EB 4 Double diode with separate cathodes

The double diode EB 4 embodies two separate and adjacent cathodes with an anode around each, the two complete units being screened from each other. The screen is connected to a separate contact and can thus be very simply maintained at zero potential; it effectively prevents any stray electrons from passing from one unit to the other. This separation of the cathodes offers numerous advantages and greatly extends the range of application of this type of valve. A considerable reduction in the capacitance normally occurring between the anodes prevents any unwanted capacitance between the relative circuits. The two diode units are exactly similar and it is immaterial which of the two is employed for detection purposes.
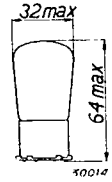

Fig. 1
Dimensions in mm

Heater ratings

Heating: indirect, by A.C. or D.C.; series or parallel supply.

Heater voltage . . . . $V_f = 6.3$ V
Heater current . . . . $I_f = 0.200$ A

Capacitances

$C_{d_1d_2} < 0.2\ \mu\mu$F
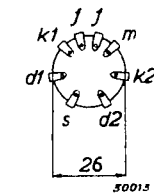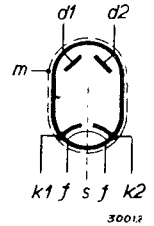$C_{d_1k} = 1.2\ \mu\mu$F
$C_{d_2k} = 1.2\ \mu\mu$F

Fig. 2
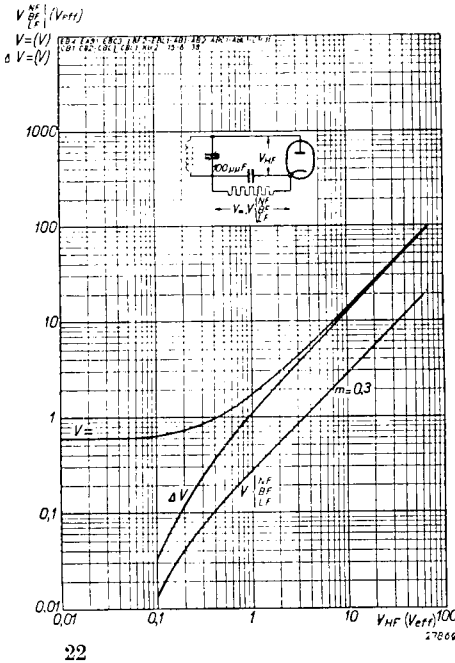Arrangement of electrodes and base connections.

Fig. 3
Direct voltage V and direct voltage curve (ΔV) between the terminals of the grid leak connected to one of the diodes of the EB 4, as a function of the unmodulated R.F. voltage.
A.F. voltage V_{LF} between the terminals of the grid leak as a function of the R.F. voltage modulated to a depth of 30% (m= 30%) These characteristics apply to grid leaks of from 0.1. to 1 megohm.

MAXIMUM RATINGS

Voltage on diode d_1 (peak value)	V_{d_1}	= max. 200 V.
Voltage on diode d_2 (peak value)	V_{d_2}	= max. 200 V.
Direct current to diode d_1	I_{d_1}	= max. 0.8 mA.
Direct current to diode d_2	I_{d_2}	= max. 0.8 mA.
External resistance between cathode k_1 and filament	R_{fk_1}	= max. 0.02 M ohm.
Potential difference between cathode k_1 and filament (direct current, or effective value of alternating voltage)	V_{fk_1}	= max. 75 V.
Potential difference between cathode k_2 and filament (D.C. voltage or effective value of A.C. voltage)	V_{fk_2}	= max. 75 V.
Potential difference between the two cathodes (D.C. voltage, or peak value of alternating voltage, or D.C. voltage + peak value of alternating voltage)	$V_{k_1k_2}$	= max. 150 V.
Voltage on diode at diode cur- $(I_{d_1} = + 0.3\,\mu\text{A})$	V_{d_1}	= max. —1.3 V.
rent start . . . . $(I_{d_2} = + 0.3\,\mu\text{A})$	V_{d_2}	= max. —1.3 V.