

ELECTRONIC TUBE REFERENCE

889RA

Power - Triode electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
TRIODE

Forced-air-cooled transmitting triode version of 889A with improved radiator design for high-power RF service.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	11 V / 120 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Triode	
AMPLIFICATION FACTOR	21
MAXIMUM PLATE VOLTAGE	8500 V
MAXIMUM PLATE DISSIPATION	5000 W
MAXIMUM CATHODE CURRENT	2 A
Promoted ratings/characteristics mapped from printed headings; device/service-specific values retained in parameters.	

Forced-air-cooled transmitting triode version of 889A with an improved radiator design.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1950 General Electric Transmitting Types

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1950 GENERAL ELECTRIC TRANSMITTING TYPES

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Plate Voltage	8500 V	—
Maximum Plate Dissipation	5000 W	—
Maximum Cathode Current	2 A	—
Maximum Frequency at Full Rating	40 MHz	—



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1958 Amperex Industrial

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1958 AMPEREX INDUSTRIAL

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	7500 V	RFPowerAmplifier;ClassC
Plate current	2 A	RFPowerAmplifier;ClassC
Power output	10000 W	RFPowerAmplifier;ClassC
Control-grid voltage	-800 V	RFPowerAmplifier;ClassC
Grid current	240 mA	RFPowerAmplifier;ClassC

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum frequency at full input	25 MHz	RFPowerAmplifier

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-filament capacitance	19.5 pF	Section1
Plate-to-filament capacitance	3 pF	Section1


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1963 Amperex Condensed

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1963 AMPEREX CONDENSED

Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Plate voltage	7500 V	RFPowerAmplifier
Plate current	2 A	RFPowerAmplifier
Power output	10000 W	RFPowerAmplifier
Control-grid voltage	-800 V	RFPowerAmplifier
Grid current	240 mA	RFPowerAmplifier
Maximum frequency at full input	25 MHz	RFPowerAmplifier

CAPACITANCE		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Grid-to-plate capacitance	20.7 pF	Section1
Grid-to-filament capacitance	19.5 pF	Section1
Plate-to-filament capacitance	3 pF	Section1

SOURCE OPERATING CONDITIONS

1971 Machlette Laboratories

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1971 MACHLETTE LABORATORIES
Section 1 · Triode

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The ML [1]	889 kV	The ML-889A and ML-889RA are three electrode tubes Maximum ratings of 8.5 kVdc plate voltage and 16 kW
The ML [2]	889 kV	The ML-889A and ML-889RA are three electrode tubes Maximum ratings of 8.5 kVdc plate voltage and 16 kW
The ML [3]	8.5 kV	The ML-889A and ML-889RA are three electrode tubes Maximum ratings of 8.5 kVdc plate voltage and 16 kW
The ML [4]	16 kV	The ML-889A and ML-889RA are three electrode tubes Maximum ratings of 8.5 kVdc plate voltage and 16 kW
designed specifically for use as modulators, amplifiers or os- plate input apply at frequencies up to	50 MHz	designed specifically for use as modulators, amplifiers or os- plate input apply at frequencies up to 50 Mc for the
cooled anode capable of dissipating [1]	5 kW	cooled anode capable of dissipating 5 kW with 6 gpm with plate voltage and plate input reduced according to the
cooled anode capable of dissipating [2]	6 kW	cooled anode capable of dissipating 5 kW with 6 gpm with plate voltage and plate input reduced according to the
capable of dissipating [1]	5 kW	capable of dissipating 5 kW with an air flow of 500 cfm.
capable of dissipating [2]	500 kW	capable of dissipating 5 kW with an air flow of 500 cfm.
Filament Voltage	11	Filament Voltage 11.0 Vol
Filament Current at [1]	11 V	Filament Current at 11.0 volts 120 Amps

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament Current at [2]	120 V	Filament Current at 11.0 volts 120 Amps
Filament Starting Current, maximum	180 A	Filament Starting Current, maximum 180 Amps
Filament Cold Resistance ..o	8 ohm	Filament Cold Resistance ..o 008 Ohms
Interelectrode Capacitances ML [1]	889	Interelectrode Capacitances ML-889A ML-889RA
Interelectrode Capacitances ML [2]	889	Interelectrode Capacitances ML-889A ML-889RA
Water flow on anode, minimum for [1]	5 kW	Water flow on anode, minimum for 5 kW dissipation 6 gpm
Water flow on anode, minimum for [2]	6 kW	Water flow on anode, minimum for 5 kW dissipation 6 gpm
Maximum outgoing water temperature ... U	70 mA	Maximum outgoing water temperature ... U 70 °C
Air flow on anode, minimum for [1]	5 kW	Air flow on anode, minimum for 5 kW dissipation 500 cfm ac 0.7 Water™
Air flow on anode, minimum for [2]	500 kW	Air flow on anode, minimum for 5 kW dissipation 500 cfm ac 0.7 Water™
Air flow on anode, minimum for [3]	0.7 kW	Air flow on anode, minimum for 5 kW dissipation 500 cfm ac 0.7 Water™
Maximum incoming air temperature	45 mA	Maximum incoming air temperature 45 °C
Maximum Anode Temperature, ML [1]	889 mA	Maximum Anode Temperature, ML-889RA . 230 °C
Maximum Anode Temperature, ML [2]	230 mA	Maximum Anode Temperature, ML-889RA . 230 °C
Maximum Glass Temperature	160 mA	Maximum Glass Temperature 160 °C*
* Auxiliary air flow of [1]	30 mA	* Auxiliary air flow of 30 cfm should be directed through a 3" diameter nozzle at the top of the glass envelope to maintain a uniform glass tem-
* Auxiliary air flow of [2]	3 mA	* Auxiliary air flow of 30 cfm should be directed through a 3" diameter nozzle at the top of the glass envelope to maintain a uniform glass tem-
D-C Plas= Voltage	8500 V	D-C Plas= Voltage ... 8500 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Max.-Signal D-C Plate Current*	2 A	Max.-Signal D-C Plate Current* 2.0 amps Maximum Ratings, Absolute Values
Max.-Signal Plate Input* [1]	12000 W	Max.-Signal Plate Input* ... 12000 watts D-C Plate Voltage 6000 volts
Max.-Signal Plate Input* [2]	6000 W	Max.-Signal Plate Input* ... 12000 watts D-C Plate Voltage 6000 volts
Plate Dissipation® [1]	5000 W	Plate Dissipation® ... 5000 watts D-C Grid Voltage —1000 volts
Plate Dissipation® [2]	-1000 W	Plate Dissipation® ... 5000 watts D-C Grid Voltage —1000 volts
D-C Plate Voltage coocc [1]	5000 W	D-C Plate Voltage coocc... 5000 6000 7500 volts Plate Input ... 6000 watts
D-C Plate Voltage coocc [2]	6000 W	D-C Plate Voltage coocc... 5000 6000 7500 volts Plate Input ... 6000 watts
D-C Plate Voltage coocc [3]	7500 W	D-C Plate Voltage coocc... 5000 6000 7500 volts Plate Input ... 6000 watts
D-C Plate Voltage coocc [4]	6000 W	D-C Plate Voltage coocc... 5000 6000 7500 volts Plate Input ... 6000 watts
D-C Grid Voltage [1]	-180 V	D-C Grid Voltage ... —180 —230 —300 volts Plate Dissipation 3000 watts
D-C Grid Voltage [2]	-230 V	D-C Grid Voltage ... —180 —230 —300 volts Plate Dissipation 3000 watts
D-C Grid Voltage [3]	-300 V	D-C Grid Voltage ... —180 —230 —300 volts Plate Dissipation 3000 watts
D-C Grid Voltage [4]	3000 W	D-C Grid Voltage ... —180 —230 —300 volts Plate Dissipation 3000 watts
Peak A-F Grid-to-Grid Voltage [1]	1460 V	Peak A-F Grid-to-Grid Voltage 1460 1680 1700 volts) .
Peak A-F Grid-to-Grid Voltage [2]	1680 V	Peak A-F Grid-to-Grid Voltage 1460 1680 1700 volts) .
Peak A-F Grid-to-Grid Voltage [3]	1700 V	Peak A-F Grid-to-Grid Voltage 1460 1680 1700 volts) .
Zero Signal D-C Plate Current [1]	0.4	Zero Signal D-C Plate Current 0.4 0.4 0.4 amp Typical Operation
Zero Signal D-C Plate Current [2]	0.4	Zero Signal D-C Plate Current 0.4 0.4 0.4 amp Typical Operation
Zero Signal D-C Plate Current [3]	0.4	Zero Signal D-C Plate Current 0.4 0.4 0.4 amp Typical Operation

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Max.-Signal D-C Plate Current [1]	3.2 V	Max.-Signal D-C Plate Current 3.2 3.6 3.2 amps D-C Plate Voltage 5000 6000 volts
Max.-Signal D-C Plate Current [2]	3.6 V	Max.-Signal D-C Plate Current 3.2 3.6 3.2 amps D-C Plate Voltage 5000 6000 volts
Max.-Signal D-C Plate Current [3]	3.2 V	Max.-Signal D-C Plate Current 3.2 3.6 3.2 amps D-C Plate Voltage 5000 6000 volts
Max.-Signal D-C Plate Current [4]	5000 V	Max.-Signal D-C Plate Current 3.2 3.6 3.2 amps D-C Plate Voltage 5000 6000 volts
Max.-Signal D-C Plate Current [5]	6000 V	Max.-Signal D-C Plate Current 3.2 3.6 3.2 amps D-C Plate Voltage 5000 6000 volts
Effective Load Resistance D-C Grid Voltage [1]	-800 V	Effective Load Resistance D-C Grid Voltage —800 —900 volts
Effective Load Resistance D-C Grid Voltage [2]	-900 V	Effective Load Resistance D-C Grid Voltage —800 —900 volts
{plate-to-plate) [1]	2520 V	{plate-to-plate) 2520 3680 5000 ohms Peak R-F Grid Voltage ... 1300 1420 volts
{plate-to-plate) [2]	3680 V	{plate-to-plate) 2520 3680 5000 ohms Peak R-F Grid Voltage ... 1300 1420 volts
{plate-to-plate) [3]	5000 V	{plate-to-plate) 2520 3680 5000 ohms Peak R-F Grid Voltage ... 1300 1420 volts
{plate-to-plate) [4]	1300 V	{plate-to-plate) 2520 3680 5000 ohms Peak R-F Grid Voltage ... 1300 1420 volts
{plate-to-plate) [5]	1420 V	{plate-to-plate) 2520 3680 5000 ohms Peak R-F Grid Voltage ... 1300 1420 volts
Max.-Signal Driving Power, D-C Plate Current [1]	0.9 mA	Max.-Signal Driving Power, D-C Plate Current 0.9 1.0 amp
Max.-Signal Driving Power, D-C Plate Current [2]	1 mA	Max.-Signal Driving Power, D-C Plate Current 0.9 1.0 amp
approximate [1]	170 mA	approximate 170 180 150 wats D(G“d Current, approx. e 0012 0.10 amp
approximate [2]	180 mA	approximate 170 180 150 wats D(G“d Current, approx. e 0012 0.10 amp
approximate [3]	150 mA	approximate 170 180 150 wats D(G“d Current, approx. e 0012 0.10 amp
approximate [4]	12 mA	approximate 170 180 150 wats D(G“d Current, approx. e 0012 0.10 amp

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
approximate [5]	0.1 mA	approximate 170 180 150 waus D(G“d Current, approx. e 0012 0.10 amp
Max.-Signal Power Output, Driving Power, approx [1]	155 mA	Max.-Signal Power Output, Driving Power, approx. 155 140 watts
Max.-Signal Power Output, Driving Power, approx [2]	140 mA	Max.-Signal Power Output, Driving Power, approx. 155 140 watts
approximate [1]	8800 mA	approximate ... 8800 12000 15000 watts Power Qutput, approx. ... 2750 4000 watts
approximate [2]	12000 mA	approximate ... 8800 12000 15000 watts Power Qutput, approx. ... 2750 4000 watts
approximate [3]	15000 mA	approximate ... 8800 12000 15000 watts Power Qutput, approx. ... 2750 4000 watts
approximate [4]	2750 mA	approximate ... 8800 12000 15000 watts Power Qutput, approx. ... 2750 4000 watts
approximate [5]	4000 mA	approximate ... 8800 12000 15000 watts Power Qutput, approx. ... 2750 4000 watts
Cartier conditions per tube with a maximum D.C Plate Voltage	8500 mA	Cartier conditions per tube with a maximum D.C Plate Voltage 8500
D-C Plate Voltage [1]	8500 V	D-C Plate Voltage 8500 volts Plate Input ' 16000 watts
D-C Plate Voltage [2]	16000 V	D-C Plate Voltage 8500 volts Plate Input ' 16000 watts
D-C Plate Current	1 A	D-C Plate Current 1. amps ¢ TS watts
Plate Input [1]	7500 W	Plate Input 7500 watts Plate Dissipation 5000