

ELECTRONIC TUBE REFERENCE

ZM1050

Nixie electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
NIXIE

Gas-filled cold-cathode decimal indicator displaying digits 0–9 in a ring-shaped arrangement with separate ignition electrodes.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Special 13-pin	BASE PINS	13
NOMINAL HEATER	– / –	PARALLEL HEATER	– / –
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Nixie	
MAXIMUM CATHODE CURRENT	3 mA
MINIMUM REGULATOR CURRENT	2 A
MAXIMUM REGULATOR CURRENT	4 A
MAINTAINING VOLTAGE	84 V
Single indicator/counting section. Nixie-specific electrical ratings and operating data are retained in TUBE_SECTION_PARAMETER.	

Valvo ZM1050 is a gas-filled cold-cathode decimal display tube that shows digits 0 through 9 by neon glow in a ring-shaped arrangement. It uses separate ignition electrodes and is intended for electronically selected numeric indication.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1965 Nixie Valvo

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1965 NIXIE VALVO

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
AC supply voltage	110 Vrms	Pulsating supply; +/-10%
Series resistor R1	10 k0hm	+/-5%
Bias resistor R2	330 k0hm	Published circuit value
Operating glow voltage	84 V	Published circuit
Ignition electrode current	50 uA	Published circuit
Ignition electrode bias mismatch	—5 V	May differ from anode potential by max +/-5 V
Ignition electrode trigger rise	5— V	Minimum potential increase required to ignite selected path
Trigger voltage	—30 V	Absolute maximum
Cathode current	2–4 mA	Absolute range
Cathode resistor	100–470 k0hm	Absolute range
Envelope temperature	-55–70 degC	Absolute range

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Life with one digit continuously displayed	1000— h	Minimum
Life with changing display	20000— h	Digit changed every 100 h or more often

1969 Nixie Valvo

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1969 NIXIE VALVO

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
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196X Nixie Random Datasheets

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OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
AC supply voltage	110 Vrms	Pulsating supply; +/-10%
Series resistor R1	10 kOhm	+/-5%
Bias resistor R2	330 kOhm	Published circuit value
Operating glow voltage	84 V	Published circuit
Ignition electrode current	50 uA	Published circuit
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CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Life with one digit continuously displayed	1000— h	Minimum
Life with changing display	20000— h	Digit changed every 100 h or more often



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

SOURCE PDF

1999 Philips E-Z

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1999 PHILIPS E-Z

Section 1 · Nixie

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cold cathode numerical indicator tube for top viewing.	50	Cold cathode numerical indicator tube for top viewing. Formerly Z550M

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Numeral height	3 mm	Numeral height 3 mm
Cathode current	3 mA	Cathode current I 3 mA
Starter selecting voltage	5	Starter selecting voltage 5V
Transformer secondary voltage	10	Transformer secondary voltage Ver 110 vV +10% l)
Cathode resistor	5	Cathode resistor Rk 10 k2 + 5%
Starter selecting voltage	4	Starter selecting voltage Vgt-st See sheet 4 upper figure
Starter current	30	Starter current Igt 30 pA
Maintaining voltage	84	Maintaining voltage Vm 84 Vv
1y The rectified a.c. voltage should be free from spikes.	1 a	1y The rectified a.c. voltage should be free from spikes.
selecting voltage Vgt-gç shown on sheet 4 upper figure.	4	selecting voltage Vgt-gç shown on sheet 4 upper figure.
Cathode current (average)	2	Cathode current (average) Ix 2:; Z 2:
Starter circuit resistance	8	Starter circuit resistance Rgt E:}l(411(7)8 Eg
Envelope temperature	55	Envelope temperature t mia. =55 °C

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage	90	Supply voltage Vba 90 Va.c.
Recommended cathode current	3 mA	Recommended cathode current I 3 mA
A.C. supply voltage	90 A	A.C. supply voltage Ver min, 90 Vr.m.s.
Frequency of mains supply	100 Hz	Frequency of mains supply f 40 to 100 Hz