6.3 volts, E _b = 100 volts, E _{c2} = 100 volts, E _{c1} = -3.0 volts, R _{g1} = 0.5 meg		2.5	Microamperes
Grid Emission E _f = 6.9 volts, E _b = 100 volts, E _{c2} = 100 volts, E _{c1} = -35 volts, R _{g1} = 0.5 meg		4.0	Microamperes
Power Output E _f = 6.3 volts, E _b = 200 volts, E _{c2} = 100 volts, E _{c1} = -6.0 volts, E _{sig} = 4.2 volts RMS, R _L = 4500 ohms .	2.5		Watts
Heater-Cathode Leakage E _f = 6.3 volts, E _{hk} = 200 volts Heater Positive with Respect to Cathode . Heater Negative with Respect to Cathode .		50 50	Microamperes Microamperes
Interelectrode Leakage Resistance E _f = 6.3 volts, Polarity of applied d-c interelectrode voltage is such that no cathode emission results . Grid-Number 1 to All at 100 volts DC Plate to All at 300 volts DC 50 . 50		Megohms Megohms

AVERAGE PLATE CHARACTERISTICS



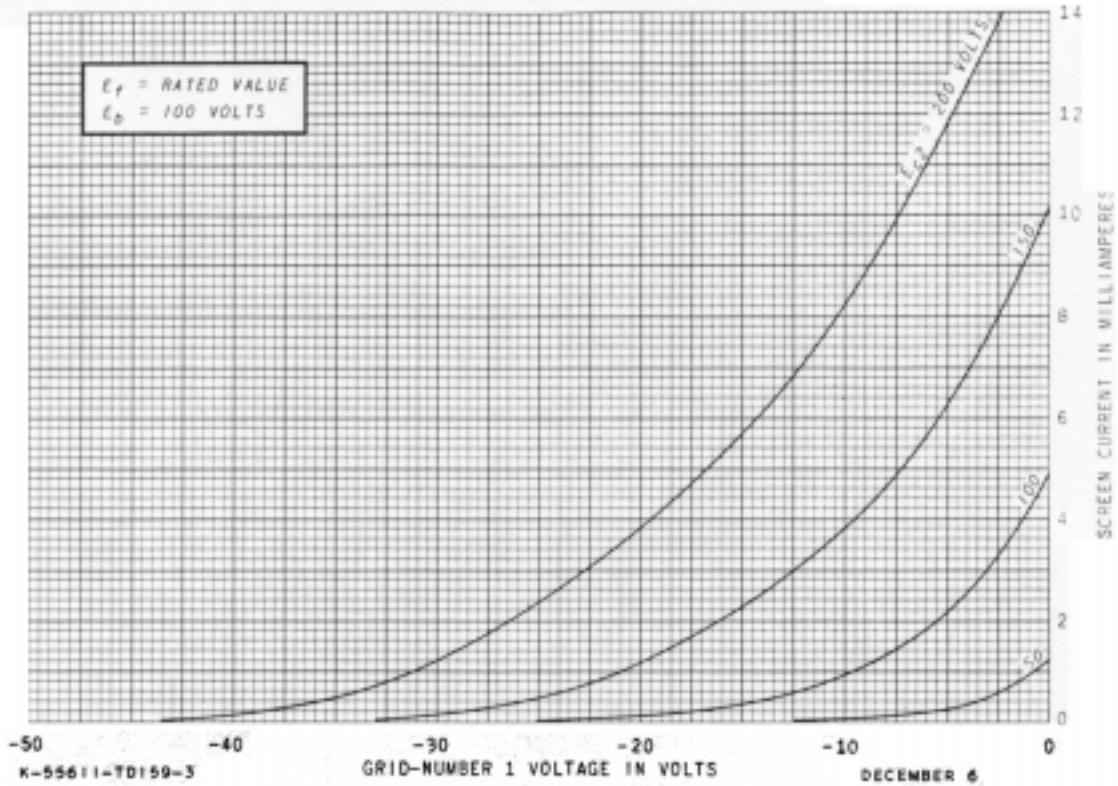
AVERAGE TRANSFER CHARACTERISTICS



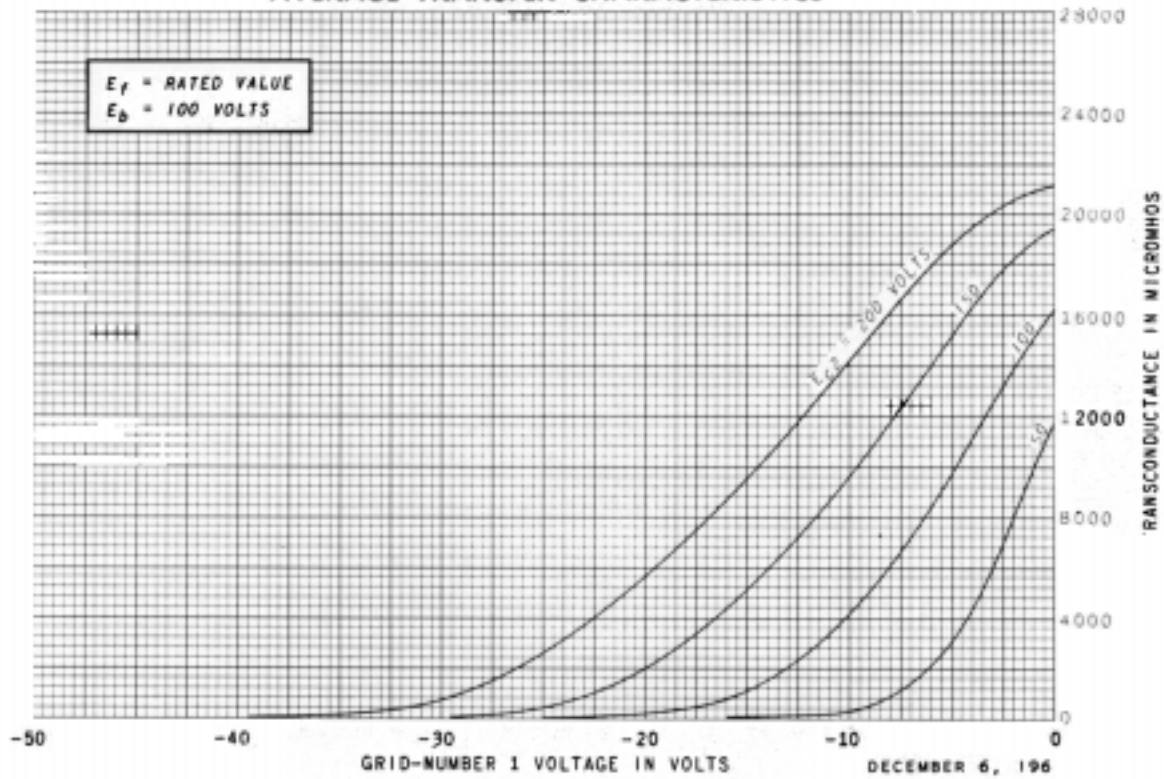
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AVERAGE TRANSFER CHARACTERISTICS



AVERAGE TRANSFER CHARACTERISTICS



TUBE DEPARTMENT

GENERAL  ELECTRIC

Owensboro, Kentucky