

TWIN TRIODE

FOR COMPUTER APPLICATIONS

MEDIUM-MU

9-PIN MINIATURE

SEPARATE CATHODES

DESCRIPTION AND RATING

The 6350 is a miniature, medium-mu, twin triode primarily designed for service in computer applications. Each triode section features a high zero-bias plate current, a sharp-cutoff characteristic, and a separate cathode connection.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

	Series	Parallel	
Heater Voltage, AC or DC	12.6 ± 5%	6.3 ± 5%	Volts
Heater Current	0.3	0.6	Amperes
Direct Interelectrode Capacitances*			
Grid to Plate, Each Section		3.2	μμf
Input, Each Section		3.6	μμf
Output, Each Section		0.6	μμf
Heater to Cathode, Each Section		4.6	μμf
Grid to Grid, maximum		0.042	μμf
Plate to Plate, maximum		1.0	μμf

MECHANICAL

Mounting Position

Preferred Orientation—Upright or with Plate Majors in Vertical Position

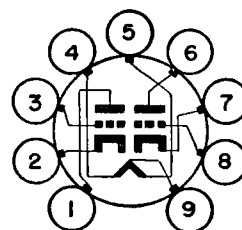
Permissible Orientation—Any

Envelope—T-6½, Glass

Base—E9-1, Small Button 9-Pin

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BASING DIAGRAM

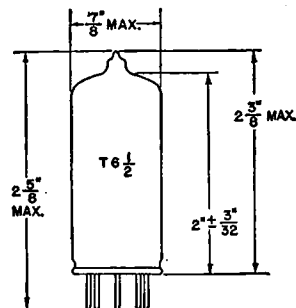


EIA 9CZ

TERMINAL CONNECTIONS

- Pin 1—Plate (Section 2)
- Pin 2—Cathode (Section 2)
- Pin 3—Grid (Section 2)
- Pin 4—Heater
- Pin 5—Heater
- Pin 6—Plate (Section 1)
- Pin 7—Cathode (Section 1)
- Pin 8—Grid (Section 1)
- Pin 9—Heater Center-Tap

PHYSICAL DIMENSIONS



EIA 6-3

MAXIMUM RATINGS

ABSOLUTE MAXIMUM VALUES, EACH SECTION

Plate Voltage	330	Volts
Peak Positive Pulse Plate Voltage†	1000	Volts
Positive DC Grid Voltage	4.0	Volts
Negative DC Grid Voltage	80	Volts
Peak Positive Grid Voltage†	14	Volts
Peak Negative Grid Voltage	440	Volts
Plate Dissipation, Each Plate	4.0	Watts
Total Plate Dissipation, Both Plates	7.0	Watts
DC Grid Current	5.5	Milliamperes
Peak Grid Current†	110	Milliamperes
DC Cathode Current	45	Milliamperes
Peak Cathode Current†	350	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	0.1	Megohms
With Cathode Bias	0.5	Megohms
Bulb Temperature at Hottest Point	120	C

CHARACTERISTICS AND TYPICAL OPERATION

AVERAGE CHARACTERISTICS, EACH SECTION

Plate Voltage	150	200	Volts
Grid Voltage	-5.0	....	Volts
Amplification Factor	18	....
Plate Resistance, approximate	3900	....	Ohms
Transconductance	4600	....	Micromhos
Plate Current	11	....	Milliamperes
Grid Voltage, approximate			
I _b = 100 Microamperes	-11	....	Volts
Grid Voltage, approximate			
I _b = 1.0 Milliamperes . . . . .	....	-12	Volts

* Without external shield.

† Rating based on a pulse of 0.08-microsecond duration, 8-percent duty cycle, and one-megacycle repetition rate.

INITIAL CHARACTERISTICS LIMITS

	Minimum	Maximum	
Heater Current E _f = 6.3 volts	550	650	Milliamperes
Zero-Bias Plate Current, Each Section E _f = 6.3 volts, E _b = 100 volts, R _g = 0.5 meg to +100 volts	24	. . . .	Milliamperes
Plate Current, Each Section E _f = 6.3 volts, E _b = 120 volts, E _c = -2 volts	14	25	Milliamperes
Transconductance, Each Section E _f = 6.3 volts, E _b = 120 volts, E _c = -2 volts	5200	8600	Micromhos
Grid Voltage Cutoff, Each Section E _f = 6.3 volts, E _b = 200 volts, I _b = 1.0 ma . . . . .	. . . .	-15	Volts
Negative Grid Current, Each Section E _f = 6.3 volts, E _b = 120 volts, E _{cc} = -2 volts, R _g = 0.1 meg . . . . .	. . . .	2.0	Microamperes
Heater-Cathode Leakage Current E _f = 6.3 volts, E _{hk} = 100 volts (parallel sections)			
Heater Positive with Respect to Cathode . . . . .	. . . .	15	Microamperes
Heater Negative with Respect to Cathode . . . . .	. . . .	15	Microamperes
Interelectrode Leakage Resistance E _f = 6.3 volts. Polarity of applied d-c interelectrode voltage is such that no cathode emission results.			
Grid (Each Section) to All at 100 volts d-c	50	. . . .	Megohms
Plate (Each Section) to All at 300 volts d-c	50	. . . .	Megohms

SPECIAL TESTS AND RATINGS

Heater-Cycling Life Test

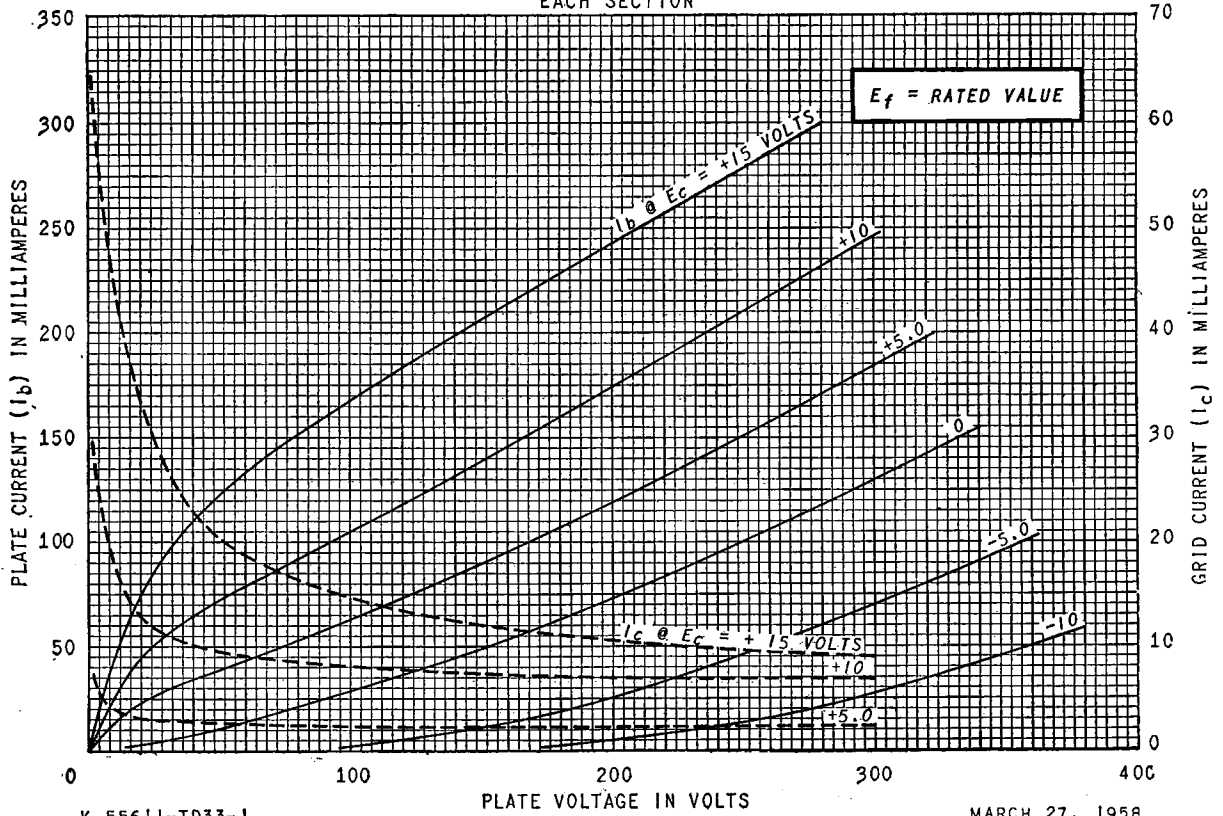
Statistical sample operated for 2000 cycles to evaluate and control heater-cathode defects. Conditions of test include E_f = 7.5 volts (parallel-heater connection) cycled for one minute on and one minute off, E_b = E_c = 0 volts and E_{hK} = 135 volts with heater positive with respect to cathode.

Cathode-Interface Impedance Life Test

Statistical sample operated without cathode current conduction to evaluate and control the development of cathode interface impedance.

AVERAGE PLATE CHARACTERISTICS

EACH SECTION

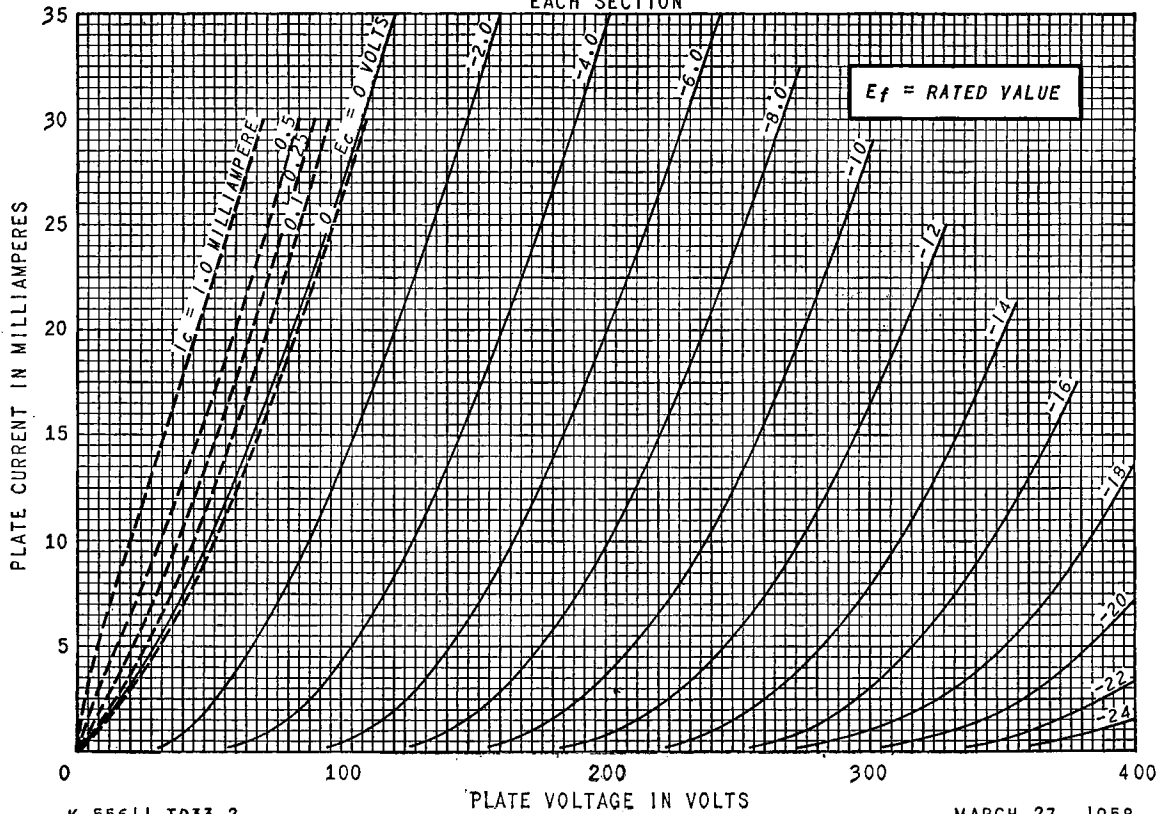


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MARCH 27, 1958

AVERAGE PLATE CHARACTERISTICS

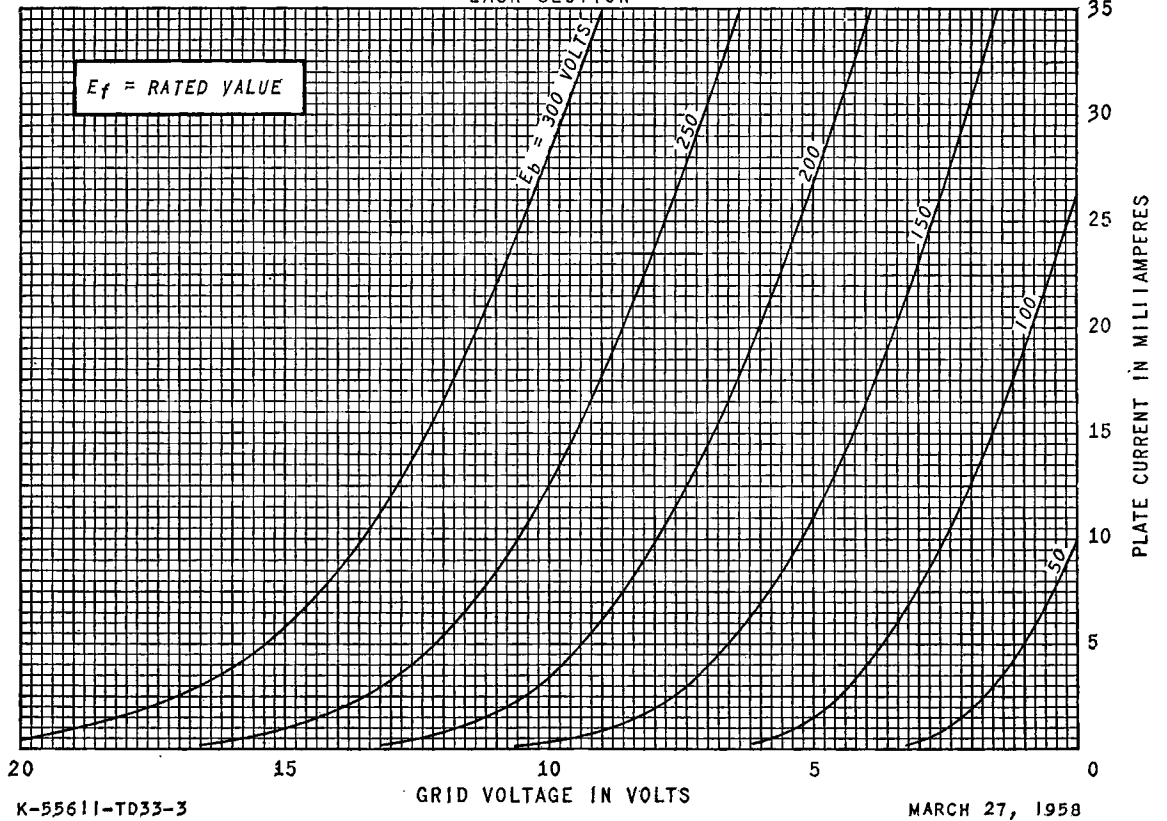
EACH SECTION



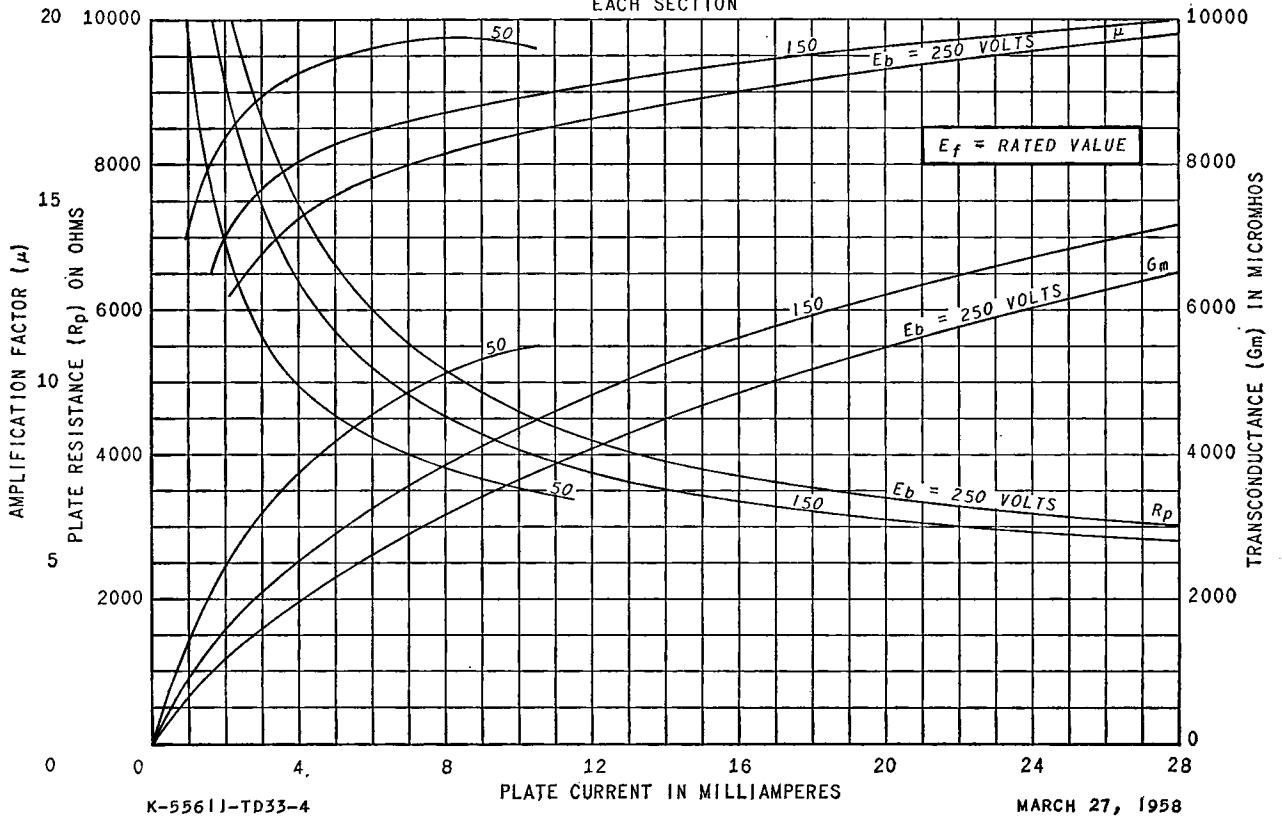
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AVERAGE TRANSFER CHARACTERISTICS
 EACH SECTION



AVERAGE CHARACTERISTICS
 EACH SECTION



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