



## ELECTRONIC TUBE REFERENCE

## 857B

Rectifier - Half Wave electronic tube

CONSOLIDATED TECHNICAL DATA

## 1 SECTION

CONSTRUCTION

## RECTIFIER

Directly heated high-current mercury-vapor half-wave rectifier for high-power broadcasting stations. Its massive filament and low arc voltage provide multiampere output at high voltage.

## GENERAL CHARACTERISTICS

|                     |                   |                      |               |
|---------------------|-------------------|----------------------|---------------|
| BASE DESIGNATION    | —                 | BASE PINS            | 4             |
| NOMINAL HEATER      | 5 V / 30 A        | PARALLEL HEATER      | — / —         |
| HEATING             | Direct            | SERIES OPERATION     | Not specified |
| CATHODE ARRANGEMENT | Separate cathodes | SECTION CONSTRUCTION | Similar       |

## SECTION RATINGS

|                                                                                                                    |         |
|--------------------------------------------------------------------------------------------------------------------|---------|
| SECTION 1 Rectifier                                                                                                |         |
| PEAK INVERSE VOLTAGE                                                                                               | 22000 V |
| NOMINAL OUTPUT CURRENT                                                                                             | 10 A    |
| PEAK FORWARD CURRENT                                                                                               | 40 A    |
| FORWARD VOLTAGE DROP                                                                                               | 10 V    |
| WARM-UP TIME                                                                                                       | 60 s    |
| <i>Mercury-vapor rectifier maximum inverse-voltage and average-anode-current ratings promoted from the source.</i> |         |

High-current mercury-vapor half-wave rectifier for high-power broadcasting stations.



## 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        | 30 A            | Published datasheet value |
| Maximum Peak Inverse Voltage   | 22000 V         | Published datasheet value |
| Maximum Average/Output Current | 10 A            | Published datasheet value |



## 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 · Rectifier

| OTHER                              |                 |                       |
|------------------------------------|-----------------|-----------------------|
| PARAMETER                          | PUBLISHED VALUE | CONDITION / NOTE      |
| Filament voltage                   | 5 V             | MercuryVapor          |
| Filament current                   | 30 A            | MercuryVapor          |
| Peak inverse anode voltage maximum | 22000 V         | HalfWave;MercuryVapor |
| Peak anode current maximum         | 40 A            | HalfWave;MercuryVapor |
| Average anode current maximum      | 10 A            | HalfWave;MercuryVapor |
|                                    |                 |                       |

| PARAMETER                             | PUBLISHED VALUE       | CONDITION / NOTE      |
|---------------------------------------|-----------------------|-----------------------|
| Recommended mercury temperature range | Mercury +30 to +40 °C | MercuryVapor          |
| Surge current maximum                 | 400 A                 | HalfWave;MercuryVapor |

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


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 · 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    | 22000 V         | HalfWave;MercuryVapor |
| Peak anode current maximum            | 40 A            | HalfWave;MercuryVapor |
| Average anode current maximum         | 10 A            | HalfWave;MercuryVapor |
| Recommended mercury temperature range | +30 to +40 °C   | MercuryVapor          |
| Surge current maximum                 | 400 A           | HalfWave;MercuryVapor |


SOURCE DATA APPENDIX

# 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 | 21 kV           | ThreePhase; FullWave  |
| DC Output Current | 30 A            | ThreePhase; FullWave  |
| DC Output Voltage | 7 kV            | SinglePhase; FullWave |
| DC Output Current | 20 A            | SinglePhase; FullWave |

[SOURCE DATA APPENDIX](#)

# 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 | 22000 V         | —                |
| Maximum average anode current      | 10 A            | —                |

[SOURCE DATA APPENDIX](#)

# 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             | 33 A            | —                  |
| Peak inverse anode voltage          | 22000 V         | —                  |
| Peak anode current                  | 40 A            | —                  |
| Average anode current               | 10 A            | —                  |
| Fault current                       | 400 A           | ShortDuration      |
| X-ray warning threshold             | 16000 V         | PeakInverseVoltage |
| Condensed-mercury temperature range | 30 to 40 degC   | 22000VPIV          |

| CHARACTERISTIC         |                 |                  |
|------------------------|-----------------|------------------|
| PARAMETER              | PUBLISHED VALUE | CONDITION / NOTE |
| Peak tube voltage drop | 25 V            | Conducting       |

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