

CAMERA TUBE

Small size vidicon television camera tube with low heater consumption, separate mesh construction for improved resolution, magnetic focusing and magnetic deflection.

Overall length 108 mm (4¼ in) and diameter 17,7 mm (2/3 in).

The XQ1271 is intended for use in ultra compact TV cameras for industrial and consumer applications.

QUICK REFERENCE DATA

Separate mesh	
Focusing	magnetic
Deflection	magnetic
Diameter	17,7 mm
Length	max. 108 mm
Heater	6,3 V, 95 mA
Limiting resolution	600 TV lines

OPTICAL

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

Orientation of image on photoconductive layer:

The direction of the horizontal scan should be essentially parallel to the plane passing through pin 4 and the longitudinal axis of the tube.

Photoconductive layer type A

Spectral response, max. response at approx. 550 nm

Faceplate
thickness 1,5 mm
refractive index 1,487

HEATING

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

Heater voltage V_f 6,3 V \pm 10%

Heater current at $V_f = 63$ 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

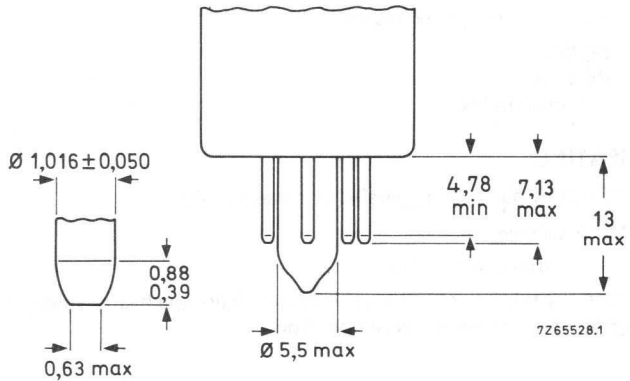
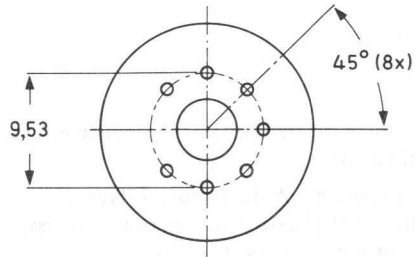
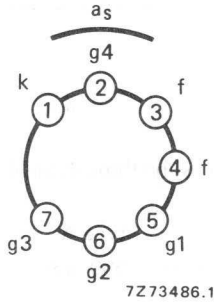
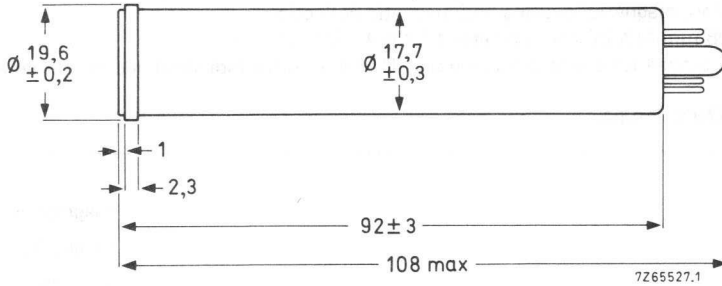
Signal electrode to all

$$C_{as} \approx 2 \text{ pF}$$

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

MECHANICAL DATA

Dimensions in mm



Base: JEDEC no. E7-91

Mounting position: any

Net mass: $\approx 23 \text{ g}$

ACCESSORIES

Socket	special miniature 7-pin, type 56049 or equivalent
Deflection and focusing coil unit	KV12S or equivalent

DEFLECTION magnetic

FOCUSING magnetic

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 4 voltage	V_{g4}	max.	750 V
Grid 3 voltage	V_{g3}	max.	750 V
Grid 2 voltage	V_{g2}	max.	350 V
Grid 1 voltage, negative	$-V_{g1}$	max.	300 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.	150 nA
Output current, peak	I_{asp}	max.	500 nA*
Faceplate illumination	E	max.	10 000 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 25 to 35 °C.

CONDITIONS

			notes
Grid 4 voltage	V_{g4}	400 V	1
Grid 3 (beam focus electrode) voltage	V_{g3}	300 V	1,2
Grid 2 (accelerator) voltage	V_{g2}	300 V	
Grid 1 voltage for picture cut-off (no blanking applied)	V_{g1}	-80 to -35 V	
Blanking voltage, peak-to-peak			
when applied to grid 1		75 V	
when applied to the cathode		20 V	
Flux density at centre of focusing coil		5,0 to 5,6 mT	
Flux density of adjustable alignment magnets		0 to 0,4 mT	

PERFORMANCE

		min.	typ.	max.	
Signal electrode voltage for dark current of 20 nA	V_{as}	10	30	V	
Signal current faceplate illumination 10 lx c.t. 2856 K, dark current 20 nA	I_s	130	200	nA	
Decay: residual signal current 60 ms after cessation of the illumination (c.t. 2856 K, initial signal current 200 nA, dark current 20 nA)			17	%	
Limiting resolution at picture centre		550	600	TV lines	3
at picture corners		350	450	TV lines	3
Average γ of transfer characteristic for signal currents between 20 and 200 nA (see Fig. 1)		0,55	0,74	0,85	
Spurious signals (spots and blemishes)					4

Notes see next page.

NOTES

1. Grid 4 voltage must always be higher than grid 3 voltage. The recommended ratio of grid 4 voltage to grid 3 voltage both for best geometry and most uniform signal output depends upon the type of coil used and will be 4 : 3 for the recommended type (see "Accessories").
2. Resolution decreases with decreasing grid 3 voltage. In general grid 3 should be operated above 250 V.
3. On EIA resolution test chart; faceplate illumination adjusted for peak signal current of 200 nA and dark current of 20 nA.

4. 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 (c.t. 2856 K) adjusted to provide a signal current of 200 nA. Beam current adjusted for correct stabilization.

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. Only white and black spots with contrasts $\geq 50\%$ and $\geq 100\%$ respectively (of peak white signal) are taken into account.

Spot size in % of raster height	Maximum number of spots	
	zone 1	zone 2
> 0,8	none	none
$\leq 0,8$ to 0,6	none	1
$\leq 0,6$ to 0,2	2	3
$\leq 0,2$	*	*
total (max.)	4	

* 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 3% of raster height.
- b) Tubes are rejected for smudge, lines, streaks, mottled, grainy or uneven background having contrasts $> 50\%$.

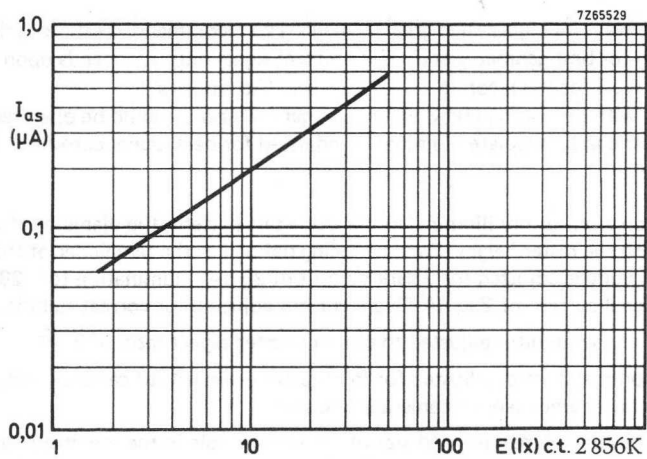


Fig. 1 Typical light transfer characteristic. Scanned area 6,6 mm x 8,8 mm. Faceplate temperature ≈ 30 °C.