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!

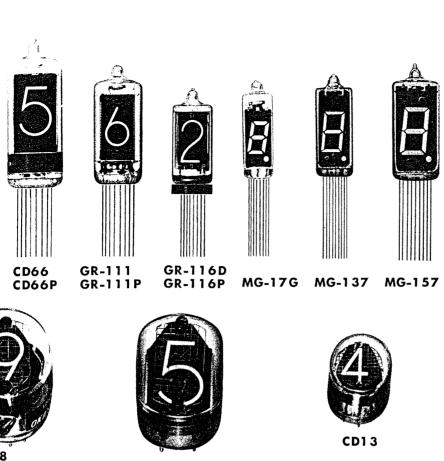
Document in this file	Rodan Catalog ED4907-AA-1
Display devices in	CD11, CD12, CD13, CD24, CD25, CD27, CD28, CD43, CD66, CD66P,
	GR-110, GR-111, GR-111P, GR-116D, GR-116P, GR-211, GR-311,
	GR-414, MG-137, MG-157, MG-17G, SK-116, SK-136, SK-207, TSB-
	12P, TSB-13P, TSB-14P, TSM-11P, TSM-13P, TSR-11P

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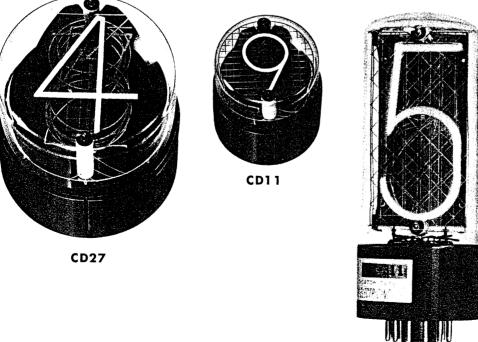


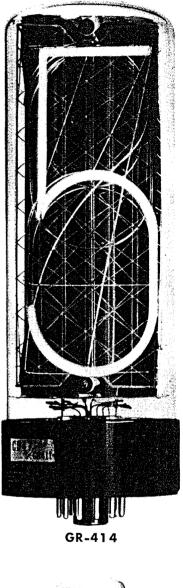
INDICATOR TUBE

 $+-\times\div$ 1234567890 KC KV K Ω 1234567890 % $^{\circ}$ C PI 567890 % $^{\circ}$ C PH $+-\times\div$ 1234567890 KC KV K Ω 1234 KC KV K Ω 1234567890 % $^{\circ}$ C PH $+-\times\div$ 1234567890 $+-\times\div$ 1234567890 KC KV K Ω 1234567890 % $^{\circ}$ C PI 567890 % $^{\circ}$ C PH $+-\times \div 1234567890$ KC KV K Ω 123 KC KV K Ω 1234567890 % $^{\circ}$ C PH $+-\times\div$ 123456789 $+-\times\div$ 1234567890 KC KV K Ω 1234567890 % $^{\circ}$ C P 567890 % $^{\circ}$ C PH $+-\times\div$ 1234567890 KC KV K Ω 123 KC KV K Ω 1234567890 % $^{\circ}$ C PH $+-\times\div$ 123456789 $+ - \times \div$ 1234567890 KCKV KΩ1234567890 % $^{\circ}$ C P 56/890 % $^{\circ}$ C PH + $-\times\div$ 1234567890 KC KV KΩ 123 KC KV K Ω 1234567890 % $^{\circ}$ C PH $+-\times\div$ 123456789 $+-\times\div$ 1234567890 KC KV K Ω 1234567890 % $^{\circ}$ C P 567890 % $^{\circ}$ C PH $+-\times\div$ 1234567890 KC KV K Ω 123 KC KV K Ω 1234567890 % $^{\circ}$ C PH $+-\times\div$ 123456789 $+ - \times \div 1234567890$ KC KV K $\Omega 1234567890$ % C P 567890 % $^{\circ}$ C PH + $-\times$ ÷ 1234567890 KC KV K Ω 123 KC KV K Ω 1234567890 % $^{\circ}$ C PH + $-\times$ ÷ 123456789











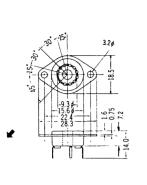
GR-311

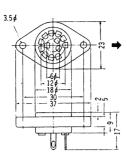
			TO	P. VIEW	7 TYPE	(DC O	PERAT	ON)			SIDEV	IEW T	/PE
	REFERENCE NUMBER	CD11	CD12	CD13	CD24	CD25	CD27	CD28	CD43	GR-110	GR-116D	GR-111	CD66
Outline Drawing		-30 ¢MAX	51 ¢MAX — \$10 ¢ MAX — \$10 ¢ MA	2112- -238MXX, 88 - 16.5 \$\text{\$\text{\$\delta}\$} \text{\$\delta\$} \$\delt	-91- -27.5¢MAX	25 + 2	72.¢MAX XW988	23 ± 3 ± 3 ± 3 ± 3 ± 3 ± 3 ± 3 ± 3 ± 3 ±	23 ± 1.5 — 27.5MAX — 27.5MAX	11.81.1 10.5.2 AMIE 11.5 ANIM.EE 11.5 ANIM.E	13.5 ¢MAX 28 5 1.27 ¢ NIW05 0.4 ¢	78 MAXX X X X X X X X X X X X X X X X X X	33MIN MAX.
Pin Connections A: ANODE K: CATHODE 1C: INTER CONNECTION NP: NO PIN NC: NO CONNECTION		K(8) K(9) IC K(0) K(7) (6) (7) (7) (8) (7) (8) (8) (8) (8) (8) (8) (8) (8) (8) (8	K(5) K(6) K(7) K(8) (3) (3) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	K(5) K(K(7) K(8) K(4) (4) (5) (6) (7) K(8) K(3) (3) (5) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6	K(7) K(6) IC K(5) (5) (6) (6) (7) (8) (7) (8) (7) (8) (8) (8) (8) (8) (8) (8) (8) (8) (8	K(8) (3) (4) K(9) (3) (4) K(0) (3) (4) K(1) (1)	K(6) (3) (8) (8) (8) (8) (9) (9) (8) (9) (10) (10) (10) (10) (10) (10) (10) (10	K(5) 6 K(6) K(4) 6 7 K(7) K(3) 6 7 K(8) K(2) 2 9 9 K(9) K(1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	K(6) (5) K(6) (7) (8) (7) (8) (7) (8) (7) (8) (7) (8) (7) (8) (8) (8) (8) (8) (8) (8) (8) (8) (8	K(6) (1) NP K(5) (1) (2) (3) (7) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	K(1)(6) K(1)(6) K(1)(6) K(1)(6) K(1)(6) K(1)(6) K(1)(6) K(1)(6) K(1) K(1) K(1) K(1) K(1) K(1) K(1) K(1	K(0) A K(1) K(9) O O O K(2) K(8) O O O K(4) K(-) O O O K(4) K(-) O O K(5) K(7)	K(5) (6) K(7) K(4) (4) (5) (8) K(8) K(3) (5) (6) (9) (9) K(2) (7) (8) K(9) K(1) (8) (9) (9) K(1) (8) (9)
	Socket	TSB — 14P	TSB — 12P	TSM — 11P	TSB — 13P	TSR — 11P	TSB — 12P	TSM — 13P	TSR — 11P				
	Construction	0~9	0~9	0~9	0~9	0~9	0~9	0~9	0~9	0~9 Decimal Point	0∼9 Decimal Point Left•Right	0∼9 Decimal Point	0∼9 Decimal Point
ELECTRICAL SPECIFICATIONS	Supply Voltage (Vdc) Ebb Ionization Voltage (Vdc) Ez Cathode Current (mAdc) Numerical Cathode ik Decimal Point ik(·) Average Each Cathode Power Dissipation (w) Numerical Cathode Pk Decimal Point Pk(·)	MIN. ST. MAX. 170 — — 170 1.5 2.5 3.5 (Ebb=170Vdc, Rp= 10 k Ω) — — 0.5	MIN. ST. MAX. 200 — — — — 170 3.5 5.0 6.5 (Ebb-200Vdc, Pp-12kΩ) — — 1	MIN. ST. MAX. 170 — — — 170 0.6 0.9 1.2 (Ebb-170Vdc, Pp-33kΩ) — — 0.2	MIN. ST. MAX. 170 — — — 170 1.5 2.25 3.0 (Ebb=170Vdc, Rp=10kΩ) — — 0.5	MIN. ST. MAX. 170 - 170 1.5 2.5 3.5 (Ebb=170Vdc. Rp=10kΩ) 0.5	200 170 7.5 10 12.5	MIN. ST. MAX. 170 — — — 170 1.0 1.8 2.5 (Ebb-170Vdc. Rp-15kΩ) — — 0.4	MIN. ST. MAX. 170 — — — 170 1.5 2.25 3.0 (Ebb=170Vdc. Rp=10kΩ) — — 0.5	MIN. ST. MAX. 170 — — 170 1.2 1.9 2.6 (Ebb-190Vdc, Rk-27kΩ) 0.15 0.3 0.5 (Ebb-190Vdc Rk(-)-180kΩ) — — 0.5 — — 0.1	MIN. ST. MAX. 175 — — 170 2.2 3 3.8 (Ebb-180Vdc, Rk-15kΩ) 0.2 0.4 0.6 (Ebb-180Vdc RK(-)-100kΩ) — — 0.5 — — 0.1	MIN. ST. MAX. 170 — — 170 1.5 2.25 3.0 (Ebb=190Vdc, Rp-20kΩ) — 0.4 — — 0.5 — 0.1	MIN. ST. MAX. 170 170 1.5 2.25 3.0 (Ebb-170Vdc, Rp-12kΩ) 0.3 0.5 0.7 (Ebb-170Vdc RK(·)-50kΩ) - 0.5 - 0.1
ABSOLUTE RATINGS	Peak Cathode Current(mAdc) Numerical Cathode ik Decimal Point ik(·) Range of Average Cathode Current (mAdc) Numerical Cathode Decimal Point Ambient Temperature (for storage) Ts (deg C) Operating Ambient Tempera- ture Tc (deg C)	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ -$ 10 3.5 \sim 6.5 $-$ 65 \sim +70 $-$ 10 \sim +55	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{rcl} - & - & 3.5 \\ 1.5 & \sim & 3.0 \\ -65 & \sim & +70 \\ -10 & \sim & +55 \end{array} $	$ 3.0 $ $ 0.8 $ $ 1.2 \sim 2.6 $ $ 0.15 \sim 0.5 $ $ -65 \sim +70 $ $ -10 \sim +55 $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
MECHANICAL DATA	Maximum Viewing Angle (deg) (approx) Weight (g) (approx)	160 25	160 75	160 4	160 12	160	160 130	160	160 10	90 2.3	100 4 (INCL. STAND-OFF)	100 7	100
TYPICAL OPERATING CONDITIONS	Supply Voltage (Vdc) Anode Series Resistor (K Ω) Decimal Point Series Resistor (K Ω) Pulse Duration (mS)	170 200 250 300 10 22 42 62	200 250 300 12 22 32	170 200 250 300 33 65 120 180	170 200 250 300 10 24 47 68	170 200 250 300 10 22 43 62	200 250 300 5 10 15	170 200 250 300 15 35 65 100	170 200 250 300 10 24 47 68	190 200 230 Rk27 33 47 180 200 300	180 200 Rk 15 20 100 150	190 200 250 300 Rp20 24 47 68	190 200 250 300 Rk20 24 47 68 91 110 200 300

(DG C	ion)	(PU	LSE OF	PERATIO	ON)		
GR-414	GR-211	GR-311	GR-110	GR-116p	GR-111p	CD66P	
72 \$\phi MAX \rightarrow \frac{1}{2} \frac	30¢MAX = 31 + F = 32MAX - 32MA	-51 dWWX	10.5¢MAX \$11+811 1.5¢ 1.5¢	13.5¢MAX XW92E 1.27¢ NW099 0.4¢	16 mAX 16 mAX 18 max 18 max 18 max 18 max 18 max 18 max 19 max 10 max	119 mMAX - 122 5 22 5 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
K(5) (5) (7) K(8) K(4) (4) (4) (5) (6) (7) (7) (8) K(3) (3) (4) (6) (7) (7) (8) K(1) (4) (7) (8) (8)	K(8) G K(0) K(8) G G G G G K(7) G G G G G K(6) G G G G G K(6) G G G G G K(4) G G G G K(2) G G G G K(3)	K(6) 6 7 K(8) K(5) 3 6 3 (9) K(4) 4 6 10 10 NC K(2) 2 1 10 NC K(1) 4	K(5)(1) NP K(5)(2) (3) K(7) (4)(4) (4) (4) (4) (5) (6) (7) (6) (7) (8) (7) (8) (9) (8) (9) (8) (1) (1) (1) (1) (8) (1) (1) (1) (1) (1) (1) (8) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	(i) K(6) K(7)(i) (ii) (iii) (i	K(9) A K(1) K(9) B O K(2) K(8) C O O O K(4) K(-2) C O O O K(5) K(7) K(6)	K(5) (5) (7) (7) (8) (K(7) (8) (K(8) (8) (8) (8) (8) (8) (8) (8) (8) (8)	
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 — —	MIN. ST. MAX. 200 — —	MIN. ST. MAX. 200	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	
200 17.5 25 32.5 (Ebb-250Vdc, Rp=5.1kΩ)	170 3.5 5 6.5 (Ebb-200Vdc, Rp-12kΩ)	170 12 15 18 (Ebb-215Vdc, Rp-5kΩ)	$- 170$ 5 (duty $\frac{1}{10}$ Rp=6.8k Ω)	-	-	- 190 15 (duty $\frac{1}{10} \frac{\text{Ebb} - 190^{\text{Vdc}}}{\text{Rp} - 2k\Omega}$)	
5	1	2.5	0.9 0.3 0.1	0.45 0.1	0.9 0.45 0.1	0.5 0.1	
35	10	18	2.4 ~ 8 0.4 ~ 2	11 ~ 17 1 ~ 6	3 ~ 8 0.7 ~ 1.5	9 ~ 20 1 ~ 6	
17.5 ~ 32.5	3.5 ~ 6.5	10.0 ~ 18.0	0.25 ~ 0.8 0.04 ~ 0.2	0.5 \sim 1.9 0.05 \sim 0.6	0.3 ~ 0.8 0.07 ~ 0.15	1 ~ 2 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 Rp4.3 7.5 11	190 200 230 Rk6,8 9.1 15 36 47 82 0.05 ~ 0.5	200 235 Rp 2.5 5 0.05 ~ 0.5	190 200 250 300 Rp5 7 18 27 0.05 ~ 0.5	190 200 250 Rp 2 2.7 7.4 0.05 ~ 0.5	

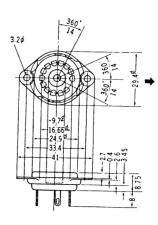
		(DC)	OPERA1	ILON)		
	REFERENCE NUMBER (7 Segment)	MG-17G	MG-137	MG-157		
	Outline Drawing	10.5MAX, 10.5MA	13.0¢MAX 13.0¢MAX 13.0¢MAX 13.0¢MAX 13.0¢MAX	33.5MAX 33.6MAX		
	Pin Connections A: ANODE K: CATHODE I.C: INTER CONNECTION NP: NO PIN NC: NO CONNECTION	A K(g) K(f) K(b) K(d) K(a)	K(g) K(e) K(p) K(g) K(g)	K(d)		
Socket						
	Construction					
ELECTRICAL SPECIFICATIONS	Supply Voltage (Vdc) Ebb Ionization Voltage (Vdc) Ez Cathode Current (mAdc) 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(mAdc) Numerical Cathode ik Decimal Point ik(·) Range of Average Cathode Current (mAdc) Numerical Cathode Decimal Point Ambient Temperature (for storage) Ts (deg C) Operating Ambient Tempera- ture Tc (deg C)	$ \begin{array}{ccccccccccccccccccccccccccccccccccc$	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	120 6		
TYPICAL OPERATING CONDITIONS	Supply Voltage (Vdc) Anode Series Resistor (K Ω) Decimal Point Series Resistor (K Ω)	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		

*		(P	U	LSE	O	Pl	ER/	AT.	0	N)
	REFERENCE NUMBER (7 Segment)	MG) – 1	7G	MG) – 1	37	MC) -1	57
	Outline Drawing	12±1 + 12±1 + 64+	10.5MAX	39MIN. 2-6-45-11-5	0.44	13.0¢MAX	39MX/	155±116.0	16.0 ¢MAX	35MX 33MX
Pin Connections A: ANODE K: CATHODE IC: INTER CONNECTION NP: NO PIN NC: NO CONNECTION			(d) K(a)	K(9) K(f) K(h)	K(d) K(e) K(f)	1	A K(c) K(DP) K(b) K(a) K(g)	K(d)————————————————————————————————————	1	A K(c) K(DP) K(b) K(a) K(g)
	Socket									
	Construction									
ELECTRICAL SPECIFICATIONS	Supply Voltage (Vdc) Ebb Ionization Voltage (Vdc) Ez Cathode Current (mAdc) Numerical Cathode ik Decimal Point ik(+)	190 (duty ¼	Ebb = 20	MAX. 170 1.2mA 0.4mA 0vdc 0=120kΩ)	180 (duty 1/ ₆ E	Ebb=200	MAX. 180 2mA 0.5mA 0vdc =120kΩ)	MIN. 180 (duty 1/4) Rk = 36k	Ebb=28	MAX. 180 1.75mA 0.6mA 0kΩ =100kΩ)
ABSOLUTE RATINGS	Peak Cathode Current(mAdc) Numerical Cathode ik Decimal Point ik(·) Range of Average Cathode Current (mAdc) Numerical Cathode Decimal Point Ambient Temperature (for storage) Ts (deg C) Operating Ambient Tempera- ture Tc (deg C)	1 0.4 0.04 0.02 50 -65	~ ~ ~ ~ ~ ~ ~ ~ ~ ~	4 1.5 0.6 0.4 300 +70 +60	1 0.35 0.04 0.02 50 -65	~ ~ ~ ~ ~ ~ ~	4 1.0 0.6 0.4 500 +70 +60	1.0 0.35 0.1 0.04 50 -65	~ ~ ~ ~ ~ ~ ~ ~	4.0 1.0 0.6 0.15 500 +70 +55
MECHANICAL DATA	Maximum Viewing Angle (deg) (approx) (g) (approx)		120			120			120	
TYPICAL OPERATING CONDITIONS	Supply Voltage (Vdc) Anode Series Resistor (K Ω) Decimal Point Series Resistor (K Ω) Pulse Duration (mS)	190 36 90	200 43 120	250 82 240	180 20 82	200 30 120	220 40 150	180 24 68	200 36 100	220 47 120





-31.8

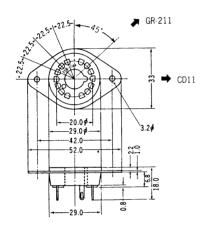


TSM-11P CD 13

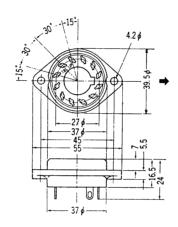
TSM-13P CD 28

TSR-11P CD 25, CD 43

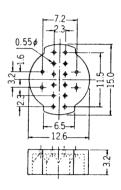
TSB-13P CD 24



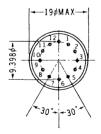
TSB-14P CD11, GR-211



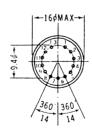
TSB-12P CD12.CD27 · GR-414 GR-311



GR-116D GR-116P



CD 66 CD 66p



GR-111 GR-111p



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