

# Dieter's

## Nixie Tube Data Archive

This file is a part of Dieter's Nixie- and display tubes data archive

If you have more datasheets, articles, books, pictures or other information about Nixie tubes or other display devices please let me know.

Thank you!

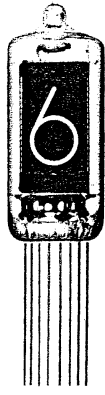
Document in this file	Rodan Catalog ED4907-AA-1
Display devices in this document	CD11, CD12, CD13, CD24, CD25, CD27, CD28, CD43, CD66, CD66P, GR-110, GR-111, GR-111P, GR-116D, GR-116P, GR-211, GR-311, GR-414, MG-137, MG-157, MG-17G, SK-116, SK-136, SK-207, TSB-12P, TSB-13P, TSB-14P, TSM-11P, TSM-13P, TSR-11P



+ - × ÷ 1234567890 KC KV KΩ 1234567890 % °C PI  
 567890 % °C PH + - × ÷ 1234567890 KC KV KΩ 1234  
 KC KV KΩ 1234567890 % °C PH + - × ÷ 1234567890  
 + - × ÷ 1234567890 KC KV KΩ 1234567890 % °C PI  
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 KC KV KΩ 1234567890 % °C PH + - × ÷ 1234567890  
 + - × ÷ 1234567890 KC KV KΩ 1234567890 % °C P  
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 + - × ÷ 1234567890 KC KV KΩ 1234567890 % °C P  
 567890 % °C PH + - × ÷ 1234567890 KC KV KΩ 123  
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CD66  
CD66P



GR-111  
GR-111P



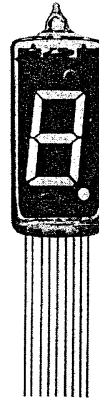
GR-116D  
GR-116P



MG-17G



MG-137



MG-157



CD28



CD25



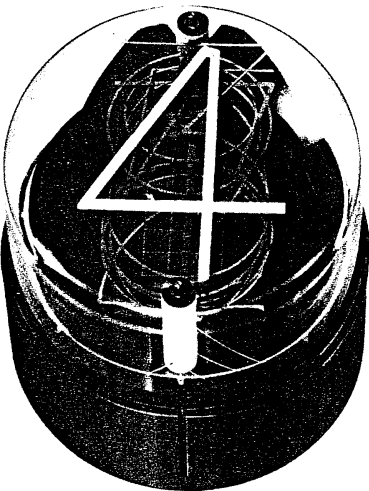
CD13



CD12



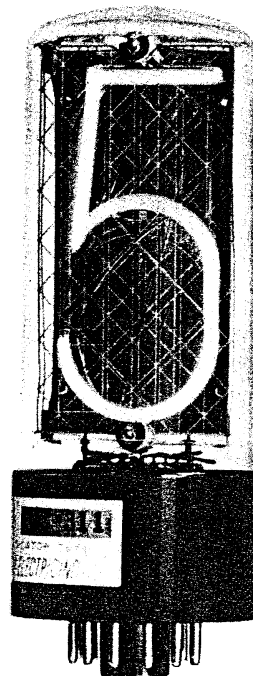
CD24



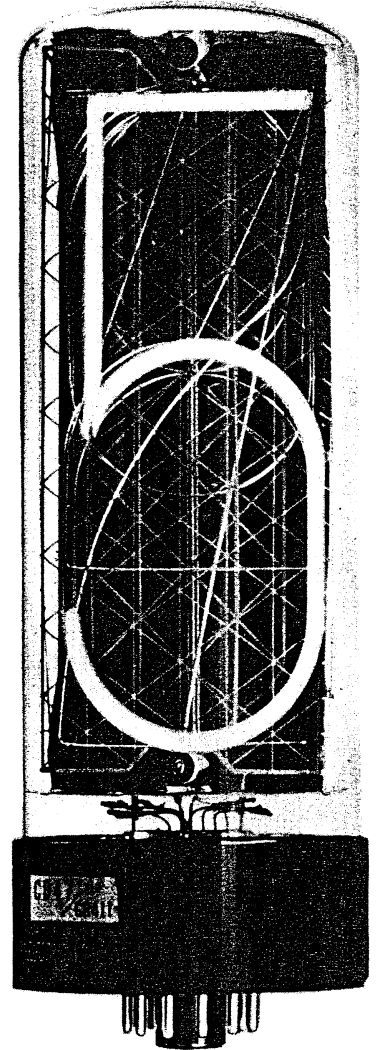
CD27



CD11



GR-311



GR-414



GR-211



(DC OPERATION)			(PULSE OPERATION)			
GR-414	GR-211	GR-311	GR-110	GR-116p	GR-111p	CD66P
TSB - 12P	TSB - 14P	TSB - 12P				
0 ~ 9	0 ~ 9	0 ~ 9	0 ~ 9 Decimal Point	0 ~ 9 Decimal Point Left • Right	0 ~ 9 Decimal Point	0 ~ 9 Decimal Point
MIN. ST. MAX. 250 — — — — 200 17.5 25 32.5 (Ebb = 250Vdc, Rp = 5.1kΩ) — — 5	MIN. ST. MAX. 200 — — — — 170 3.5 5 6.5 (Ebb = 200Vdc, Rp = 12kΩ) — — 1	MIN. ST. MAX. 200 — — — — 170 12 15 18 (Ebb = 21.5Vdc, Rp = 5kΩ) — — 2.5	MIN. ST. MAX. 190 — — — — 170 5 (duty $\frac{1}{10}$ Ebb = 190Vdc, Rp = 6.8kΩ) 0.9 — — 0.3 — — 0.1	MIN. ST. MAX. 175 — — — — 170 14 (duty $\frac{1}{20}$ Ebb = 200Vdc, Rp = 2.5kΩ) 4 — — 0.45 — — 0.1	MIN. ST. MAX. 190 — — — — 170 5.5 (duty $\frac{1}{10}$ Ebb = 190Vdc, Rp = 5kΩ) 0.9 — — 0.45 — — 0.1	MIN. ST. MAX. 190 — — — — 190 15 (duty $\frac{1}{10}$ Ebb = 190Vdc, Rp = 2kΩ) 3 — — 0.5 — — 0.1
— — 35	— — 10	— — 18	2.4 ~ 8	11 ~ 17	3 ~ 8	9 ~ 20
17.5 ~ 32.5	3.5 ~ 6.5	10.0 ~ 18.0	0.4 ~ 2	1 ~ 6	0.7 ~ 1.5	1 ~ 6
—65 ~ +70	—65 ~ +70	—65 ~ +70	0.25 ~ 0.8	0.5 ~ 1.9	0.3 ~ 0.8	1 ~ 2
—10 ~ +55	—10 ~ +55	—10 ~ +55	0.04 ~ 0.2	0.05 ~ 0.6	0.07 ~ 0.15	0.1 ~ 0.5
—65 ~ +70	—65 ~ +70	—65 ~ +70	—65 ~ +70	—65 ~ +70	—65 ~ +70	—65 ~ +70
—10 ~ +55	—10 ~ +55	—10 ~ +55	—10 ~ +55	—10 ~ +55	—10 ~ +55	—10 ~ +55
120 230	120 35	120 125	90 2.3	100 4 (INCL. STAND-OFF)	100 7	100 9
250 300 Rp 5.1 6.8	200 250 300 Rp 12 22 32	200 250 300 Rp 4.3 7.5 11	190 200 230 Rk 6.8 9.1 15 36 47 82 0.05 ~ 0.5	200 235 Rp 2.5 5	190 200 250 300 Rp 5 7 18 27	190 200 250 Rp 2 2.7 7.4

# (DC OPERATION)

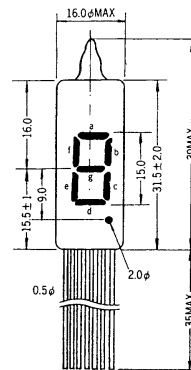
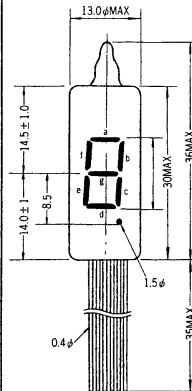
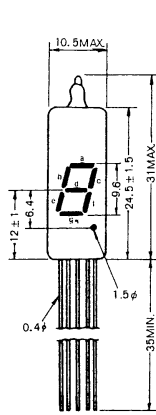
## REFERENCE NUMBER (7 Segment)

**MG-17G**

**MG-137**

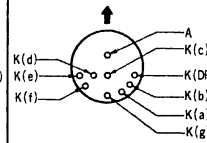
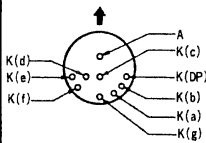
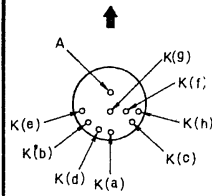
**MG-157**

## Outline Drawing



## Pin Connections

A : ANODE  
K : CATHODE  
I.C : INTER CONNECTION  
NP : NO PIN  
NC : NO CONNECTION



## Socket

## Construction

## ELECTRICAL SPECIFICATIONS

Supply Voltage (Vdc) Ebb  
Ionization Voltage (Vdc) Ez  
Cathode Current (mA<sub>dc</sub>)  
Numerical Cathode ik  
Decimal Point ik(·)

MIN.	ST.	MAX.
180		
		160
0.28	0.35	0.42
0.14	0.18	0.22

MIN.	ST.	MAX.
170		
		170
0.35	0.45	0.55
0.08	0.10	0.12

MIN.	ST.	MAX.
170		
		170
0.4	0.6	0.8
0.1	0.15	0.2

## ABSOLUTE RATINGS

Peak Cathode Current(mA<sub>dc</sub>)  
Numerical Cathode ik  
Decimal Point ik(·)  
Range of Average Cathode  
Current (mA<sub>dc</sub>)  
Numerical Cathode  
Decimal Point  
Ambient Temperature (for  
storage) Ts (deg C)  
Operating Ambient Tempera-  
ture Tc (deg C)

1.6		
0.6		
0.2	~	0.6
0.1	~	0.4
-65	~	+70
-10	~	+60

0.6		
0.15		
0.3	~	0.6
0.07	~	0.15
-65	~	+70
-10	~	+60

1.0		
0.3		
0.3	~	1.0
0.07	~	0.3
+65	~	+70
+10	~	+60

## MECHANICAL DATA

Maximum Viewing Angle (deg)  
(approx)  
Weight (g)  
(approx)

120
3

120
4

120
6

## TYPICAL OPERATING CONDITIONS

Supply Voltage (Vdc)  
Anode Series Resistor (KΩ)  
Decimal Point Series Resistor (KΩ)

180	200	250	300
110	160	300	430
240	330	620	910

170	190	210
62	100	130
240	360	510

170	190	210
62	110	150
270	470	680

# (PULSE OPERATION)

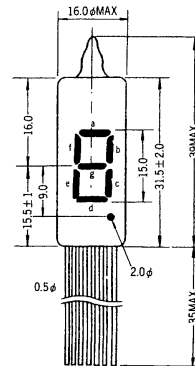
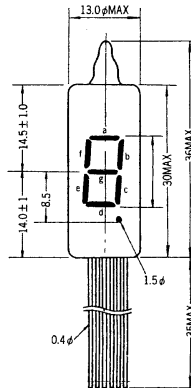
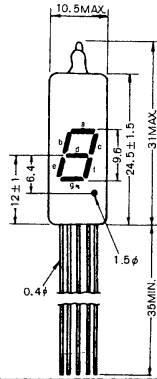
## REFERENCE NUMBER (7 Segment)

**MG-17G**

**MG-137**

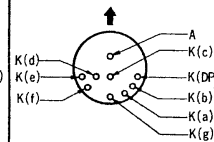
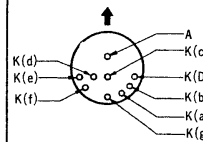
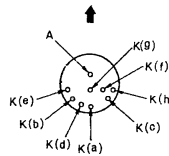
**MG-157**

## Outline Drawing



## Pin Connections

A : ANODE  
K : CATHODE  
IC : INTER CONNECTION  
NP : NO PIN  
NC : NO CONNECTION



## Socket

## Construction

### ELECTRICAL SPECIFICATIONS

Supply Voltage (Vdc) Ebb  
Ionization Voltage (Vdc) Ez  
Cathode Current (mA dc) ik  
Numerical Cathode ik  
Decimal Point ik(·)

MIN. ST. MAX.  
190  
170  
1.2 mA  
0.4 mA  
(duty 1/10 Ebb = 200 vdc  
Rk = 43 kΩ Rk(·) = 120 kΩ)

MIN. ST. MAX.  
180  
180  
2 mA  
0.5 mA  
(duty 1/10 Ebb = 200 vdc  
Rk = 30 kΩ Rk(·) = 120 kΩ)

MIN. ST. MAX.  
180  
180  
1.75 mA  
0.6 mA  
(duty 1/10 Ebb = 280 kΩ  
Rk = 36 kΩ Rk(·) = 100 kΩ)

### ABSOLUTE RATINGS

Peak Cathode Current (mA dc) ik  
Numerical Cathode ik  
Decimal Point ik(·)  
Range of Average Cathode Current (mA dc) ik  
Numerical Cathode  
Decimal Point  
Ambient Temperature (for storage) Ts (deg C)  
Operating Ambient Temperature Tc (deg C)

1 ~ 4  
0.4 ~ 1.5  
0.04 ~ 0.6  
0.02 ~ 0.4  
50 ~ 300  
-65 ~ +70  
-10 ~ +60

1 ~ 4  
0.35 ~ 1.0  
0.04 ~ 0.6  
0.02 ~ 0.4  
50 ~ 500  
-65 ~ +70  
-10 ~ +60

1.0 ~ 4.0  
0.35 ~ 1.0  
0.1 ~ 0.6  
0.04 ~ 0.15  
50 ~ 500  
-65 ~ +70  
-10 ~ +55

### MECHANICAL DATA

Maximum Viewing Angle (deg) (approx)  
Weight (g) (approx)

120  
3

120  
4

120  
6

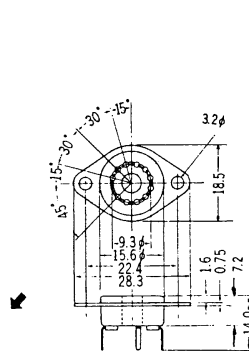
### TYPICAL OPERATING CONDITIONS

Supply Voltage (Vdc)  
Anode Series Resistor (KΩ)  
Decimal Point Series Resistor (KΩ)  
Pulse Duration (mS)

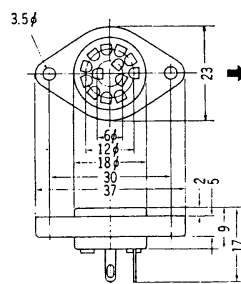
190 200 250  
36 43 82  
90 120 240

180 200 220  
20 30 40  
82 120 150

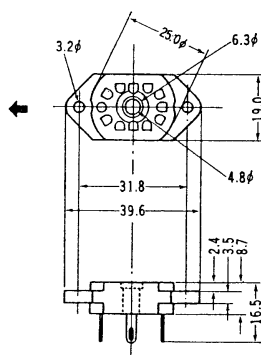
180 200 220  
24 36 47  
68 100 120



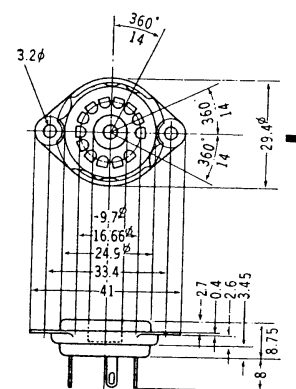
**TSM-11P**  
CD 13



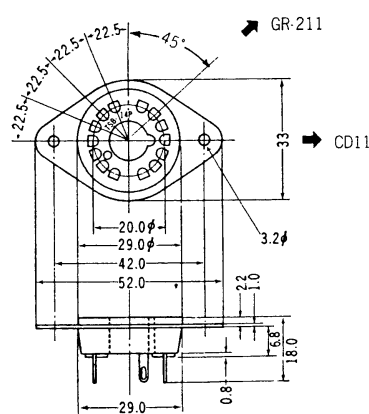
**TSM-13P**  
CD 28



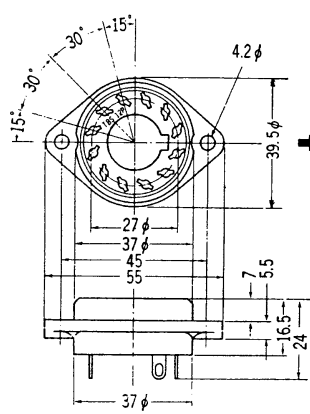
**TSR-11P**  
CD 25, CD 43



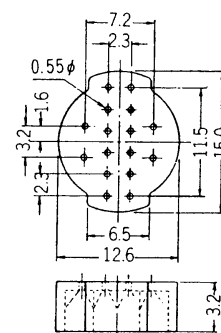
**TSB-13P**  
CD 24



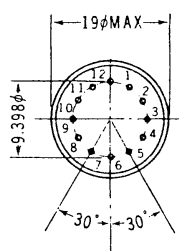
**TSB-14P**  
CD11, GR-211



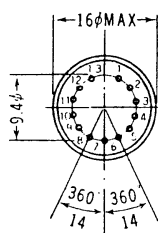
**TSB-12P**  
CD12, CD27, GR-414, GR-311



**GR-116D**  
**GR-116P**



**CD 66**  
CD 66p



**GR-111**  
**GR-111p**



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