



ELECTRONIC TUBE REFERENCE

869B

Rectifier - Half Wave electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
RECTIFIER

Directly heated mercury-vapor half-wave rectifier for broadcasting and industrial high-voltage supplies. Its massive filament and low arc voltage provide several amperes of output.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	3
NOMINAL HEATER	5 V / 18 A	PARALLEL HEATER	— / —
HEATING	Direct	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Rectifier	
PEAK INVERSE VOLTAGE	20000 V
NOMINAL OUTPUT CURRENT	5 A
PEAK FORWARD CURRENT	20 A
FORWARD VOLTAGE DROP	10 V
WARM-UP TIME	60 s
<i>Promoted values are taken from printed General Characteristics / Maximum Ratings. Additional published conditions and operating data are preserved in parameters.</i>	

Mercury-vapor half-wave rectifier for broadcasting and industrial high-voltage supplies.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1953 Amperex

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

1953 AMPEREX

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater/Filament Voltage	5 V	Published datasheet value
Heater/Filament Current	180 A	Published datasheet value
Maximum Peak Inverse Voltage	20000 V	Published datasheet value
Maximum Average/Output Current	5 A	Published datasheet value



SOURCE OPERATING CONDITIONS

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1958 Amperex Industrial

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

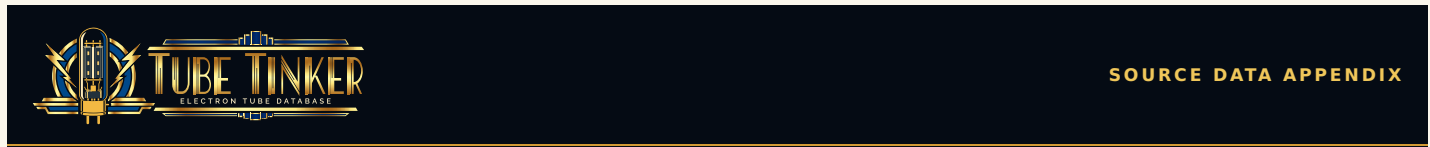
1958 AMPEREX INDUSTRIAL

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament voltage	5 V	MercuryVapor
Filament current	18 A	MercuryVapor
Peak inverse anode voltage maximum	20000 V	HalfWave;MercuryVapor
Peak anode current maximum	10 A	HalfWave;MercuryVapor
Average anode current maximum	2.5 A	HalfWave;MercuryVapor

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Recommended mercury temperature range	Mercury +30 to +40 °C	MercuryVapor

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament heating time	60 s	MercuryVapor
Tube voltage drop	10 V	MercuryVapor



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1962 Eimac

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

1962 EIMAC

Section 1 · Rectifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament Current	17 A–21 A	—
Anode Starting Voltage	30 V	—

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Condensed Mercury Temperature Range	30–60 C	PIV=10kV
Condensed Mercury Temperature Range	30–50 C	PIV=15kV
Condensed Mercury Temperature Range	30–40 C	PIV=20kV
Peak Anode Current In-Phase	10 A	InPhaseExcitation
Average Anode Current In-Phase	2.5 A	InPhaseExcitation
Maximum AC Short-Circuit Current	100 A	Duration<=100ms



SOURCE OPERATING CONDITIONS

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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 · Rectifier

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Filament heating time	60 s	HalfWave;MercuryVapor
Tube voltage drop	10 V	HalfWave;MercuryVapor

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak inverse anode voltage maximum	20000 V	HalfWave;MercuryVapor
Peak anode current maximum	10 A	HalfWave;MercuryVapor
Average anode current maximum	2.5 A	HalfWave;MercuryVapor
Recommended mercury temperature range	+30 to +40 °C	MercuryVapor



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Eimac Tube Manual

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

1965 EIMAC TUBE MANUAL

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
to conduct at relatively low applied voltages. The [1]	8698 V	to conduct at relatively low applied voltages. The 8698 and 869BL carry maxi-

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
to conduct at relatively low applied voltages. The [2]	869 V	to conduct at relatively low applied voltages. The 8698 and 869BL carry maxi-
mum ratings of [1]	20 kV	mum ratings of 20 kv peak inverse voltage, 5 amperes dc and 20 amperes peak
mum ratings of [2]	5 kV	mum ratings of 20 kv peak inverse voltage, 5 amperes dc and 20 amperes peak
mum ratings of [3]	20 kV	mum ratings of 20 kv peak inverse voltage, 5 amperes dc and 20 amperes peak
Voltage	5 V	Voltage ----- 5.0 V
Current [1]	17 A	Current ----- 17 to 21 A
Current [2]	21 A	Current ----- 17 to 21 A
Filament Heating Time	60	Filament Heating Time ----- 60 Sec
Anode starting voltage (approx.)	30 V	Anode starting voltage (approx.) ----- 30 V
CONDENSED MERCURY TEMPERATURE RANGE* [1]	30	CONDENSED MERCURY TEMPERATURE RANGE* ----- 30-60 30-50 30-40° c
CONDENSED MERCURY TEMPERATURE RANGE* [2]	-60	CONDENSED MERCURY TEMPERATURE RANGE* ----- 30-60 30-50 30-40° c
CONDENSED MERCURY TEMPERATURE RANGE* [3]	30	CONDENSED MERCURY TEMPERATURE RANGE* ----- 30-60 30-50 30-40° c
CONDENSED MERCURY TEMPERATURE RANGE* [4]	-50	CONDENSED MERCURY TEMPERATURE RANGE* ----- 30-60 30-50 30-40° c
CONDENSED MERCURY TEMPERATURE RANGE* [5]	30	CONDENSED MERCURY TEMPERATURE RANGE* ----- 30-60 30-50 30-40° c
CONDENSED MERCURY TEMPERATURE RANGE* [6]	-4	CONDENSED MERCURY TEMPERATURE RANGE* ----- 30-60 30-50 30-40° c
PEAK INVERSE ANODE VOLTAGE [1]	10 kV	PEAK INVERSE ANODE VOLTAGE ----- 10 15 20 MAX KV
PEAK INVERSE ANODE VOLTAGE [2]	15 kV	PEAK INVERSE ANODE VOLTAGE ----- 10 15 20 MAX KV
PEAK INVERSE ANODE VOLTAGE [3]	20 kV	PEAK INVERSE ANODE VOLTAGE ----- 10 15 20 MAX KV
AVERAGE ANODE CURRENT: (	30 mA	AVERAGE ANODE CURRENT: (30 second maximum averaging time)
MAXIMUM AC SHORT-CIRCUIT CURRENT*** [1]	100 mA	MAXIMUM AC SHORT-CIRCUIT CURRENT*** -- -- 100 100 100MAXAMPS
MAXIMUM AC SHORT-CIRCUIT CURRENT*** [2]	100 mA	MAXIMUM AC SHORT-CIRCUIT CURRENT*** -- -- 100 100 100MAXAMPS

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
MAXIMUM AC SHORT-CIRCUIT CURRENT*** [3]	100 mA	MAXIMUM AC SHORT-CIRCUIT CURRENT*** -- -- 100 100 100MAXAMPS
**Quadrature excitation refers to anode current and filament current [1]	90 A	**Quadrature excitation refers to anode current and filament current $90^{\circ} \pm 30^{\circ}$ out of phase.
**Quadrature excitation refers to anode current and filament current [2]	30 A	**Quadrature excitation refers to anode current and filament current $90^{\circ} \pm 30^{\circ}$ out of phase.
Mounting: The [1]	8698	Mounting: The 8698 and 869BL must be This temperature should be maintained at 40°
Mounting: The [2]	869	Mounting: The 8698 and 869BL must be This temperature should be maintained at 40°
Mounting: The [3]	40	Mounting: The 8698 and 869BL must be This temperature should be maintained at 40°
Published value	3	3 inch insulated flexible leads with lugs. Fo measure the condensed-mercury temperature a
ture of the condensed mercury in the	8698 V	ture of the condensed mercury in the 8698 and than the recommended value raises the voltage at
volts. Unavoidable variations in filament voltage X-Ray Radiation: Above approximately	16000 V	volts. Unavoidable variations in filament voltage X-Ray Radiation: Above approximately 16,000
must be kept within the range of [1]	4.8 V	must be kept within the range of 4.8 to 5.2 volts. A peak inverse voltage, a rectifier will produce X-Rays.
must be kept within the range of [2]	5.2 V	must be kept within the range of 4.8 to 5.2 volts. A peak inverse voltage, a rectifier will produce X-Rays.
ating temperature before the plate voltage is applied tion difficult. Consequently, the [1]	86913 V	ating temperature before the plate voltage is applied tion difficult. Consequently, the 86913 and 869BL
ating temperature before the plate voltage is applied tion difficult. Consequently, the [2]	869 V	ating temperature before the plate voltage is applied tion difficult. Consequently, the 86913 and 869BL
Published value	60	60 seconds will be required. The delay time should a transmitter or other similar equipment.
Published value [1]	869	869BL has 3 inch insulated flexible filament leads with spade terminals for # 10 screw instead of pins

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Published value [2]	3	869BL has 3 inch insulated flexible filament leads with spade terminals for # 10 screw instead of pins
Published value [3]	10	869BL has 3 inch insulated flexible filament leads with spade terminals for # 10 screw instead of pins


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1971 English Electric Valve

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

1971 ENGLISH ELECTRIC VALVE

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC Output Voltage	19 kV	ThreePhase; FullWave
DC Output Current	7.5 A	ThreePhase; FullWave


SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum peak inverse anode voltage	20000 V	—
Maximum average anode current	2.5 A	—

SOURCE OPERATING CONDITIONS

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1971 RCA HB3 Binder 6 of 7

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

1971 RCA HB3 BINDER 6 OF 7

Section 1 · Rectifier

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Heater/filament voltage	5 V	—
Heater/filament current	21 A	—
Peak inverse anode voltage	20000 V	—
Peak anode current	20 A	—
Average anode current	5 A	—
Fault current	100 A	ShortDuration

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak tube voltage drop	17 V	Conducting

CONSTRUCTION		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Gas fill	Mercury vapor	—

TUBE TINKER

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