

ELECTRONIC TUBE REFERENCE

ZM1200

Nixie electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
NIXIE

Valvo Pandicon gas-filled cold-cathode fourteen-decade numerical display. Each position provides digits 0-9 plus decimal and thousands marks, with common corresponding cathodes and separate anodes; designed for pulsed multiplexed operation and long service life.

GENERAL CHARACTERISTICS

BASE DESIGNATION	Dual special base	BASE PINS	17
NOMINAL HEATER	– / –	PARALLEL HEATER	– / –
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Nixie	
MAXIMUM REGULATOR CURRENT	1.5 A
STARTING VOLTAGE	170 V
Fourteen repeated decimal display decades are electrically similar; one representative section row is stored per identical-section compression rule. Nixie-specific data are in TUBE_SECTION_PARAMETER.	

Valvo ZM1200 Pandicon is a gas-filled cold-cathode fourteen-decade numerical display. Each decade contains digits 0 through 9 plus decimal-point and thousands-separator marks, with common corresponding cathode connections and separate anodes for the fourteen positions. It is intended for pulsed multiplexed operation and long service life.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

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
Peak supply voltage	170 V	Published operating data
Pulse duration	50–500 us	Allowed pulse range
Driven-to-undriven cathode voltage	70–100 V	Recommended
Undriven anode supply voltage	85–115 V	Recommended
Screen voltage	70–100 V	Absolute range
Decimal/thousands mark series resistor	10 kOhm	+/-10%
Minimum peak anode current at 50 us	6 mA	Per anode
Minimum peak anode current at 150 us	5 mA	Per anode
Minimum peak anode current at 1000 us	4 mA	Per anode
Maximum peak anode current	12 mA	Per anode
Maximum average anode current	1.5 mA	Per anode; integration >=1 s
Mark-only peak anode current	0.5–2 mA	Decimal/thousands mark without digit
Mark-only average anode current	—0.25 mA	Integration >=1 s
Maximum voltage between arbitrary electrodes	120 V	Except driven anode
Ambient temperature	-50–70 degC	Absolute range

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical
First ignition delay	0.5 s	First ignition
Subsequent ignition delay	10 us	Subsequent ignitions
Typical accelerated-test life	50000— h	High peak current/high repetition/duty test
Number of display decades	14 count	Each decade has digits 0-9 plus decimal/thousands marks
Digit height	10 mm	Side-visible



SOURCE DATA APPENDIX

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

196X Nixie Random Datasheets

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

196X NIXIE RANDOM DATASHEETS

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak supply voltage	170 V	Published operating data
Pulse duration	50–500 us	Allowed pulse range
Driven-to-undriven cathode voltage	70–100 V	Recommended
Undriven anode supply voltage	85–115 V	Recommended
Screen voltage	70–100 V	Absolute range
Decimal/thousands mark series resistor	10 kOhm	+/-10%
Minimum peak anode current at 50 us	6 mA	Per anode
Minimum peak anode current at 150 us	5 mA	Per anode
Minimum peak anode current at 1000 us	4 mA	Per anode

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Maximum peak anode current	12 mA	Per anode
Maximum average anode current	1.5 mA	Per anode; integration ≥ 1 s
Mark-only peak anode current	0.5–2 mA	Decimal/thousands mark without digit
Mark-only average anode current	—0.25 mA	Integration ≥ 1 s
Maximum voltage between arbitrary electrodes	120 V	Except driven anode
Ambient temperature	-50–70 degC	Absolute range

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical
First ignition delay	0.5 s	First ignition
Subsequent ignition delay	10 μ s	Subsequent ignitions
Typical accelerated-test life	50000— h	High peak current/high repetition/duty test
Number of display decades	14 count	Each decade has digits 0-9 plus decimal/thousands marks
Digit height	10 mm	Side-visible


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
Numeral height	10 mm	Numeral height 10 mm
Decade pitch	10 mm	Decade pitch 10 mm
Anode current, peak	9 mA	Anode current, peak Iap 9 mA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The tube contains 10 common numeral cathode rails, one common decimal point	10	The tube contains 10 common numeral cathode rails, one common decimal point
cathode rail, one common punctuation-mark cathode rail, a common screen and 14	14 a	cathode rail, one common punctuation-mark cathode rail, a common screen and 14
subsequent ignitions	10 us	subsequent ignitions Tq 10 us
Maintaining voltage	5	Maintaining voltage Vi see page 5
2) The decimal point and/or punctuation mark cathode(s) may not be operated without	2 s	2) The decimal point and/or punctuation mark cathode(s) may not be operated without
Voltage between any pair of electrodes	120	Voltage between any pair of electrodes 120
1y Bulb temperatures below 10 °C result in a reduced life expectancy and changes	10 a	1y Bulb temperatures below 10 °C result in a reduced life expectancy and changes
1) The decimal point maintaining voltage Vmdp and the punctuation mark maintaining	1	1) The decimal point maintaining voltage Vmdp and the punctuation mark maintaining
voltage Vmpm include the voltage drop at the 10 k Ω series resistor.	2	voltage Vmpm include the voltage drop at the 10 k Ω series resistor.
3) Vi min. pertains to the minimum operating temperature and assumes the deci~	3	3) Vi min. pertains to the minimum operating temperature and assumes the deci~
4) The maintaining voltage can be considered as the sum of a constant voltage anda	4 a	4) The maintaining voltage can be considered as the sum of a constant voltage anda
and 6 mA), depending on pulse duration. (See "Characteristics and operating condi-	6 mA	and 6 mA), depending on pulse duration. (See "Characteristics and operating condi-

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage, peak	170 V	Supply voltage, peak Vbap min. 170 V
Ignition voltage	170 A	Ignition voltage Vign max. 170 A%
Ignition delay, first ignition	0.5 s	Ignition delay, first ignition Tq typ. max. 0.5 s

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Recommended pulse duration	500 MS	Recommended pulse duration Timp 150 to 500 MS
Cathode selecting voltage	100 v	Cathode selecting voltage Vik max. 100 v
Off" anode voltage	115 v	Off" anode voltage Vaoft max. 115 v
Recommended screen voltage	10 V	Recommended screen voltage Vg 10 V below Vg
Ambient temperature	70	Ambient temperature tamb max. +70 oC
2) Vj;, max. pertains to the maximum operating temperature and assumes the deci~	2	2) Vj;, max. pertains to the maximum operating temperature and assumes the deci~
Supply Vpo=190 +10V	10	Supply Vpo=190 +10V