

Directly heated mercury-vapor half-wave rectifier for high-voltage DC supplies. Its gas-assisted conduction provides moderate current with low forward voltage for transmitter and industrial equipment.

GENERAL CHARACTERISTICS

BASE DESIGNATION	A4-10	BASE PINS	4
NOMINAL HEATER	2.5 V / 5 A	PARALLEL HEATER	– / –
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Rectifier	
PEAK INVERSE VOLTAGE	10000 V
NOMINAL OUTPUT CURRENT	500 mA
PEAK FORWARD CURRENT	2 A
FORWARD VOLTAGE DROP	15 V
WARM-UP TIME	30 s
Promoted values are taken from printed General Characteristics / Maximum Ratings. Additional published conditions and operating data are preserved in parameters.	

Mercury-vapor half-wave rectifier for high-voltage DC power supplies.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1938 Raytheon Amateur

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

1938 RAYTHEON AMATEUR

Section 1 · Rectifier

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Application	MercuryVaporHalfWaveRectifier text	—



SOURCE OPERATING CONDITIONS

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1938 RCA Transmitting Tubes

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

1938 RCA TRANSMITTING TUBES

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
HeaterVoltageNominal	2.5 V	Nominal
HeaterCurrentNominal	5 A	Nominal
Maximum Peak Inverse Voltage	7500 V	—
Rectified Output Current	250 mA	—
PeakForwardCurrent	1 A	—

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Forward Voltage Drop	15 V	—



SOURCE OPERATING CONDITIONS

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193X Taylor Transmitting

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

193X TAYLOR TRANSMITTING

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament Voltage	2.5 V	Nominal published value
Filament Current	5 A	Nominal published value
Inverse Peak Voltage	7500 V	Half-wave mercury-vapor rectifier
Peak Current	600 mA	Half-wave mercury-vapor rectifier

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Approximate Voltage Drop	15 V	Per tube



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1940 Taylor Tubes

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

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak inverse voltage	10000 V	CondensedMercuryTemperature=20-60C
Peak inverse voltage	5000 V	CondensedMercuryTemperature=20-70C
RMS AC input voltage	3530 V	SinglePhaseFullWaveTwoTubes
Maximum DC output voltage	3180 V	SinglePhaseFullWaveTwoTubes
Maximum DC output current	500 mA	SinglePhaseFullWaveTwoTubes
RMS AC input voltage	7060 V	SinglePhaseBridgeFourTubes
Maximum DC output voltage	6360 V	SinglePhaseBridgeFourTubes
Maximum DC output current	500 mA	SinglePhaseBridgeFourTubes
RMS AC input voltage	4080 V	ThreePhaseHalfWaveThreeTubes
Maximum DC output voltage	4780 V	ThreePhaseHalfWaveThreeTubes
Maximum DC output current	750 mA	ThreePhaseHalfWaveThreeTubes
RMS AC input voltage	4080 V	ThreePhaseParallelDoubleYSixTubes
Maximum DC output voltage	4780 V	ThreePhaseParallelDoubleYSixTubes
Maximum DC output current	1.5 A	ThreePhaseParallelDoubleYSixTubes
RMS AC input voltage	4080 V	ThreePhaseFullWaveSixTubes
Maximum DC output voltage	9560 V	ThreePhaseFullWaveSixTubes
Maximum DC output current	750 mA	ThreePhaseFullWaveSixTubes

SOURCE OPERATING CONDITIONS

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1944 Hytron

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

1944 HYTRON

Section 1 · Rectifier

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater or filament voltage	2.5 V	Published nominal value
Heater or filament current	5 A	Published nominal value

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1950 Eimac Tubes

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

1950 EIMAC TUBES

Section 1 · Rectifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament Voltage	2.5 V	—
Filament Current	5 A	—
Approximate Tube Voltage Drop	15 V	—
Recommended Condensed Mercury Temperature	40 C	±5 C
Initial Mercury Redistribution Heating Time	10 min	No plate voltage
Normal Filament Warm-up Before Plate Voltage	30 s	Approximate

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum Peak Inverse Anode Voltage	10000 V	At condensed-mercury temperature 25-60 C
Maximum Peak Anode Current	1 A	—
Maximum Average Anode Current	250 mA	—
Maximum Supply Frequency	150 Hz	At 10 kV PIV
Condensed Mercury Temperature Range	25-60 C	—
PIV Rating at 2 kV Service	2000 V	Peak current 2 A; average current 0.5 A; 150 Hz max

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
PIV Rating at 5 kV Service	5000 V	Peak current 1 A; average current 0.25 A; 1000 Hz max

APPLICATION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Preferred Filter Type	Choke input	Greatest usable DC output current
Condenser-Input Filter Note	Peak current relatively high; capacitor voltage may approach 1.4× transformer RMS voltage	—


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1962 Eimac

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

1962 EIMAC

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Condensed Mercury Temperature Range	25–70 C	—
Supply Frequency Maximum	150 Hz	PIV=2000V
Supply Frequency Maximum	1000 Hz	PIV=5000V
Supply Frequency Maximum	150 Hz	PIV=10000V


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

1968 General Electric Co

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

1968 GENERAL ELECTRIC CO

Section 1 · Rectifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heating Time	30 s	Typical

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MaximumInstantaneousAnodeCurrent	1 A	At10000VPIV
DC Output Voltage	3180 V	FullWave;ChokeInputFilter;TwoTubes
DC Output Current	500 mA	FullWave;ChokeInputFilter;TwoTubes

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