

ELECTRONIC TUBE REFERENCE

ZM1005

Nixie electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
NIXIE

Long-life cold-cathode ten-digit side-viewing numerical indicator. Its shaped glow-discharge cathodes provide direct decimal readout, with manufacturer documentation emphasizing extended service life for electronic instrumentation and display equipment.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	16
NOMINAL HEATER	— / —	PARALLEL HEATER	— / —
HEATING	Indirect; cold cathode	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION1 Nixie	
MAXIMUM PLATE VOLTAGE	170 V
MAXIMUM CATHODE CURRENT	6 mA
MAXIMUM REGULATOR CURRENT	2.5 A
STARTING VOLTAGE	170 V
Single indicator/counting section. Nixie-specific electrical ratings and operating data are retained in TUBE_SECTION_PARAMETER.	

ZM1005 is a long-life 10-digit side-viewing indicator, classified as Nixie for this batch. The supplied datasheet provides cold-cathode display ratings, operating conditions, and mechanical/display information.

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
Supply voltage	170 V	Nominal
Continuous anode current	2.5 mA	Max; integration time <=20 ms
Pulse anode current	6–20 mA	Peak range
Pulse duration	25–1500 us	Allowed range
Driven-to-undriven cathode voltage	70–115 V	Recommended range
Anode-to-undriven cathode voltage	—115 V	Absolute maximum
Decimal point series resistor	10 kOhm	+/-10%
Auxiliary electrode resistor	10 MOhm	+/-10%
Ambient temperature	-50–70 degC	Absolute range

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Ignition voltage	170 V	Typical
Extinction voltage	118 V	Typical
Cathode resonance frequency	300–800 Hz	Published range
Life at 10 mA peak current	100000 h	Changing display; 2 mA average
Life at 20 mA peak current	20000 h	Changing display; 2 mA average
Digit height	15 mm	Side-visible decimal digits

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
Character/Numeral Height	14 mm	Published datasheet value
Ignition Voltage Maximum	170 V	Published datasheet value
Cathode/Anode Current Maximum	2.5 mA	Published datasheet value
Peak Anode Current	6 mA	Published datasheet value
Primer Resistor	10 MOhm	Primer supply ≥ 170 V
Pulse Anode Voltage Minimum	170 V	Pulse operation

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply Voltage Minimum	170 V	Published datasheet value
Extinguishing Voltage Minimum	118 V	Published datasheet value
Cathode Selecting Voltage Minimum	70 V	Published datasheet value



SOURCE DATA APPENDIX

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

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage V _b , (pulse) min. 170 V	170 S	Supply voltage V _b , (pulse) min. 170 V

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current, peak Iap min. 6 mA	6 A	Anode current, peak Iap min. 6 mA
The natural frequencies of the numeral cathodes lie within the range from 300 Hz to	300 a	The natural frequencies of the numeral cathodes lie within the range from 300 Hz to
Cathode selecting voltage (see also page 4) Vkk min, 70 V2)	70 a	Cathode selecting voltage (see also page 4) Vkk min, 70 V2)
Cathode resistor, decimal point Rdp 10 k4+10% 3)	3 a	Cathode resistor, decimal point Rdp 10 k4+10% 3)
voltage min, 170 V) Rpr 10 MQ+10%	10 v	voltage min, 170 V) Rpr 10 MQ+10%
Extinguishing voltage Vext min, 118 V	118 s	Extinguishing voltage Vext min, 118 V
Anode voltage necessary for ignition, pulse Vap min, 170 V	170 A	Anode voltage necessary for ignition, pulse Vap min, 170 V
Cathode selecting voltage Vkk min. 70V	70 a	Cathode selecting voltage Vkk min. 70V
Ambient temperature tamp ~ Mmin	4 A	Ambient temperature tamp ~ Mmin. =50 OC 4)
1) Pulse durations down to 10 us are allowed provided the minimum peak anode cur	1 s	1) Pulse durations down to 10 us are allowed provided the minimum peak anode cur-
4) Bulb temperatures below 10 °C result in a reduced life expectancy and changes in	4 a	4) Bulb temperatures below 10 °C result in a reduced life expectancy and changes in

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
The pins may be dip-soldered at a solder temperature of max, 240 °C for maximum	240 s	The pins may be dip-soldered at a solder temperature of max, 240 °C for maximum
Ignition voltage Vign max. 170 V	170 v	Ignition voltage Vign max. 170 V
Maintaining voltage Vm see page 4	4 Ma	Maintaining voltage Vm see page 4
Anode current, average (Tyy	2.5 A	Anode current, average (Tyy = max. 20 ms) Iy max. 2.5 mA

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Anode current, average (Tay	2.5 A	Anode current, average (Tay = 20 ms) Iy max. 2.5 mA
"Off" anode voltage Vanggpr max. 115V	115 a	"Off" anode voltage Vanggpr max. 115V
3) The decimal point cathode may not be operated without extra current limiting re	3 ma	3) The decimal point cathode may not be operated without extra current limiting re-

TUBE TINKER

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