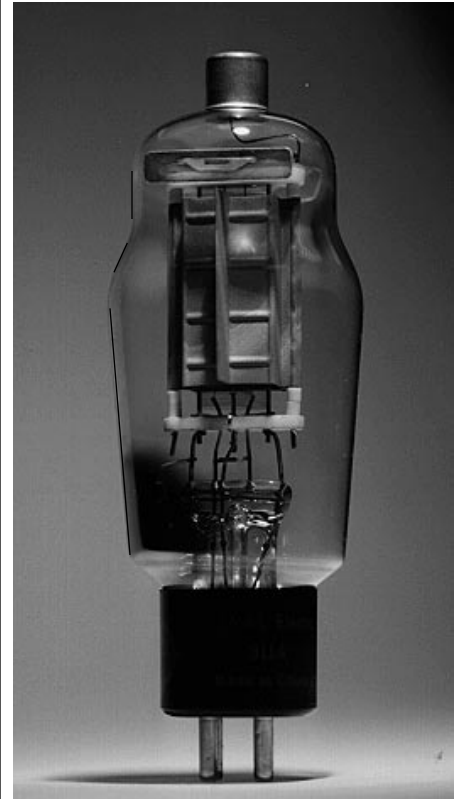


The NL-811A is a three-electrode tube designed for use as a class B audio-frequency power amplifier and modulator. It is well suited also for class C telephony, telegraphy, and self-rectifying service. In class B service and in unmodulated class C service, the NL-811A has a maximum plate dissipation of 65 watts (ICAS). Because of its high perveance, the NL-811A operates at high efficiency and with low driving power. A pair of NL-811A's in class B audio-frequency service with a plate input of 470 watts (ICAS) requires a driving power of only 4.4 watts, and can modulate 100 per cent a radio-frequency amplifier having an input of 680 watts.

In class C telegraph service under ICAS conditions, two NL-811A's can be operated with a plate input of 520 watts and with the exceptionally low driving power at the tubes of only about 14 watts. The NL-811A may be operated at maximum ratings in all classes of rf service at frequencies as high as 30 megacycles and with reduced ratings up to 100 megacycles. Design features of the NL-811A include a large zirconium coated plate with radiating fins to give remarkably effective heat dissipation, heavy internal leads to grid and plate with resultant low radio-frequency losses, and a low-loss micanol base.



TECHNICAL INFORMATION

GENERAL

Electrical Data

Filament Voltage (ac or dc)	6.3 ±0.3	Volts
Filament Current, at $E_f=6.3V$	4	Amperes
Amplification Factor	160	
Direct Interelectrode Capacitances (With no External Shield)		
Grid - Plate	5.6	μf
Grid - Filament	5.9	μf
Plate - Filament	0.7	μf

Mechanical Data

Mounting Position - Vertical, Base down; horizontal with pins 1 and 4 in vertical plane

Cap - Medium No. CI-5

Base - Medium

Shell - Small 4-pin, micanol with bayonet No. A4-10

NATIONAL ELECTRONICS

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TECHNICAL INFORMATION (CONT'D)**MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS
AUDIO FREQUENCY POWER AMPLIFIER AND MODULATOR - CLASS B**

Maximum ratings, absolute values		<u>CCS</u>		<u>ICAS</u>		
Dc plate voltage		1150 max		1500		max Volts
Maximum signal Dc plate current		175 max		175		max Volts
Maximum signal Dc plate input		165 max		235		max watts
Dc grid current		45 max		65		max watts
Typical operation		<u>CCS</u>		<u>ICAS</u>		
Dc plate voltage	750	1250	1000	1250	1500	Volts
Dc grid voltage	0	0	0	0	-4.5	Volts
Peak A-F grid-to-grid voltage	197	145	185	175	170	Volts
Zero signal Dc plate current		32	50	44	54	32 mA
Maximum signal Dc plate current		350	260	350	350	313 mA
Effective load resistance, plate to plate		5100	12400	7400	9200	12400 Ohms
Maximum signal driving power, approximate	9.7	3.8	7.5	6	4.4	watts
Maximum signal power output, approximate		178	235	248	310	340 watts

PLATE-MODULATED RADIO-FREQUENCY POWER AMPLIFIER: CLASS C TELEPHONY*Carrier conditions per tube for use with a maximum modulation factor of 1.0.*

Maximum ratings, absolute values		<u>CCS</u>		<u>ICAS</u>		
Dc plate voltage		1000		1250		max Volts
Dc grid voltage		-200		-200		max Volts
Dc plate current		125		150		max mA
Dc grid current		50		50		max mA
Plate input		115		175		max watts
Plate dissipation		30		45		max watts
Typical operation						
Dc plate voltage		1000		1250		Volts
Dc grid voltage		-55		-120		Volts
From a grid resistor of		1200		2700		Ohms
Peak R-F grid voltage		150		250		Volts
Dc plate current		115		140		mA
Dc grid current, approximate	45		45			mA
Driving Power, approximate	6.1		10			watts
Power output, approximate		88		135		watts

RADIO-FREQUENCY POWER AMPLIFIER AND OSCILLATOR - CLASS C TELEGRAPHY*Key-down conditions per tube without amplitude modulation.*

Maximum ratings, absolute values		<u>CCS</u>		<u>ICAS</u>		
Dc plate voltage		1250		1500		max Volts
Dc grid voltage		-200		-200		max Volts
Dc plate current		175		175		max mA
Dc grid current		50		50		max mA
Plate input		175		260		max watts
Plate dissipation		45		65		max watts

Typical operation		<u>CCS</u>	<u>ICAS</u>	
Dc plate voltage		1250	1500	Volts
Dc grid voltage		-50	-70	Volts
From a grid resistor of		1100	1750	Ohms
Peak R-F grid voltage		270	330	Volts
Dc plate current		140	173	mA
Dc grid current, approximate	45		40	mA
Driving Power, approximate	5.7		7.1	watts
Power output, approximate		135	200	watts
SELF-RECTIFYING AMPLIFIER - CLASS C				
Maximum ratings, absolute values		<u>CCS</u>		
Ac plate voltage (rms)		1750		max Volts
Dc grid voltage		-125		max Volts
Dc plate current		65		max mA
Dc grid current		25		max mA
Plate input		125		max watts
Plate dissipation		45		max watts
Typical operation in push-pull circuit at 27 megacycles unless otherwise specified, values are for two tubes				
Ac plate voltage (rms)		1750		Volts
Dc grid voltage		-70		Volts
From a grid resistor of		1500		Ohms
Dc plate current		130		mA
Dc grid current, approximate	46			mA
Driving Power, approximate	12			watts
Power output, approximate		175		watts
Useful power output, approximate 75% circuit efficiency		130		watts
AMPLIFIER - CLASS C				
<i>With separate, rectified, unfiltered, single-phase, full-wave plate supply</i>				
Maximum ratings, absolute values		<u>CCS</u>		
Dc plate voltage		1125		max Volts
Dc grid voltage		-125		max Volts
Dc plate current		160		max mA
Dc grid current		45		max mA
Plate input		175		max watts
Plate dissipation		130		max watts
Typical operation				
Dc plate voltage		1125		Volts
Dc grid voltage		-35		Volts
From a grid resistor of		1400		Ohms
Dc plate current		125		mA
Dc grid current, approximate	25			mA
Driving Power, approximate	3			watts
Power output, approximate		135		watts

AVERAGE PLATE CHARACTERISTICS
 $E_f = 6.3$ VOLTS D-C

