



ELECTRONIC TUBE REFERENCE

ZM1080

Nixie electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
NIXIE

Long-life gas-filled cold-cathode Nixie displaying side-visible 13 mm digits 0-9, supporting both DC and pulsed operation.

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	12 mA
MINIMUM REGULATOR CURRENT	1.5 A
MAXIMUM REGULATOR CURRENT	2.5 A
STARTING VOLTAGE	170 V
MAINTAINING VOLTAGE	140 V
<i>Single indicator/counting section. Nixie-specific electrical ratings and operating data are retained in TUBE_SECTION_PARAMETER.</i>	

Valvo ZM1080 is a gas-filled cold-cathode decimal indicator with direct glow display of side-visible 13 mm digits 0 through 9. It supports both DC and pulse operation and is specified for long service life with changing indications.

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Extinction voltage	118 V	Typical characteristic
Life with one digit continuously displayed	5000 h	Recommended conditions

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200 V	Biased DC operation
DC cathode current	2 mA	Biased DC operation
DC burning voltage	140 V	Biased DC operation
Recommended off-cathode bias	60 V	Biased DC operation
Continuous cathode current	1.5–2.5 mA	Absolute range
Envelope temperature	-55–70 degC	Absolute range
Pulse cathode current	10 mA	Typical pulse operation
Pulse burning voltage	185 V	Typical pulse operation
Pulse duration	0.1 ms	Typical pulse operation
Pulse frequency	1000 Hz	Typical pulse operation
Maximum pulse cathode current	—12 mA	Absolute maximum
Pulse duration limits	0.1–2 ms	Absolute range

1966 Nixie Telefunken

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1966 NIXIE TELEFUNKEN

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Extinction voltage	118 V	Typical characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200 V	Biased DC operation
DC cathode current	2 mA	Biased DC operation
DC burning voltage	140 V	Biased DC operation
Recommended off-cathode bias	60 V	Biased DC operation
Continuous cathode current	1.5–2.5 mA	Absolute range
Envelope temperature	–55–70 degC	Absolute range
Pulse cathode current	10 mA	Typical pulse operation
Pulse burning voltage	185 V	Typical pulse operation
Pulse duration	0.1 ms	Typical pulse operation
Pulse frequency	1000 Hz	Typical pulse operation
Maximum pulse cathode current	—12 mA	Absolute maximum
Pulse duration limits	0.1–2 ms	Absolute range



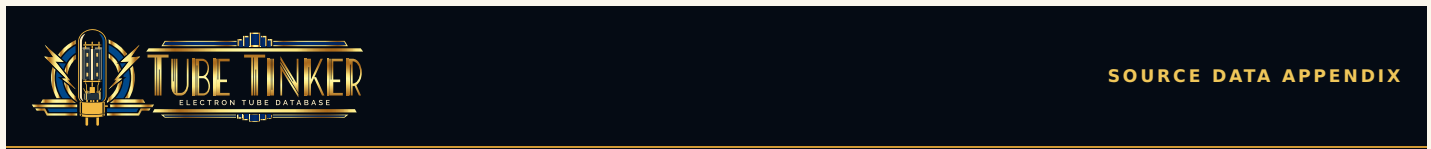
1967 Nixie La Radiotechnique

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1967 NIXIE LA RADIOTECHNIQUE

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition/Starting Voltage	170 V	Published ignition/start value
Extinction Voltage	118 V	Published extinction value
Maintaining Voltage	140 V	Published maintaining/burning value

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Recommended/Minimum Supply Voltage	200 V	Published operating condition
Maximum Cathode Current	2.5 mA	Published maximum/average maximum
Peak Cathode Current	12 mA	Published peak value
Off-Cathode Bias Voltage	60 V	Relative to active cathode
Preionization Bias Voltage	120 V	Pulse operation
Pulse Width Minimum	100 us	Pulse operation
Pulse Width Maximum	2 ms	Pulse operation



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

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1969 Nixie Mullard

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1969 NIXIE MULLARD

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Numeral/Character Height	0.5 mm	Published mechanical/display data
Maximum Peak Cathode Current	12 mA	Published peak limit

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply Voltage	170 V	Published operating data
Cathode Current	2 mA	Published average/normal value

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Life Expectancy	3000 h	Published datasheet value



SOURCE OPERATING CONDITIONS

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1969 Nixie Valvo

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1969 NIXIE VALVO

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Extinction voltage	118 V	Typical characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200 V	Biased DC operation
DC cathode current	2 mA	Biased DC operation
DC burning voltage	140 V	Biased DC operation
Recommended off-cathode bias	60 V	Biased DC operation
Continuous cathode current	1.5–2.5 mA	Absolute range
Envelope temperature	-55–70 degC	Absolute range
Pulse cathode current	10 mA	Typical pulse operation
Pulse burning voltage	185 V	Typical pulse operation
Pulse duration	0.1 ms	Typical pulse operation
Pulse frequency	1000 Hz	Typical pulse operation
Maximum pulse cathode current	—12 mA	Absolute maximum
Pulse duration limits	0.1–2 ms	Absolute range



196X Nixie Random Datasheets

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196X NIXIE RANDOM DATASHEETS

Section 1 · Nixie

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Extinction voltage	118 V	Typical characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200 V	Biased DC operation
DC cathode current	2 mA	Biased DC operation
DC burning voltage	140 V	Biased DC operation
Recommended off-cathode bias	60 V	Biased DC operation
Continuous cathode current	1.5–2.5 mA	Absolute range
Envelope temperature	–55–70 degC	Absolute range
Pulse cathode current	10 mA	Typical pulse operation
Pulse burning voltage	185 V	Typical pulse operation
Pulse duration	0.1 ms	Typical pulse operation
Pulse frequency	1000 Hz	Typical pulse operation
Maximum pulse cathode current	—12 mA	Absolute maximum
Pulse duration limits	0.1–2 ms	Absolute range



1971 Nixie RFT

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1971 NIXIE RFT

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical characteristic
Extinction voltage	118 V	Typical characteristic

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
DC supply voltage	200 V	Biased DC operation
DC cathode current	2 mA	Biased DC operation
DC burning voltage	140 V	Biased DC operation
Recommended off-cathode bias	60 V	Biased DC operation
Continuous cathode current	1.5–2.5 mA	Absolute range
Envelope temperature	-55–70 degC	Absolute range
Pulse cathode current	10 mA	Typical pulse operation
Pulse burning voltage	185 V	Typical pulse operation
Pulse duration	0.1 ms	Typical pulse operation
Pulse frequency	1000 Hz	Typical pulse operation
Maximum pulse cathode current	—12 mA	Absolute maximum
Pulse duration limits	0.1–2 ms	Absolute range



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.

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Numeral height	13 mm	Numeral height 13 mm
Cathode current	2 mA	Cathode current Ik 2 mA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode voltage	170 V	Anode voltage $V_a > 170\text{ V}$
Ignition delay time	4	Ignition delay time See page 4 l)
Cathode current 1)	3.5 mA	Cathode current 1) $I_x < 3.5\text{ mA}$
Cathode current for coverage	1.5 mA	Cathode current for coverage $I_k > 1.5\text{ mA}$
Maintaining voltage at $I = 2\text{ mA}$ (See also page 3)	140 mA	Maintaining voltage at $I = 2\text{ mA}$ (See also page 3) $V_i 140\text{ V}$
Probe current to individual non-conducting cathodes	6	Probe current to individual non-conducting cathodes I_{gy} See page 6
Cathode current, peak	12 mA	Cathode current, peak $I_{kp} < 12\text{ mA}$
Average cathode current for satisfactorily display	0.8 mA	Average cathode current for satisfactorily display $I_x > 0.8\text{ mA}$
Pulse duration	100 us	Pulse duration $T_{imp} > 100\text{ us}$
Maintaining voltage	5	Maintaining voltage V_m See page 5

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage	170 V	Supply voltage $V_b \text{ min, } 170\text{ V}$
seals at a solder temperature of 240 °C for a maximum of 10 seconds.	10 a	seals at a solder temperature of 240 °C for a maximum of 10 seconds.

TUBE TINKER

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