Dieter’s

Nixie Tube Data Archive

This file is a part of Dieter's Nixie- and display tubes data archive

If you have more datasheets, articles, books, pictures or other information about Nixie tubes or other display devices please let me know.
Thank you!

Document in this file	Philips datasheet – ZM1031
Display devices in this document	ZM1031

File created by Dieter Waechter
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INDICATOR TUBE

Cold cathode sign indicator tube for side viewing.

QUICK REFERENCE DATA				
Sign height			15	mm
Signs			+ −	
Supply voltage	V_{ba}	min.	170	V
Cathode current	I_k		4	mA

GENERAL

This tube has the same physical dimensions as the biquinary numerical indicator tube ZM1030. The ZM1031 is provided with a red contrast filter.

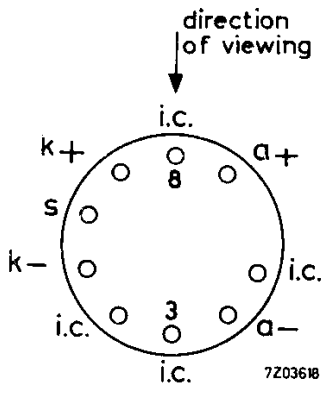
PRINCIPLE OF OPERATION

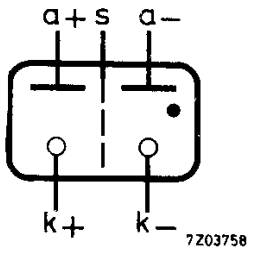
The tube contains two anodes and two cathodes separated by a shield. The rear compartment contains the minus (−) sign and the rear anode, the front compartment contains the plus (+) sign and the front anode.
By applying a suitable voltage between the required sign and the corresponding anode, the sign will be covered by a red neon glow.

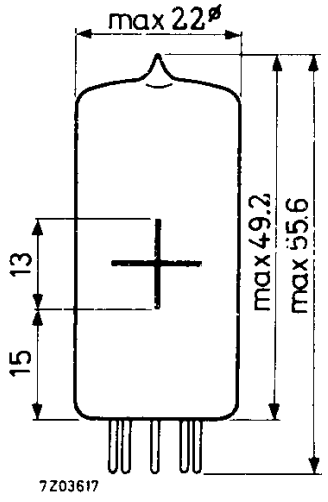
DIMENSIONS AND CONNECTIONS

Dimensions in mm

Base: Noval







Mounting position: any

The signs are viewed through the side of the envelope.

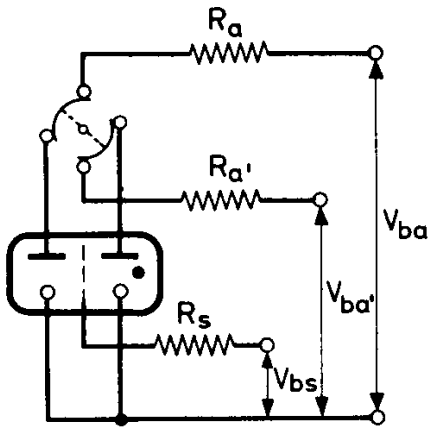
7Z2 5252

CHARACTERISTICS AND OPERATING CONDITIONS

Ignition voltage	V_{ign}	<	170	V
Maintaining voltage at I_k = 4 mA	V_m		140	V
Anode current,				
average during any conduction period for coverage	I_a	>	2	mA
average, T_{av} = 20 ms	I_a	<	5	mA
peak	I_{a_p}	<	10	mA
Incremental resistance	r_a		4.5	kΩ

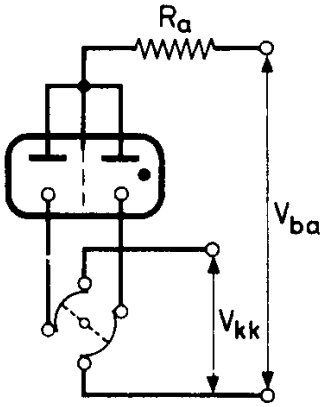
Typical operation at temperatures t_{amb} = 10 to 50 °C

I. with anode switches



Shield supply voltage	V_{bs}	50	V
Shield series resistance	R_s	10	kΩ
"Off" anode voltage	$V_{a'}$	90 to 110	V

II. with cathode switches



Cathode selecting voltage	V_{kk}	40 to 70	V

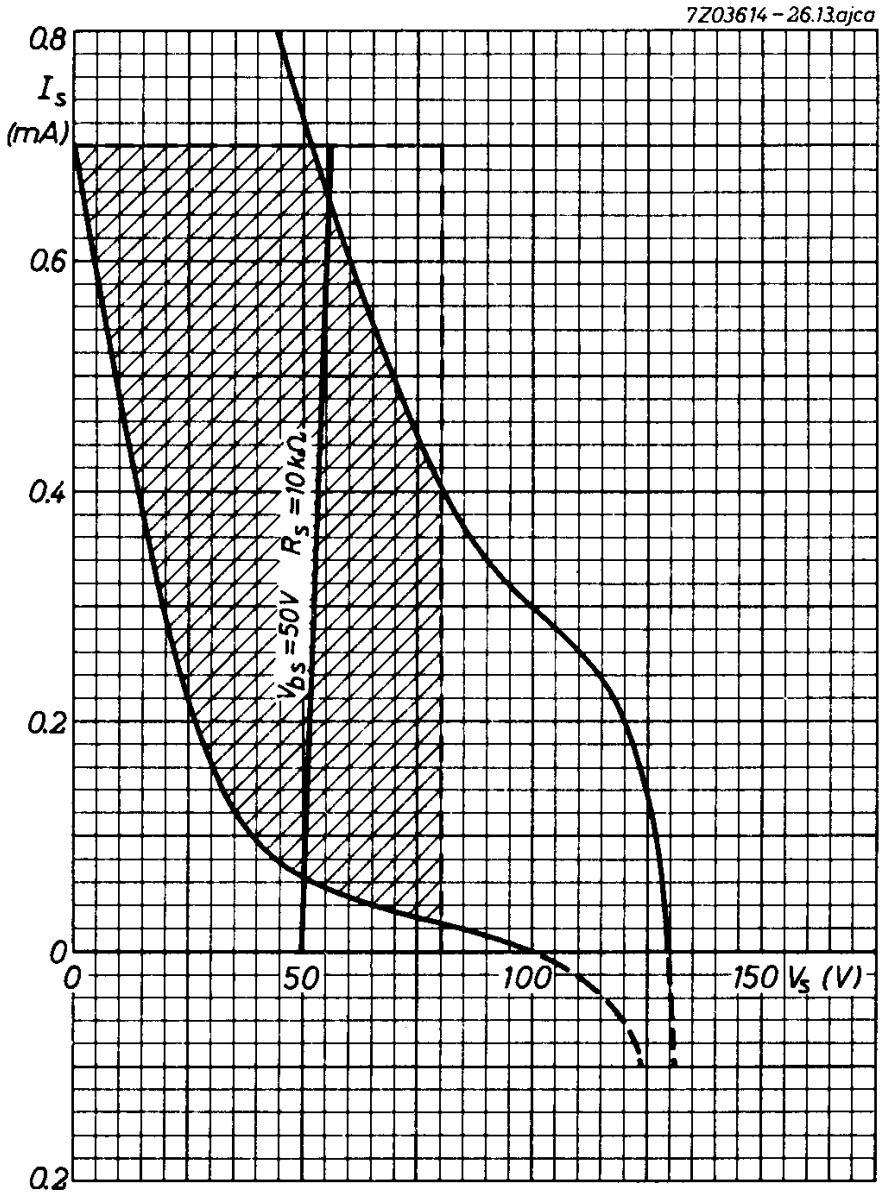
7Z2 5253

LIMITING VALUES (Absolute max. rating system)

Anode voltage necessary for ignition	V_a	min.	170	V
Anode current,				
average during any conduction period	I_a	min.	2	mA
average (T_{av} = 20 ms)	I_a	max.	5	mA
peak	I_{a_p}	max.	10	mA
Bulb temperature	t_{bulb}	min.	−55	°C [1]
		max.	+70	°C

[1]) Below 10 °C the life expectancy is substantially reduced.

7Z2 5254


7Z03614 – 26.13ajca
0.8
I_s
(mA)
0.6
0.4
0.2
0
0.2
0
50
100
150
V_s (V)
$R_s = 10\,k\Omega$
$V_{bs} = 50V$