CAMERA TUBE

Small size vidicon television camera tube with low heater consumption, separate mesh construction, electrostatic focusing and magnetic deflection. Overall length 108 mm (4¼ in) and diameter 17,7 mm (2/3 in).
The XQ1272 is intended for use in ultra compact TV cameras for industrial and consumer applications in which a minimum of size, weight and power consumption is essential.

QUICK REFERENCE DATA

Separate mesh	
Focusing	electrostatic
Deflection	magnetic
Diameter	17,7 mm
Length	108 mm
Heater	6,3 V, 95 mA
Resolution	⩾ 400 TV lines

OPTICAL

Diagonal of quality rectangle on photoconductive layer (aspect ratio 3 : 4) — max. 11 mm

Orientation of image on photoconductive layer:
The direction of the horizontal scan should be essentially parallel to the plane defined by the gap between the pins 1 and 7 and the longitudinal axis of the tube, unless rotation of the tube is found necessary to minimize the number of blemishes in the picture.

Photoconductive layer	type A
Spectral response, max. response at	approx. 550 nm

HEATING

Indirect by a.c. or d.c.; parallel or series supply

Heater voltage	V_f	6,3 V ± 10%
Heater current, at V_f = 6,3 V	I_f	95 mA

When the tube is used in a series heater chain, the heater voltage must not exceed an r.m.s. value of 9,5 V when the supply is switched on.

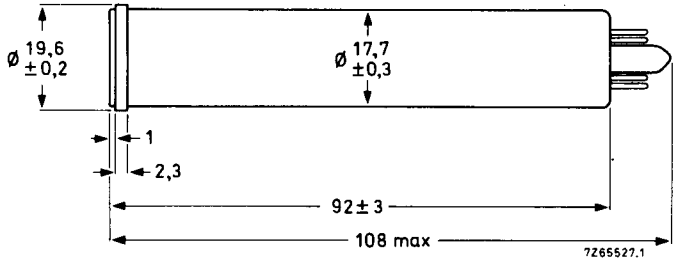
CAPACITANCES

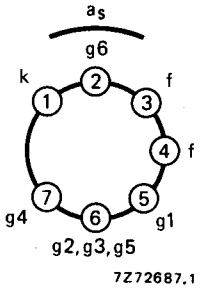
Signal electrode to all C_{as} 2 pF

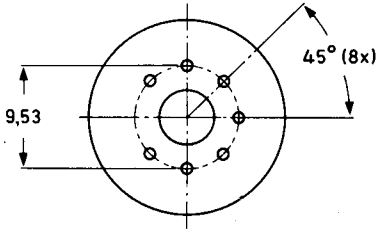
This capacitance, which is effectively the output impedance of the tube, increases when the tube is inserted into the deflection coil unit.

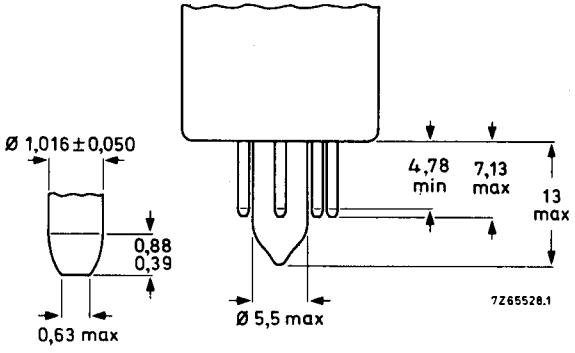
MECHANICAL DATA

Dimensions in mm









Base: Small button miniature 7-pin (IEC 67-I-10a, JEDEC E7-1) with pumping stem.

Mounting positions: any

Net mass: ≈ 23 g

ACCESSORIES

Socket	special miniature 7-pin, type 56049 or equivalent
Deflection coil unit	KV19G or equivalent

DEFLECTION magnetic

FOCUSING electrostatic

LIMITING VALUES

(Absolute maximum rating system) for scanned area of 6,6 mm x 8,8 mm.

"Full-size scanning" i.e. scanning of a 6,6 mm x 8,8 mm area of the photoconductive layer should always be applied. Underscanning, i.e. scanning of an area smaller than 6,6 mm x 8,8 mm, may cause permanent damage to the specified full-size area.

Signal electrode voltage	V_{as}	max.	80	V
Grid 5 and grid 6 voltage	$V_{g5,g6}$	max.	600	V
Grid 4 (beam focus electrode) voltage	V_{g4}	max.	350	V
Grid 5, grid 3 and grid 2 voltage	$V_{g5,g3,g2}$	max.	350	V
Grid 1 voltage,				
negative	$-V_{g1}$	max.	125	V
positive	V_{g1}	max.	0	V
Cathode-to-heater voltage,				
peak positive	V_{kfp}	max.	125	V
peak negative	$-V_{kfp}$	max.	10	V
Dark current, peak	I_{dp}	max.	0,15	μA
Output current, peak	I_{asp}	max.	0,5	μA *
Faceplate illumination	E	max.	5000	lx
Faceplate temperature, storage and operation	T	max.	70	°C **
Cathode heating time before drawing cathode current	t_h	min.	1	min

* Video amplifiers should be capable of handling signal-electrode currents of this magnitude without overloading the amplifier or distorting the picture.

** Under difficult environmental conditions a flow of cooling air directed at the faceplate is recommended. When televising flames and furnaces, appropriate infrared absorbing filters should be used.

OPERATING CONDITIONS AND PERFORMANCE

For a scanned area of 6,6 mm x 8,8 mm and a faceplate temperature of 30 ± 2 °C.

CONDITIONS

				notes
Grid 5 and grid 6 voltage	$V_{g5,g6}$	500	V	
Grid 4 voltage	V_{g4}	35 to 55	V	1
Grid 5, grid 3 and grid 2 voltage	$V_{g5,g3,g2}$	300	V	
Grid 1 voltage	V_{g1}	adjusted for sufficient beam-current to stabilize highlights		
Blanking voltage, peak-to-peak				
when applied to grid 1		50	V	
when applied to the cathode		20	V	
Field strength of adjustable alignment magnets (KV19G)	H	0 to 320	A/m	
Deflection				2

PERFORMANCE

		min.	typ.	max.		
Signal electrode voltage for dark current of 20 nA (see Fig. 1)	V_{as}	10	25	40	V	
Signal current faceplate illumination 8 lx c.t. 2856 K, dark current 20 nA	I_s	80	150		nA	3
Decay: residual signal current 200 ms after cessation of the illumination (8 lx, c.t. 2856 K)			10		%	
Limiting resolution in picture centre		500	550		TV lines	4
Grid 1 voltage for picture cut-off with no blanking applied	V_{g1}	–20	–60	–80	V	
Average γ of transfer characteristic for signal currents between 0,02 and 0,2 μA (see Fig. 2)			0,7			
Spurious signals (spots and blemishes)						5

Notes see next page.

NOTES

1. Adjusted for optimal beam focus.
2. The deflection circuits must provide sufficiently linear scanning for good black-level reproduction. The output current being proportional to the velocity of scanning, any change in this velocity will produce non-uniformity.
3. Signal current is defined as the component of the output current after the dark current has been subtracted.
4. Measured with a video amplifier system having an appropriate bandwidth, 8 lx on specified target area, target voltage adjusted for a dark current of 20 nA, beam set for correct stabilization.
5. Conditions:
   The camera focused on a uniformly illuminated two-zone test pattern, the diameter of the centre zone (1) being equal to the raster height. Zone (2) being defined as the remainder of the scanned area. Signal electrode voltage adjusted for a dark current of 20 nA, illumination on target 8 lx (c.t. 2856 K).

   Scanning amplitudes of the monitor adjusted to obtain a raster aspect ratio of 3 : 4.

   Monitor set-up and contrast control adjusted for faint raster when lens of camera is capped, and for non-blooming bright raster when lens of camera is uncapped.

   Under the above conditions the number and size of the spots visible in the monitor picture will not exceed the limits stated below. Both black and white spots must be counted, unless the amplitude is less than 50% of the peak white signal.

Spot size in % of raster height	Maximum number of spots zone 1	zone 2
> 1	none	none
$\leqslant 1$ to 0,8	none	1
0,8 to 0,6	2	2
0,6 to 0,3	2	3
$\leqslant 0,3$	*	*

* Do not count spots of this size unless concentration causes a smudgy appearance.

a) Minimum separation between any 2 spots greater than 0,4% of raster height is limited to a distance equivalent to 4% of raster height.

b) Tubes are rejected for smudge, lines, streaks, mottled, grainy or uneven background having contrast ratios greater than 1,5 to 1.

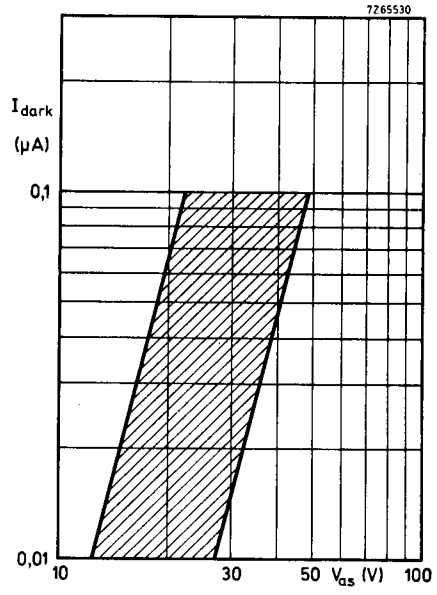


Fig. 1 Dark current range. Scanned area 6,6 mm x 8,8 mm. Faceplate temperature ≈ 30 °C.

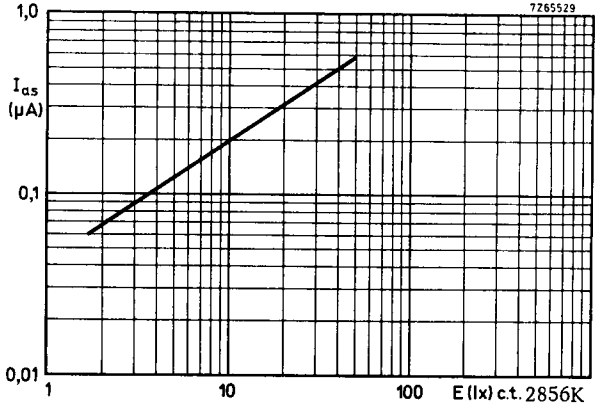


Fig. 2 Typical light transfer characteristic. Scanned area 6,6 mm x 8,8 mm. Faceplate temperature ≈ 30 °C.