HEINTZ AND KAUFMAN
947 BROADWAY, REDWOOD CITY, CALIFORNIA

RMA
Release No. 872
June 8, 1950

THE ROBERT DOLLAR CO.

Electron Tube Type 4E27

The 4E27 is a five-electrode tube designed for use as a H.F./V.H.F. oscillator, power amplifier, frequency multiplier and Class A1 video power amplifier. The anode is capable of dissipating 75 watts, and cooling is accomplished by radiation and convection. The cathode is a thoriated-tungsten filament. Maximum ratings apply up to 75 megacycles.

GENERAL

Electrical Data	Minimum	Bogey	Maximum	
Filament Voltage	4.75	5.0	5.25	Volts
Filament Current at Bogey Voltage	7.0	7.5	8.0	Ampere
Interelectrode Capacitances				
Grid-Plate	---	0.06	0.1	uuf
Input	8.7	10.5	12.3	uuf
Output	3.5	4.5	5.9	uuf

Mechanical Data	
Mounting Position	Vertical, base up or down.
Cooling	Above 30 Mc. direct small fan or blower upward through socket and base.
Net Weight, approximate	6.0 oz.

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

Video-frequency Power Amplifier - Class A1

Maximum Ratings, Absolute Values	CCS	
D-C Plate Voltage	2000	Max Volts
D-C Grid No. 3 Voltage	100	Max Volts
D-C Grid No. 2 Voltage	750	Max Volts
D-C Plate Current	150	Max ma
Instantaneous Peak Plate Current	300	max ma
Grid No. 2 Input	25	max watts
Plate Dissipation	75	max watts

Typical Operation	CCS Two Tubes Overbiased	CCS One Tube Conventional	
D-C Plate Voltage	1500	1000	volts
D-C Grid No. 3 Voltage	60	0	volts
D-C Grid No. 2 Voltage	750	300	volts
D-C Grid No. 1 Voltage	-125	-27	volts
D-C Plate Current Zero Signal	80	75	ma
D-C Plate Current Max Signal	290	75	ma
D-C Grid No. 2 Zero Signal	2	5	ma
D-C Grid No. 2 Max. Signal	38	5	ma
Load Resistance	---	12000	ohms
Load Resistance, Plate to Plate	12000	---	ohms
Power Output	315	30	watts

Radio-Frequency Power Amplifier and Oscillator - Class C Telegraphy
Key-down conditions per tube without amplitude modulation ℄

Maximum Ratings, Absolute Values	CCS
D-C Plate Voltage	4000 max volts
D-C Grid No. 3 Voltage	100 max volts
D-C Grid No. 2 Voltage	750 max volts
D-C Grid No. 1 Voltage	-500 max volts
D-C Plate Current	150 max ma
D-C Grid No. 1 Current	25 max ma
Plate Input	300 max watts
Grid No. 2 Input	25 max watts
Plate Dissipation	75 max watts

Typical Operation	CCS	CCS
D-C Plate Voltage	3000	1000 volts
D-C Grid No. 3 Voltage	60	60 volts
D-C Grid No. 2 Voltage	750	400 volts
D-C Grid No. 1 Voltage	-200	-180 volts
Peak R-F Grid No. 1 Voltage	170	270 volts
D-C Plate Current	100	150 ma
D-C Grid No. 2 Current	8	20 ma
D-C Grid No. 1 Current, approximate	0	10 ma
Driving Power, approximate	0	2.4 watts
Power Output, approximate	235	110 watts

℄ Modulation essentially negative may be used if the positive peak of the envelope does not exceed 115 percent of the carrier conditions.

Radio-Frequency Doubler Amplifier - Class C
Key-down conditions per one tube without amplitude modulation

Maximum Ratings, Absolute Values	CCS
D-C Plate Voltage	4000 max volts
D-C Grid No. 3 Voltage	100 max volts
D-C Grid No. 2 Voltage	750 max volts
D-C Grid No. 1 Voltage	-500 max volts
D-C Plate Current	150 max ma
D-C Grid No. 1 Current	25 max ma
Plate Input	200 max watts
Grid No. 2 Input	25 max watts
Plate Dissipation	75 max watts

Typical Operation	CCS
D-C Plate Voltage	2000 volts
D-C Grid No. 3 Voltage	60 volts
D-C Grid No. 2 Voltage	750 volts
D-C Grid No. 1 Voltage	-400 volts
Peak R-F Grid No. 1 Voltage	400 volts
D-C Plate Current	95 ma
D-C Grid No. 2 Current	10 ma
D-C Grid No. 1 Current, approximate	0 ma
Driving Power, approximate	0 watts
Power Output, approximate	120 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	CCS
D-C Plate Voltage	3000 max volts
D-C Grid No. 3 Voltage	100 max volts
D-C Grid No. 2 Voltage	600 max volts
D-C Grid No. 1 Voltage	-500 max volts
D-C Plate Current	135 max ma
D-C Grid No. 1 Current	25 max ma
Plate Input	250 max watts
Grid No. 2 Input	25 max watts
Plate Dissipation	65 max watts

Typical Operation	CCS	CCS
D-C Plate Voltage	2500	1500 volts
D-C Grid No. 3 Voltage	60	60 volts
D-C Grid No. 2 Voltage	600	600 volts
D-C Grid No. 1 Voltage	-200	-200 volts
Peak R-F Grid No. 1 Voltage	220	255 volts
D-C Plate Current	100	135 ma
D-C Grid No. 2 Current	8	11 ma
D-C Grid No. 1 Current, approximate	0.6	1.4 ma
Driving Power, approximate	0.1	0.4 watts
Power Output, approximate	200	145 watts

Suppressor-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	CCS
D-C Plate Voltage	2000 max volts
D-C Grid No. 3 Voltage	-500 max volts
D-C Grid No. 2 Voltage	600 max volts
D-C Grid No. 1 Voltage	-500 max volts
D-C Plate Current	100 max ma
D-C Grid No. 1 Current	25 max ma
Plate Input	110 max watts
Grid No. 2 Input	25 max watts
Plate Dissipation	75 max watts

Typical Operation	CCS	CCS
D-C Plate Voltage	2000	1000 volts
D-C Grid No. 3 Voltage	-300	-135 volts
D-C Grid No. 2 Voltage ⸗	500	600 volts
D-C Grid No. 1 Voltage	-130	-130 volts
Peak A-F Grid No. 3 Voltage	300	175 volts
Peak R-F Grid No. 1 Voltage	150	200 volts
D-C Plate Current	55	90 ma
D-C Grid No. 2 Current	27	41 ma
Screen Resistor	2000	5000 ohms
D-C Grid No. 1 Current, approximate	3	11 ma
Driving Power, approximate	0.4	2.0 watts
Power Output, approximate	35	32 watts

⸗ Source voltage. Apply through indicated resistor

Maximum ratings apply up to 75 megacycles. The tube may be operated at higher frequencies provided the maximum values of plate voltage and power input are reduced according to the tabulation below (other maximum ratings are the same as shown above). Special attention should be given to adequate ventilation of the bulb at these frequencies.

Frequency	75	110	150	Megacycles
Percentage of Maximum Rated Plate Voltage and Plate Input				
Class B	100	85	70	Percent
Class C Plate Modulated	100	75	50	Percent
Class C Unmodulated	100	75	50	Percent

ELECTRICAL AND MECHANICAL DATA AND LIMITS

Characteristic	Conditions		Limits Min	Bogey	Max
Grid No. 2 Current	Eb=1.0 kVdc, Ec3=0, Ec2=500 Vdc Ec1=-25Vdc, Ef=5 Vac	Ic2:	2	9	16 ma
Plate Current	Eb=1.0 kVdc, Ec3=0, Ec2=500 Vdc Ec1=-25 Vdc, Ef=5 Vac	Ib:	175	250	325 ma
Power Output, Oscillator	Eb=2.0 kVdc, Ib=150 mAdc Rg1=25000 ohms, Ic1=8 Madc, f=30 Mc	Po:	180	---	--- watts

GIANT 7 PIN BAYONET BASE