



Rectifying Valve *Type U19*

General. A directly heated half-wave rectifier with an oxide-coated cathode.

The valve is fitted with a 4-pin British base, the anode being connected to the top cap.

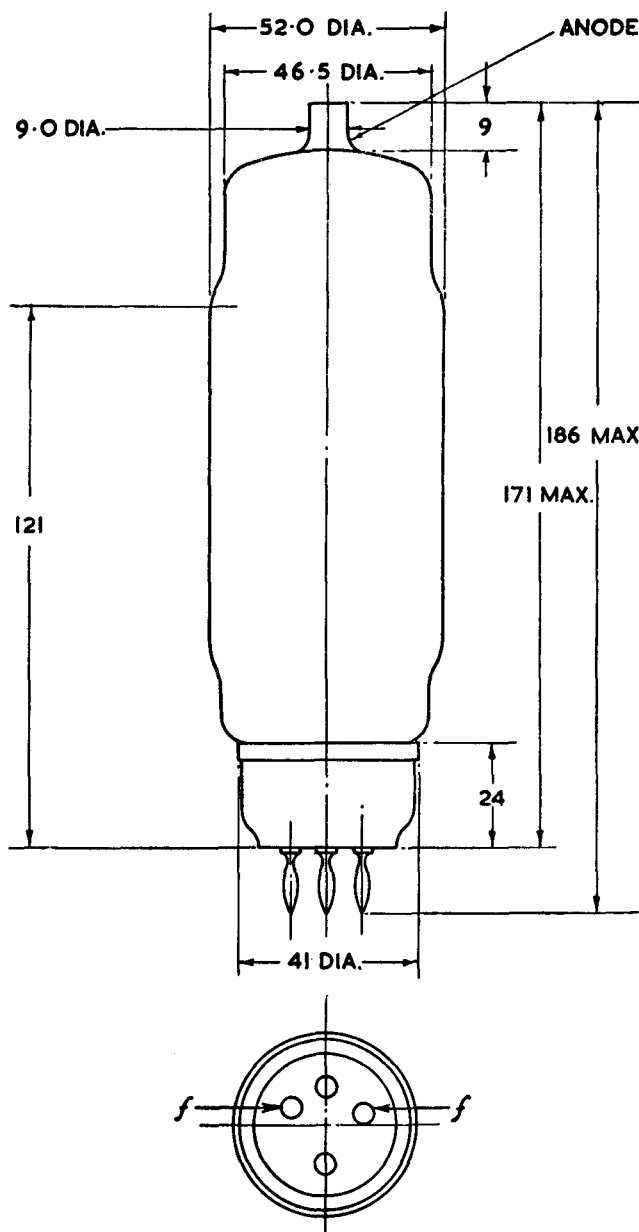
Mounting. The valves should be mounted in such a manner that they are not subjected to any undue mechanical shock or vibration. Vertical mounting is preferred, but if mounted horizontally the major axis of the valve filament should be vertical.

Precautions. (a) If the peak inverse voltage exceeds 5 kV the filament should be switched on for at least 20 secs. before the anode voltage is applied.

(b) Since valves of this type are often used in circuits having a low DC resistance, definite precautions must be taken to avoid accidental short circuiting of the load. A breakdown or flashover even of very short duration may cause destruction of the rectifier valves.

APPROXIMATE DATA

V_f	4.0	V
I_f	3.3	A
$PIV_{(max)}$	7.1	kV
$V_{a(r.m.s.) (max)}$	2.5	kV
$I_{a(pk) (max)}$	1.5	A
$I_{a(r.m.s.) (max)}$	250	mA
$R_{source (min)}$	500	Ω
C (condenser filter)	4.0	μF
$L_{(min)}$ (choke filter)	10	H



DIMENSIONS IN MM.

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Typical Operation

(1) BI-PHASE HALF-WAVE CIRCUIT

(2 valves).

(A) Condenser Input to Filter

V_f	4.0	V
$V_{in(r.m.s.)}$	2.5+2.5	kV
PIV	7.1	kV
$V_{a(out)}$	2.5	kV
$I_{a(out)}$	500	mA
$I_{a(pk)}$	1.5	A
$I_{a(sur.)(max)}$	4.5	A
$I_{a(r.m.s.)}$	525	mA
C	4.0	μF
$R_{source(min)}$	700	Ω
Ripple	10	%

(B) Choke Input to Filter

V_f	4.0	V
$V_{in(r.m.s.)}$	2.5+2.5	kV
PIV	7.1	kV
$V_{a(out)}$	2.1	kV
$I_{a(out)}$	500	mA
$I_{a(pk)}$	1.25	A
$I_{a(r.m.s.)}$	515	mA
$L_{(min)}$	4.25	H
$R_{source(min)}$	700	Ω
Ripple (before choke)	50	%

(2) SINGLE-PHASE FULL-WAVE CIRCUIT

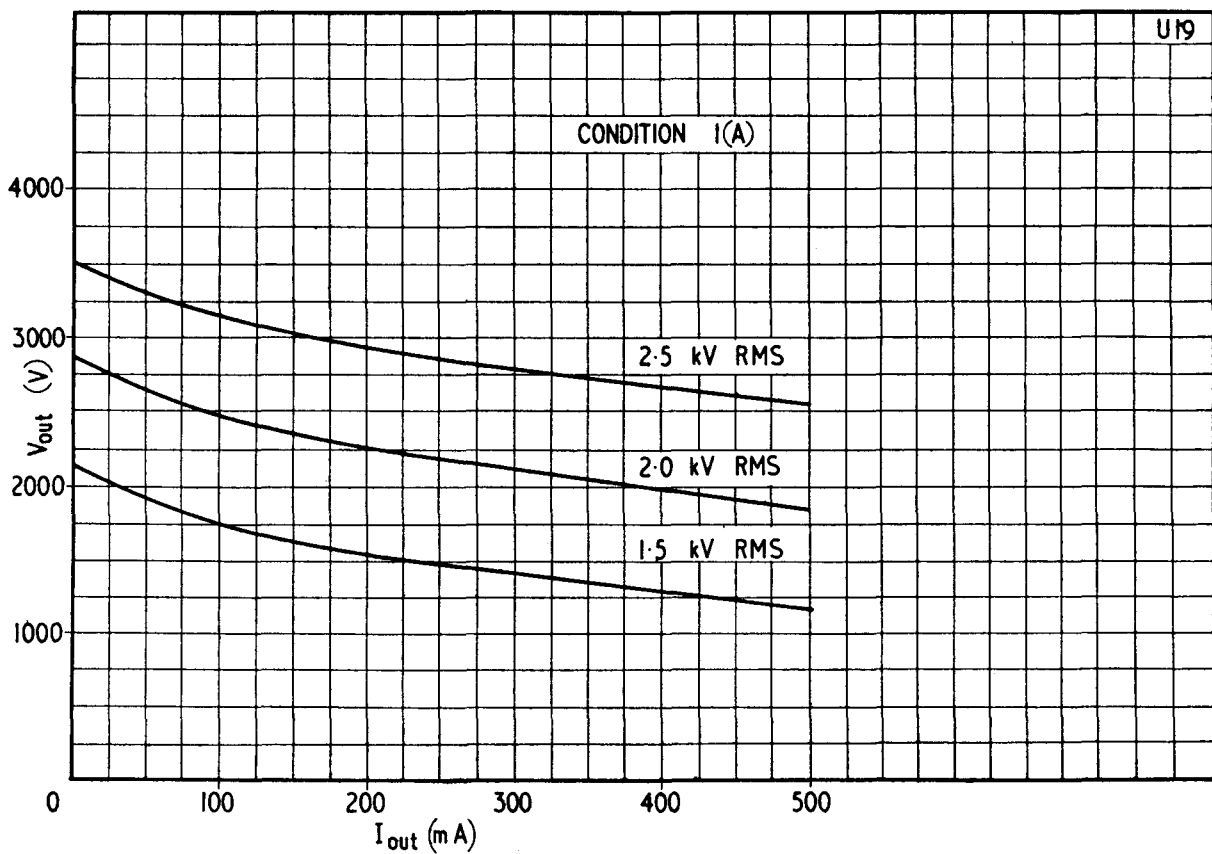
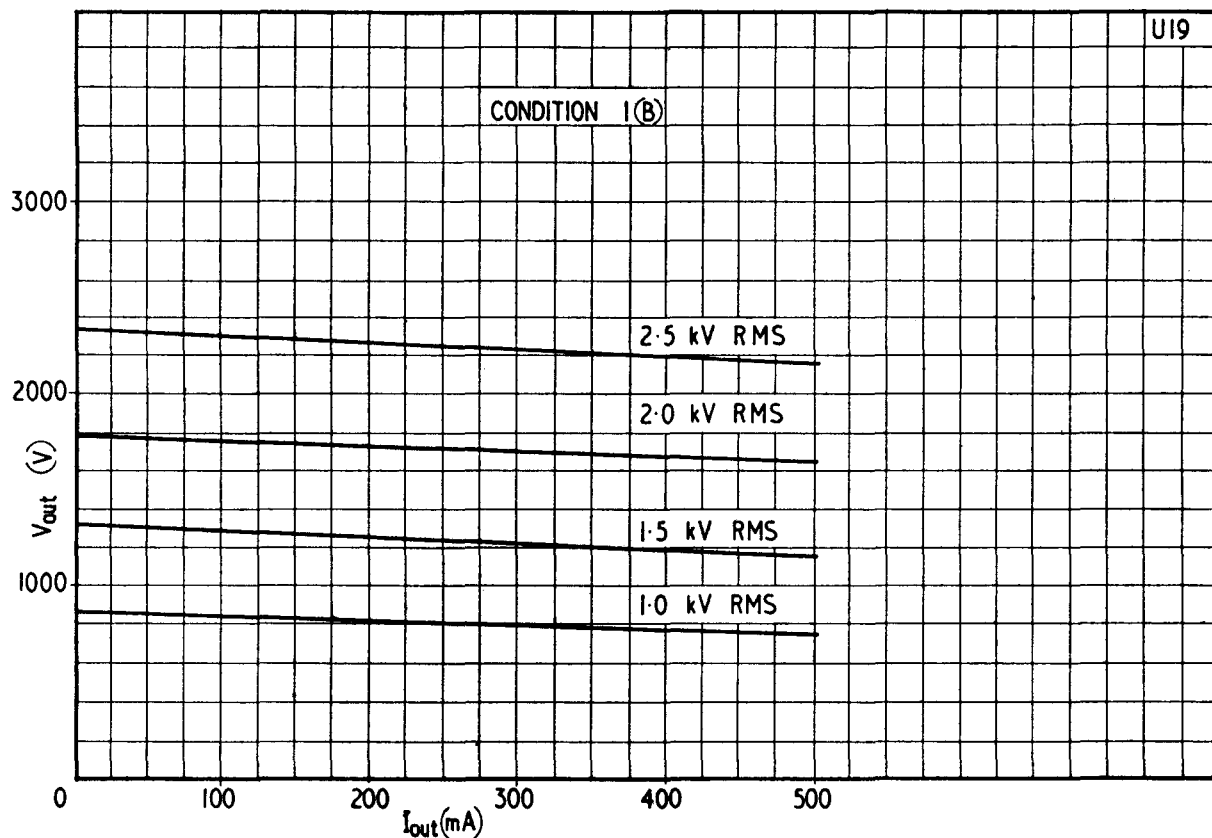
(4 valves).

(A) Condenser Input to Filter

V_f	4.0	V
$V_{in(r.m.s.)}$	5.0	kV
PIV	7.1	kV
$V_{a(out)}$	5.0	kV
$I_{a(out)}$	500	mA
$I_{a(pk)}$	1.5	A
$I_{a(sur.)(max)}$	4.5	A
$I_{a(r.m.s.)}$	525	mA
C	4.0	μF
$R_{source(min)}$	1,000	Ω
Ripple	10	%

(B) Choke Input to Filter

V_f	4.0	V
$V_{in(r.m.s.)}$	5.0	kV
PIV	7.1	kV
$V_{a(out)}$	4.2	kV
$I_{a(out)}$	500	mA
$I_{a(pk)}$	1.25	A
$I_{a(r.m.s.)}$	515	mA
$L_{(min)}$	8.0	H
$R_{source(min)}$	600	Ω
Ripple (before choke)	50	%





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