

Twin triode with separate cathodes suitable for use in amplifier, mixer, oscillator and multivibrator circuits. Useful frequency range extends from low frequencies to about 800 Mc.

*COLD CAPACITANCES (without external shield)*

Input, Each Section* . . . . .	2.2	$\mu\mu\text{F}$
Output, Section 1* . . . . .	1.0	$\mu\mu\text{F}$
Output, Section 2* . . . . .	1.0	$\mu\mu\text{F}$
Plate to Grid, Each Section* . . . . .	1.3	$\mu\mu\text{F}$
Plate to Plate, nominal . . . . .	.05	$\mu\mu\text{F}$
Plate to Plate, maximum . . . . .	.1	$\mu\mu\text{F}$

*ABSOLUTE MAXIMUM RATINGS (each section)*

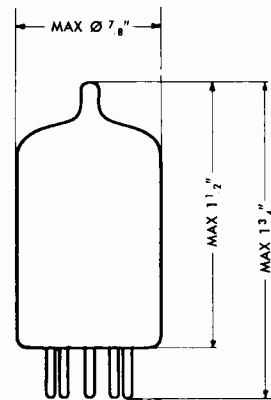
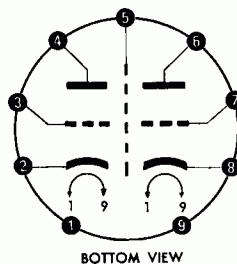
Plate Voltage . . . . .	330	volts
Grid Voltage, positive value . . . . .	+ 5	volts
Grid Voltage, negative value . . . . .	- 50	volts
Cathode Current . . . . .	20	ma
Plate Dissipation . . . . .	1.6	watts
Heater — Cathode Voltage . . . . .	100	volts
Bulb Temperature, at hottest point . . . . .	160	°C
Grid Circuit Resistance		
with fixed bias . . . . .	1	Mohm
with cathode bias . . . . .	2	Mohms

\* Measured with internal shield and heater connected to cathode of section. Elements of other section grounded.

**MECHANICAL DATA**

Base: Small Button Noval 9-pin,  
RETMA E9-1  
Bulb: EIA T 6½  
Mounting Position: Any

- | PIN NO | CONNECTED TO         |
|--------|----------------------|
| 1.     | Heater               |
| 2.     | Cathode of Section 1 |
| 3.     | Grid of Section 1    |
| 4.     | Plate of Section 1   |
| 5.     | Shield               |
| 6.     | Plate of Section 2   |
| 7.     | Grid of Section 2    |
| 8.     | Cathode of Section 2 |
| 9.     | Heater               |



# 2C51

## TWIN TRIODE

396 A



### TYPICAL OPERATION. CLASS A<sub>1</sub>. (each section)

Heater Voltage . . . . .	6.3	6.3	volts
Heater Current . . . . .	.3	.3	amp
Plate Supply Voltage . . . . .	130	150	volts
Cathode Bias Resistor . . . . .	200	240	ohms
Plate Current . . . . .	7.6	8.2	ma
Transconductance . . . . .	5400	5500	μmhos
Amplification Factor . . . . .	35	35	
Plate Resistance . . . . .	6500	6400	ohms
Grid Voltage for Plate Current = 10 μa . . . . .	— 6	— 7	volts
Equivalent Noise Resistance . . . . .	500	500	ohms
Input Conductance at 100 Mc . . . . .	130	130	μmhos

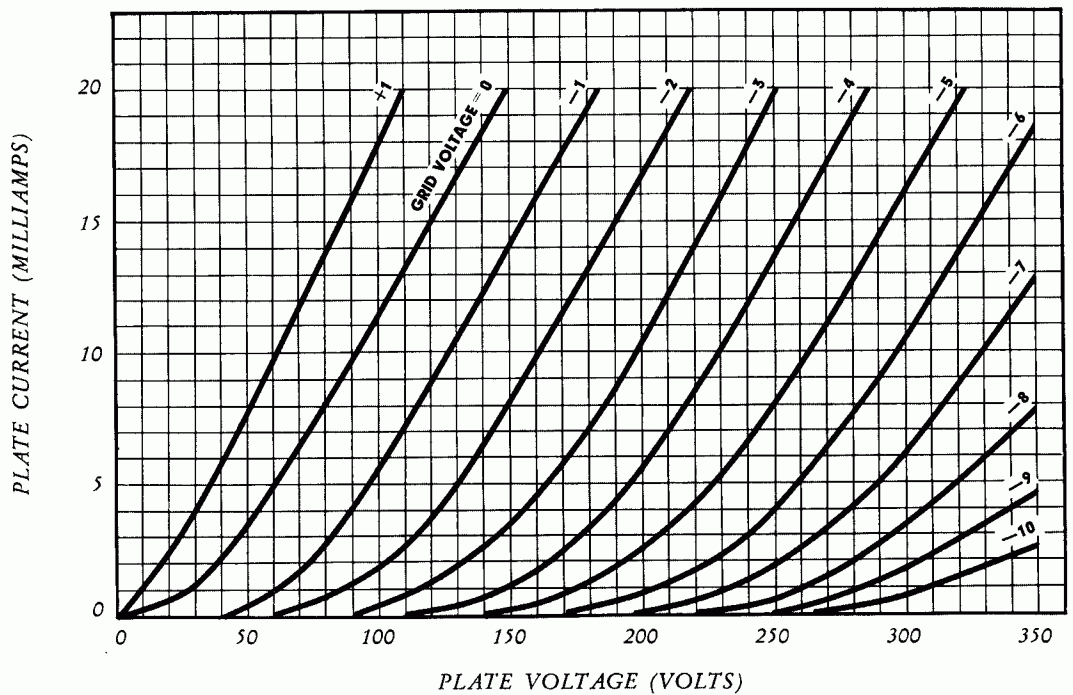
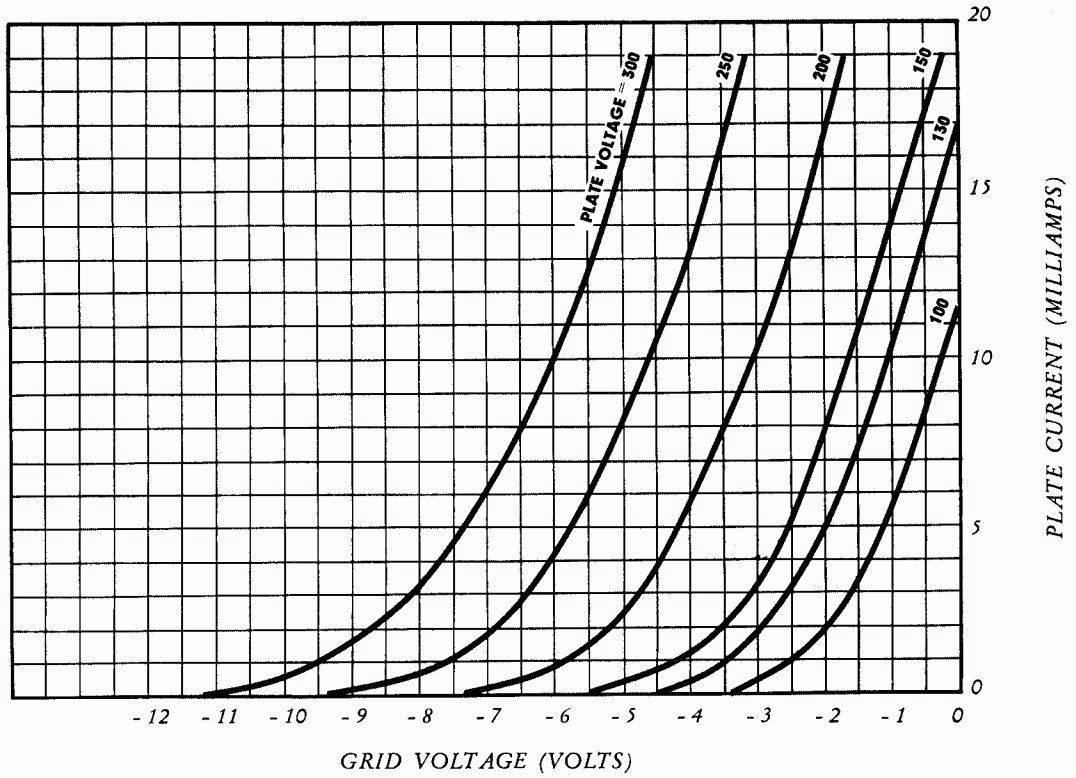
### TYPICAL OPERATION. CLASS AB<sub>1</sub>

Plate Supply Voltage . . . . .	300	volts
Cathode Bias Resistor . . . . .	800	ohms
RMS AF Grid to Grid Voltage . . . . .	14	volts
Zero Signal Plate Current, Each Section . . . . .	4.9	ma
Max. Signal Plate Current, Each Section . . . . .	6.3	ma
Load Impedance, Plate to Plate . . . . .	40,000	ohms
Total Harmonic Distortion . . . . .	10	%
Max. Signal Power Output . . . . .	1.0	watt

### OPERATION RANGE VALUES (each section)

	MIN	AVE	MAX	
Heater Voltage . . . . .		6.3		volts
Plate Supply Voltage . . . . .		130		volts
Cathode Bias Resistor . . . . .		200		ohms
Heater Current . . . . .	280	300	320	ma
Plate Current . . . . .	5.2	7.6	10.0	ma
Transconductance . . . . .	4200	5400	6600	μmhos
Transconductance, End of Life Point . . . . .	3600			μmhos
I <sub>hk</sub> at E <sub>hk</sub> = ± 100 volts . . . . .			20	μa
Grid Current . . . . .			— .05	μa
Cutoff Plate Current at E <sub>c1</sub> = — 10 volts . . . . .			75	μa
<b>Vibration Output</b> . . . . .		5		mv
Measured at 2.5 g and 25 cps with both sections in parallel E <sub>f</sub> = 6.3 v, E <sub>b</sub> = 150 v, E <sub>c1</sub> = — 3 v, r <sub>p</sub> = 2000 ohms.				

AVERAGE CHARACTERISTICS





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### 396 A



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