

PHILIPS *"Miniwatt"* SPECIAL VALVES

PHOTO-ELECTRIC CELL

3534


CHARACTERISTICS

Cathode	Caesium
Anode voltage	$V_a = 100 \text{ V}$
Sensitivity	$N = 150 \text{ } \mu\text{A/lm}$
Anode-to-cathode capacity . .	$C_{ak} = 5 \text{ pF}$
Maximum anode voltage . . .	$V_{a \text{ max}} = 100 \text{ V}$
Maximum anode current . . .	$I_{a \text{ max}} = 7.5 \text{ } \mu\text{A}$
Maximum temperature . . .	$t_{\text{max}} = 50^\circ \text{ C}$

SPECIAL ADVANTAGES

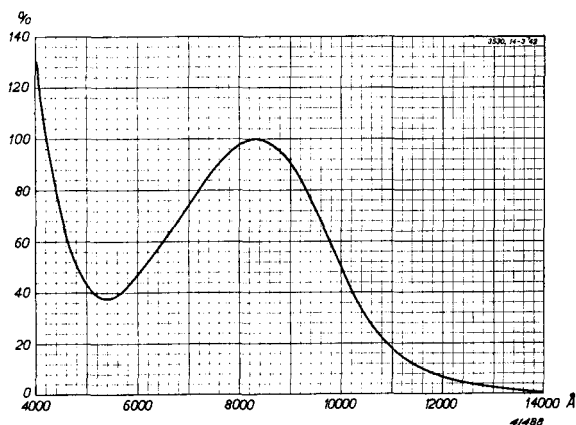
1. High sensitivity
2. Very large window
3. Maximum sensitivity to infra-red light
4. Low inherent noise

DESCRIPTION

The 3534 is a gasfilled photo-cell with a caesium cathode. The very high sensitivity to light of long wavelength necessitates a cathode with a very low work-function; this requirement has been met by coating a first layer of silver with a second one of specially treated caesium oxide containing readily ionisable caesium atoms. The gaseous atmosphere raises sensitivity seven or eight times; gas pressure is so adjusted that the striking voltage is well above the working voltage. Thus, gas amplification not being carried to the extreme, inherent noise is very slight.

Although this cell is used mainly in sound-film equipment, it is suitable for many other applications, especially when small size is important. The diagram overleaf shows relative response against wavelength; the curve may be used to calculate the strength of any kind of light source, it being remembered that 100% corresponds to a sensitivity of $8000 \text{ } \mu\text{A/W}$. That is to say a current of $8000 \text{ } \mu\text{A}$ will flow through the cell when it is touched by a radiation energy of 1 W.

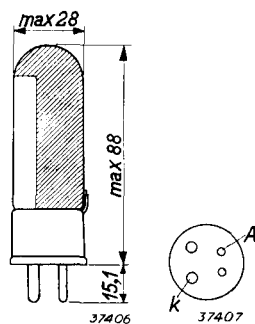
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Relative sensitivity as a function of wavelength; 100% corresponds to a sensitivity of 8000 $\mu\text{A/W}$.

The light falling on the cell should be adjusted so that anode current never exceeds 7.5 μA ; too high a current results in positive ions damaging the cathode, and leads to impairment of sensitivity.

On request the cell may be supplied for operation at an anode voltage of 90 V; in that case its type indication is known as 3534 Sp.



Electrode connections, and maximum dimensions in millimetres.