from JEDEC release #4148, Feb. 18, 1963
Sponsor: Amperex Electronic Corp.

The 5866A is an improved version of the 5866 having an increased plate dissipation of 150 watts. It is designed for use as an RF power amplifier, modulator and oscillator and is particularly suited for high frequency heating and diathermy generators. The tube has a thoriated tungsten filament. Maximum ratings apply up to 150 mc and reduced ratings to 200 mc.

GENERAL CHARACTERISTICS

ELECTRICAL

Filament	Thoriated Tungsten
Voltage	6.3 volts
Current	5.8 amps
Amplification Factor	25
Direct Interelectrode Capacitances	
Grid to Plate	5 pf
Grid to Filament	4.9 pf
Plate to Filament	.1 pf

MECHANICAL

Maximum Overall Dimensions	
Length	9.13 in.
Diameter	2.44 in.
Mounting Position	Vertical, base up or down
Maximum Temperature of Filament Seal	180°C
Maximum Temperature of Grid and Anode Seals	220°C
Cooling[1]	Radiation/Forced Air

1. The tube when used at or near maximum ratings above 50 mc should be cooled by low velocity air directed at the upper and lower seals.

From release #4148: **This tube type designation is identical with tube type 7986 as registered in Release No. 4094 and is being registered for record purposes only. The use of the designation 5866A is discouraged. It is recommended that the designation 7986 be used to identify this type.**

RF Power Amplifier and Oscillator Class C Telegraphy
Key-down Conditions per Tube
Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	3000 volts
Negative D.C. Grid No. 1 Voltage	300 volts
D.C. Plate Current	255 ma
D.C. Grid No. 1 Current	45 ma
Plate Input	512 watts
Plate Dissipation	150 watts
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operation CCS

Frequency	150	150	150 mc
D.C. Plate Voltage	2500	2000	1500 volts
Negative D.C. Grid No. 1 Voltage	-200	-150	-110 volts
Peak RF Grid No. 1 Voltage	390	340	300 volts
D.C. Plate Current	205	205	205 ma
D.C. Grid No. 1 Current	40	40	40 ma
Driving Power	14	13	11 watts
Power Output	390	295	210 watts

Plate Modulated RF Power Amplifier
Class C Telephony
Maximum Ratings, Absolute Values

	CCS
Frequency	150 mc
D.C. Plate Voltage	2400 volts
D.C. Grid No. 1 Voltage	-300 volts
D.C. Plate Current	170 ma
D.C. Grid No. 1 Current	45 ma
Plate Input	340 watts
Plate Dissipation	100 watts
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operation CCS

D.C. Plate Voltage	1000	1500	2000 volts
D.C. Grid No. 1 Voltage	-130	-180	-225 volts
Peak RF Grid No. 1 Voltage	320	370	415 volts
D.C. Plate Current	128	128	128 ma
D.C. Grid No. 1 Current	40	40	40 ma
Driving Power	12	14	15 watts
Power Output	96	154	205 watts

HF Class C Telegraphy, Grounded Grid
Maximum Ratings, Absolute Values

	CCS
D.C. Plate Voltage	3000 volts
D.C. Grid No. 1 Voltage	-300 volts
D.C. Plate Current	205 ma
D.C. Grid No. 1 Current	45 ma
Plate Input	512 watts
Plate Dissipation	150 watts
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operation for Two Tubes
For Frequencies Up to 100 mc

	CCS	CCS	CCS
Plate Voltage	1500	2000	2500 volts
D.C. Grid No. 1 Voltage	-110	-150	-200 volts
Plate Current	410	410	410 ma
D.C. Grid No. 1 Current	80	80	80 ma
Peak RF Grid No. 1 Voltage	300	340	390 volts
Driving Power	118	136	158 watts
Plate Power Input	615	820	1025 watts
Plate Dissipation	195	230	245 watts
Power Output	420 + 96	590 + 110	780 + 130 watts
Efficiency	68	72	76 %

Class C Oscillator
Industrial Application: R.F. Heating and Diathermy
Plate Voltage from Single Phase Full Wave
Rectifier Without Filter

Maximum Ratings, Absolute Values Up to 150 mc

Plate Voltage Mean Value	2700 volts
Plate Current Maximum	180 ma
Plate Dissipation	150 watts
Plate Power Input	512 watts
Peak RF Grid No. 1 Voltage	300 volts
D.C. Grid No. 1 Current	40 ma
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operation CCS

Frequency	50 mc
D.C. Mean Plate Voltage	2000 volts
D.C. Plate Current	170 ma
D.C. Grid No. 1 Current	34 ma
Grid No. 1 Resistor	3750 ohms
Plate Power Input	420 watts
Plate Dissipation	120 watts
Driving Power	10 watts
Power Output	290 watts
Efficiency	69 %

Class C Oscillator for Industrial Use with Self Rectification

Maximum Ratings, Absolute Values

Frequency	150 mc
Effective Plate Voltage	2825 volts
Plate Current	110 ma
Plate Dissipation	150 watts
Plate Input Power	340 watts
Negative D.C. Grid No. 1 Voltage	300 volts
D.C. Grid No. 1 Current	35 ma
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operation CCS

Frequency	50 mc
Effective Plate Voltage	2500 volts
D.C. Plate Current	90 ma
D.C. Grid No. 1 Current	20 ma
Grid No. 1 Resistor	1700 ohms
Effective Grid No. 1 Voltage	85 volts
Plate Input Power	255 watts
Plate Dissipation	85 watts
Power Output	170 watts
Efficiency	67 %

Class B Telephony

Maximum Ratings, Absolute Values

Frequency	150 mc
Plate Voltage	3000 volts
Plate Current	170 ma
Plate Dissipation	150 watts
Plate Input Power	200 watts
D.C. Grid No. 1 Current	55 ma
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operation CCS

Frequency	150	150	150 mc
Plate Voltage	1500	2000	2500 volts
Grid No. 1 Voltage	-45	-67	-87 volts
Grid No. 1 Current	52	28	20 ma
Plate Current	120	97	77 ma
Peak RF Grid No. 1 Voltage	100	100	100 volts
Plate Input Power	180	194	193 watts
Plate Dissipation	121	130	128 watts
Power Output	59	64	65 watts
Efficiency	33	33	34 %
Driving Power	9.4	5.1	3.6 watts

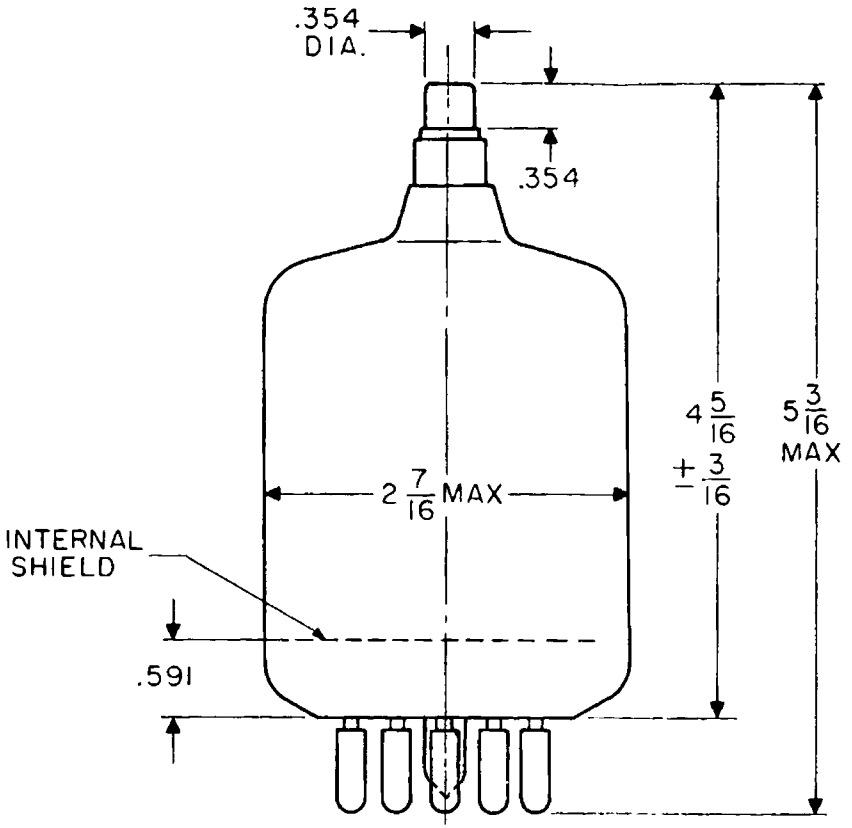
Class AB_2 Amplifier and Modulator

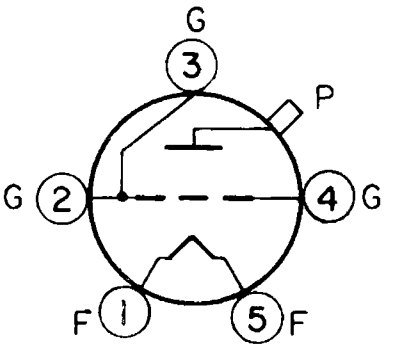
Maximum Ratings, Absolute Values

Plate Voltage	3000 volts
Plate Current	210 ma
Plate Dissipation	150 watts
Plate Input Power	512 watts
Grid No. 1 Current	45 ma
Grid No. 1 Resistor, Fixed Bias	100 k ohms
Grid No. 1 Resistor, Self Bias	200 k ohms

Typical Operating Conditions
Two Tubes

	CCS	CCS
Plate Voltage	1000	2500 volts
Grid No. 1 Voltage	-23	-86 volts
Plate to Plate Load	5000	18, 200 ohms
Peak Grid to Grid Voltage	295	412 volts
Zero Signal Plate Current	60	60 ma
Maximum Signal Plate Current	420	356 ma
Grid No. 1 Current	80	84 ma
Driving Power	10.8	15.6 watts
Zero Signal Plate Input Power	60	150 watts
Maximum Signal Plate Input Power	420	890 watts
Plate Dissipation	146	190 watts
Power Output	274	700 watts
Distortion	2.2	5%
Efficiency	65	78.5 %





PIN CONNECTIONS

1. FILAMENT
2. GRID
3. GRID
4. GRID
5. FILAMENT

P PLATE

GIANT 5 PIN BASE