

ELECTRONIC TUBE REFERENCE

ZM1230

Nixie electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION

CONSTRUCTION

NIXIE

Long-life cold-cathode ten-digit side-view numerical indicator with red contrast filter. Manufacturer documentation specifies its glow-discharge ignition and operating behavior and display geometry for direct decimal readout.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	19
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
STARTING VOLTAGE	170 V
MAINTAINING VOLTAGE	115 V
Cold-cathode discharge/display section; explicit published limits and operating data are retained as section parameters.	

Long-life cold-cathode ten-digit side-view Nixie indicator with red contrast filter. The datasheet specifies cold-cathode ignition/operating behavior and display geometry for numerical indication.



SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1969 Nixie Mullard

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

1969 NIXIE MULLARD

Section 1 · Nixie

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Numeral/Character Height	15.5 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	2.5 mA	Published average/normal value



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
Numeral height	15.5 mm	—
Supply voltage minimum	170 V	—
Distance between mounting centres minimum	19 mm	—
Average cathode current maximum	3.5 mA	Each digit; repetition period max 10 ms

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Peak cathode current maximum	12 mA	Each digit
Average cathode current minimum	1.5 mA	During any conduction period
Anode voltage necessary for ignition minimum	170 V	—
Pulse duration minimum	100 μs	—
Bulb temperature range	-50–70 °C	—
Maximum dip-solder temperature	240 °C	At least 5 mm from seals
Maximum dip-solder duration	10 s	At 240 °C

CHARACTERISTICS		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Numerals	1234567890	—
Cathode current recommended	2.5 mA	—
Ignition voltage minimum	170 V	20-50 °C
Cathode current for coverage minimum	1.5 mA	Average during any conduction period
Extinguishing voltage	115 V	—
Life expectancy minimum	5000 h	Continuous display of one numeral at 2.5 mA, room temperature
Life expectancy minimum	30000 h	Display changed to another numeral every 100 h or less; 2.5 mA, room temperature



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	15.5 mm	Numeral height 15.5 mm

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Cathode current	2.5 mA	Cathode current I_k 2.5 mA
Ignition voltage	170 V	Ignition voltage V_{ign} min. 170 V
Ignition delay	3	Ignition delay see page 3
Maintaining voltage	4	Maintaining voltage see page 4
Extinguishing voltage	115	Extinguishing voltage V_{ext} 115V
LIFE EXPECTANCY at [$I = 2.5$ mA and room temperature 1)	1 mA	LIFE EXPECTANCY at [$I = 2.5$ mA and room temperature 1)
Anode voltage necessary for ignition	170	Anode voltage necessary for ignition V_a min. 170 V _v
Pulse duration	100 us	Pulse duration T_{imp} min. 100 us
1) For bulb temperatures below 0°C the life expectancy of the tube is substantially	0 °C	1) For bulb temperatures below 0°C the life expectancy of the tube is substantially

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Supply voltage	170 V	Supply voltage V_p , min. 170 V
temperature of 240°C for a maximum of 10 s.	10 °C	temperature of 240°C for a maximum of 10 s.
Cathode current, recommended	2.5 mA	Cathode current, recommended I 2.5 mA
Bulb temperature	70	Bulb temperature t_{hylb} ~ max. +70 °C
The graphson pages 8, 9 and 12 give the relationship between the anode supply volt-	12	The graphson pages 8, 9 and 12 give the relationship between the anode supply volt-