RODAN

INDICATOR TUBE

廃止
年月日 '95. 2. 16
担当 営業推進部

-−×÷1234567890 KC KV KΩ1234567890 % °C PH

567890 % °C PH +−×÷1234567890 KC KV KΩ1234

KC KV KΩ1234567890 % °C PH +−×÷1234567890

-−×÷1234567890 KC KV KΩ1234567890 % °C PH

567890 % °C PH +−×÷1234567890 KC KV KΩ1234

KC KV KΩ1234567890 % °C PH +−×÷1234567890

+−×÷1234567890 KC KV KΩ1234567890 % °C PH

567890 % °C PH +−×÷1234567890 KC KV KΩ1234

KC KV KΩ1234567890 % °C PH +−×÷1234567890

+−×÷1234567890 KCKV KΩ1234567890 % °C PH

567890 % °C PH +−×÷1234567890 KC KV KΩ1234

KC KV KΩ1234567890 % °C PH +−×÷1234567890

+−×÷1234567890 KC KV KΩ1234567890 % °C PH

567890 % °C PH +−×÷1234567890 KC KV KΩ1234

KC KV KΩ1234567890 % °C PH +−×÷1234567890

+−×÷1234567890 KC KV KΩ1234567890 % °C PH

567890 % °C PH +−×÷1234567890 KC KV KΩ1234

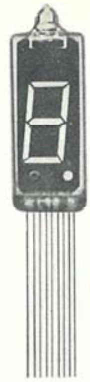
KC KV KΩ1234567890 % °C PH +−×÷1234567890

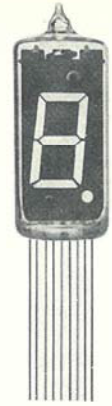

CD66D
CD66P


GR-111
GR-111P


GR-116D
GR-116P


MG-17G

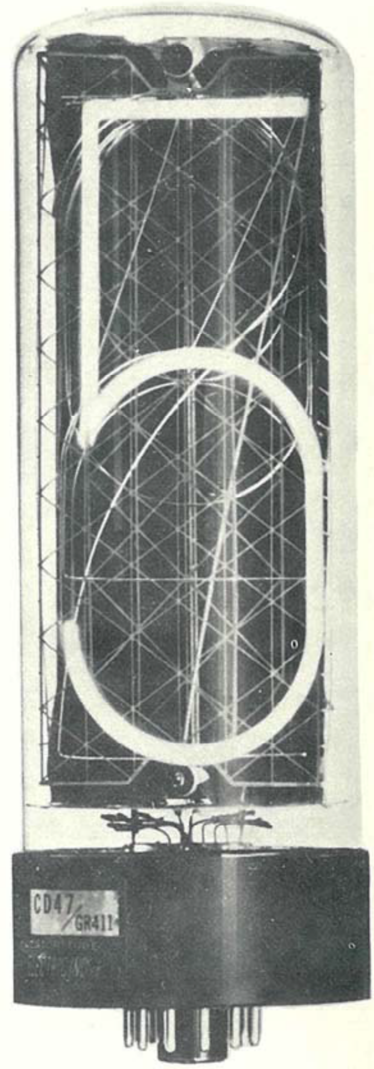

MG-137


MG-157

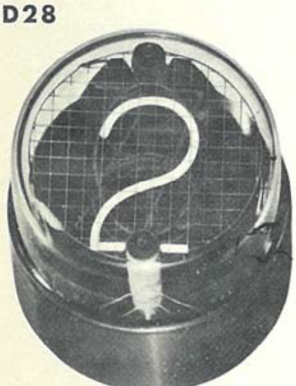

CD28


CD25


CD13



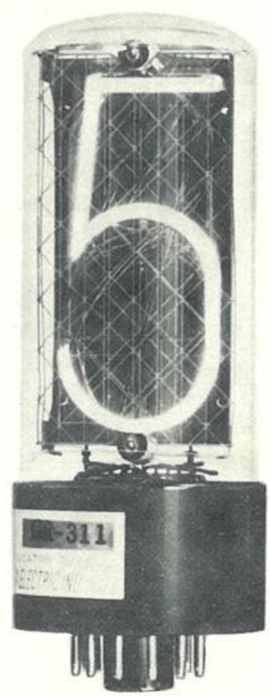
GR-414


CD12


CD24

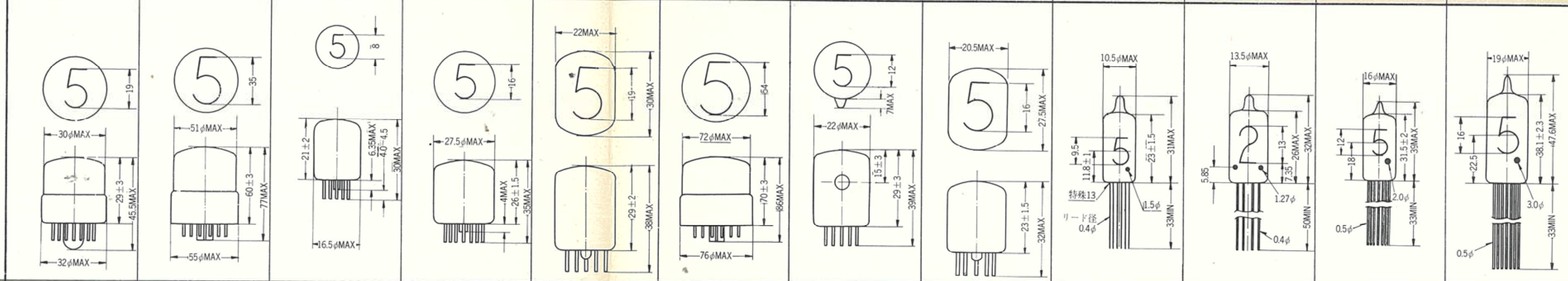
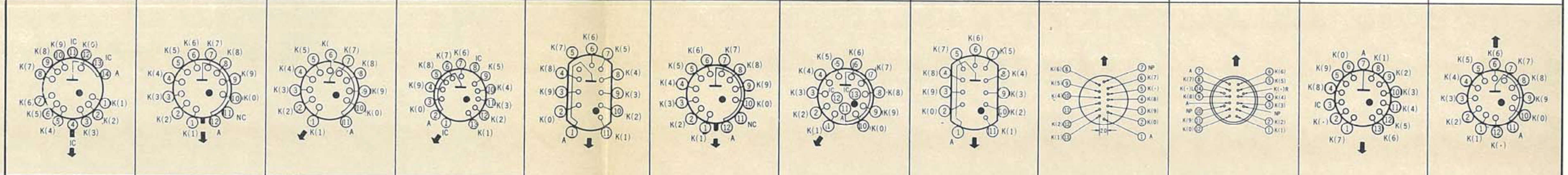

CD27

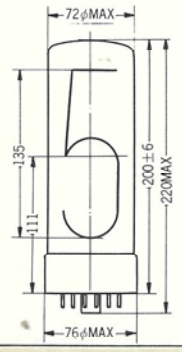
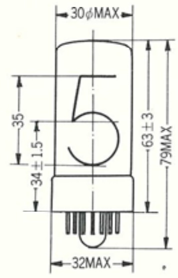
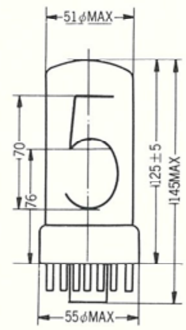
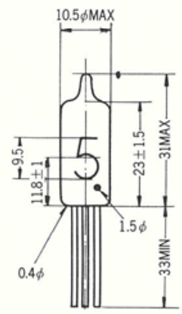
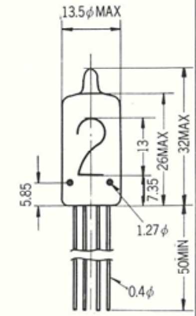
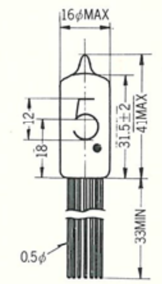
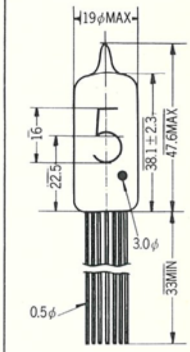
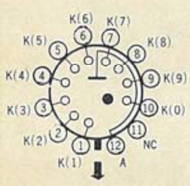
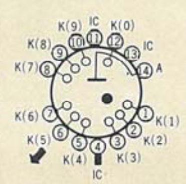
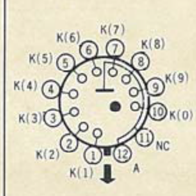
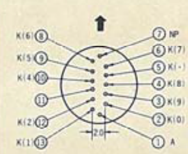
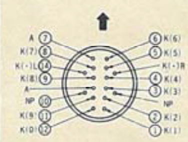
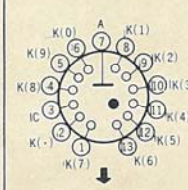
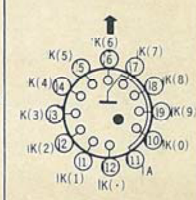

CD11



GR-311


GR-211

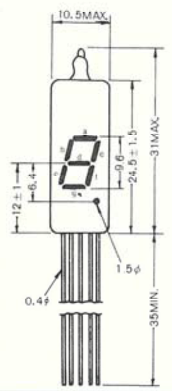
	TOP VIEW TYPE (DC OPERATION)								SIDE VIEW TYPE			
REFERENCE NUMBER	**CD11**	**CD12**	**CD13**	**CD24**	**CD25**	**CD27**	**CD28**	**CD43**	**GR-110**	**GR-116D**	**GR-111**	**CD66**
Outline Drawing												
Pin Connections A : ANODE K : CATHODE I C : INTER CONNECTION NP : NO PIN NC : NO CONNECTION												
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	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.
Supply Voltage (Vdc) Ebb	170 — —	200 — —	170 — —	170 — —	170 — —	200 — —	170 — —	170 — —	170 — —	175 — —	170 — —	170 — —
Ionization Voltage (Vdc) Ez	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170	— — 170
Cathode Current (mAdc) Numerical Cathode ik Decimal Point ik(·)	1.5 2.5 3.5 (Ebb−170Vdc, Rp− 10kΩ)	3.5 5.0 6.5 (Ebb−200Vdc, Pp−12kΩ)	0.6 0.9 1.2 (Ebb−170Vdc, Pp−33kΩ)	1.5 2.25 3.0 (Ebb−170Vdc, Rp−10kΩ)	1.5 2.5 3.5 (Ebb−170Vdc, Rp−10kΩ)	7.5 10 12.5 (Ebb−200Vdc, Rp−5kΩ)	1.0 1.8 2.5 (Ebb−170Vdc, Rp−15kΩ)	1.5 2.25 3.0 (Ebb−170Vdc, Rp−10kΩ)	1.2 1.9 2.6 (Ebb−190Vdc, Rk−27kΩ) 0.15 0.3 0.5 (Ebb−190Vdc Rk(·)−180kΩ)	2.2 3 3.8 (Ebb−180Vdc, Rk−15kΩ) 0.2 0.4 0.6 (Ebb−180Vdc RK(·)−100kΩ)	1.5 2.25 3.0 (Ebb−190Vdc, Rp−20kΩ) — 0.4 —	1.5 2.25 3.0 (Ebb−170Vdc, Rp−12kΩ) 0.3 0.5 0.7 (Ebb−170Vdc RK(·)−50kΩ)
Avarege Each Cathode Power Dissipation (w) Numerical Cathode Pk Decimal Point Pk(·)	— — 0.5	— — 1	— — 0.2	— — 0.5	— — 0.5	— — 2	— — 0.4	— — 0.5	— — 0.5 — — 0.1	— — 0.5 — — 0.1	— — 0.5 — — 0.1	— — 0.5 — — 0.1
ABSOLUTE RATINGS												
Peak Cathode Current(mAdc) Numerical Cathode ik Decimal Point ik(·)	— — 4.0	— — 10	— — 1.5	— — 3.5	— — 4.0	— — 12.5	— — 3	— — 3.5	3.0 0.8	4 1.3	— — 3.5 — — 1.0	— — 3.5 — - 1.0
Range of Avarege Cathode Current (mAdc) Numemerical cathode Decimal Point	1.5 ~ 3.5	3.5 ~ 6.5	0.6 ~ 1.2	1.5 3.0	1.5 ~ 3.5	7.5 ~ 12.5	1.0 ~ 2.5	1.5 ~ 3.0	1.2 ~ 2.6 0.15 ~ 0.5	2.2 ~ 3.8 0.2 ~ 0.6	1.5 ~ 3.0 0.2 ~ 0.6	1.5 ~ 3.0 0.3 ~ 0.7
Ambient Temperature (for storage) Ts (deg C)	−65 ~ +70	−65 ~ +70	−65 ~ +7 0	−65 ~ +70	−65 ~ +70	−65 ~ +70	−65 ~ +70	−65 ~ +70	−65 ~ +70	−65 ~ +70	−65 ~ +70	−65 ~ +70
Operating Ambient Temperature Tc (deg C)	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55	−10 ~ +55
MECHANICAL DATA Maximum Viewing Argle (deg) (approx) Weight (g) (approx)	160 25	160 75	160 4	160 12	160 13	160 130	160 9	160 10	90 2.3	100 4 (INCL. STAND-OFF)	100 7	100 10
TYPICAL OPERATING CONDITIONS Supply Voltage (Vdc) Anode Siries Registor (KΩ) Decimal Point Series Registor (KΩ) Pulse Duratior (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

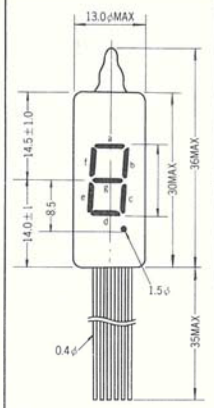
(DC OPERATION)			(PULSE OPERATION)			
GR-414	**GR-211**	**GR-311**	**GR-110**	**GR-116p**	**GR-111p**	**CD66P**
						
						
TSB − 12P	TSB − 14P	TSB − 12P				
0 ~ 9	0 ~ 9	0 ~ 9	0 ~ 9 Decimal Point	0 ~ 9 Decimal Point Left·Right	0 ~ 9 Decimal Point	0 ~ 9 Decimal Point
MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.	MIN. ST. MAX.
250 — —	200 — —	200 — —	190 — —	175 —	190 — —	190 — —
— — 200	— — 170	— — 170	— — 170	— — 170	— — 170	— — 190
17.5 25 32.5 (Ebb − 250Vdc, Rp − 5.1kΩ)	3.5 5 6.5 (Ebb − 200Vdc, Rp − 12kΩ)	12 15 18 (Ebb − 215Vdc, Rp − 5kΩ)	5 (duty 1/10 Ebb − 190Vdc Rp − 6.8kΩ)	14 (duty 1/20 Ebb − 200Vdc Rp − 2.5kΩ)	5.5 (duty 1/10 Ebb − 190Vdc Rp − 5kΩ)	15 (duty 1/10 Ebb − 190Vdc Rp − 2kΩ)
			0.9	4	0.9	3
— — 5	— — 1	— — 2.5	— — 0.3	— — 0.45	— — 0.45	— — 0.5
			— — 0.1	— — 0.1	— — 0.1	— — 0.1
— — 35	— — 10	— — 18	2.4 ~ 8	11 ~ 17	3 ~ 8	9 ~ 20
			0.4 ~ 2	1 ~ 6	0.7 ~ 1.5	1 ~ 6
17.5 ~ 32.5	3.5 ~ 6.5	10.0 ~ 18.0	0.25 ~ 0.8	0.5 ~ 1.9	0.3 ~ 0.8	1 ~ 2
			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 Rp4.3 7.5 11	190 200 230 Rk6.8 9.1 15 36 47 82	200 235 Rp 2.5 5	190 200 250 300 Rp5 7 18 27	190 200 250 Rp 2 2.7 7.4
			0.05 ~ 0.5	0.05 ~ 0.5	0.05 ~ 0.5	0.05 ~ 0.5

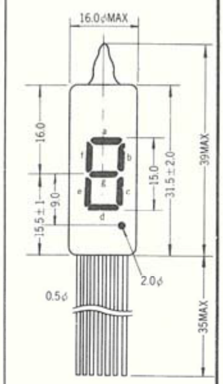
(DC OPERATION)

REFERENCE NUMBER (7 Segment)	MG-17G	MG-137	MG-157

Outline Drawing

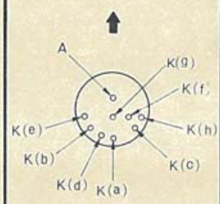


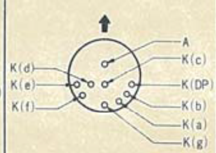


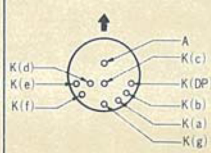


Pin Connections

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







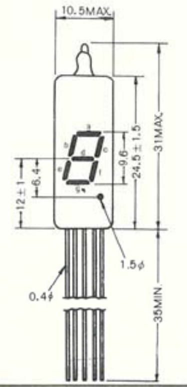
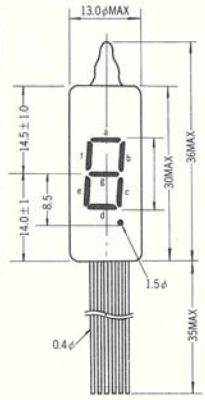
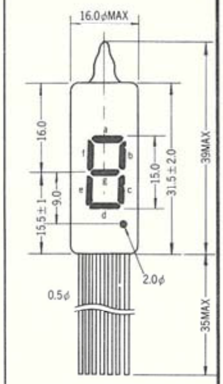
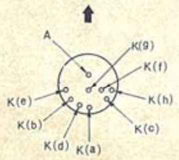
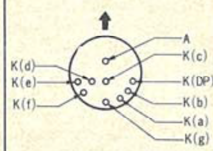
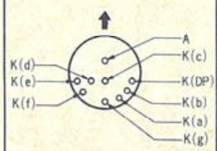
Socket

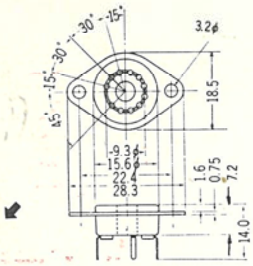
Construction

		MG-17G			MG-137			MG-157		
		MIN.	ST.	MAX.	MIN.	ST.	MAX.	MIN.	ST.	MAX.
ELECTRICAL SPECIFICATIONS	Supply Voltage (Vdc) Ebb	180			170			170		
	Ionization Voltage (Vdc) Ez			160			170			170
	Cathode Current (mAdc) Numerical Cathode ik	0.28	0.35	0.42	0.35	0.45	0.55	0.4	0.6	0.8
	Decimal Point ik(·)	0.14	0.18	0.22	0.08	0.10	0.12	0.1	0.15	0.2
ABSOLUTE RATINGS	Peak Cathode Current(mAdc) Numerical Cathode ik	1.6			0.6			1.0		
	Decimal Point ik(·)	0.6			0.15			0.3		
	Range of Avarege Cathode Current (mAdc) Numemerical cathode	0.2	~	0.6	0.3	~	0.6	0.3	~	1.0
	Decimal Point	0.1	~	0.4	0.07	~	0.15	0.07	~	0.3
	Ambient Temperature (for storage) Ts (deg C)	−65	~	+70	−65	~	+70	+65	~	+70
	Operating Ambient Temperature Tc (deg C)	−10	~	+60	−10	~	+60	+10	~	+60
MECHANICAL DATA	Maximum Viewing Argle (deg) (approx)		120			120			120	
	Weight (g) (approx)		3			4			6	

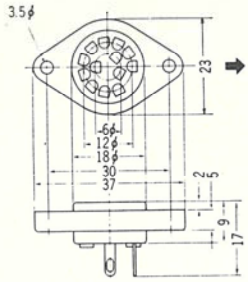
TYPICAL OPERATING CONDITIONS	MG-17G	MG-137	MG-157
Supply Voltage (Vdc)	180 200 250 300	170 190 210	170 190 210
Anode Siries Registor (KΩ)	110 160 300 430	62 100 130	62 110 150
Decimal Point Series Registor (KΩ)	240 330 620 910	240 360 510	270 470 680
Pulse Duratior (mS)			

(PULSE OPERATION)

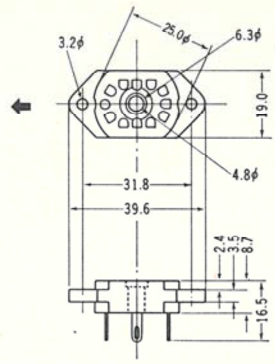
		MG-17G			MG-137			MG-157		
REFERENCE NUMBER (7 Segment)		**MG-17G**			**MG-137**			**MG-157**		
Outline Drawing										
Pin Connections	A : ANODE K : CATHODE I C : INTER CONNECTION NP : NO PIN NC : NO CONNECTION									
Socket										
Construction										
ELECTRICAL SPECIFICATIONS		MIN.	ST.	MAX.	MIN.	ST.	MAX.	MIN.	ST.	MAX.
	Supply Voltage (Vdc) Ebb	190			180			180		
	Ionization Voltage (Vdc) Ez			170			180			180
	Cathode Current (mAdc) Numerical Cathode ik			1.2mA			2mA			1.75mA
	Decimal Point ik(·)			0.4mA			0.5mA			0.6mA
		(duty 1/10 Ebb=200vdc Rk=43kΩ Rk(·)=120kΩ)			(duty 1/10 Ebb=200vdc Rk=30kΩ Rk(·)=120kΩ)			(duty 1/10 Ebb=280kΩ Rk=36kΩ Rk(·)=100kΩ)		
ABSOLUTE RATINGS	Peak Cathode Current(mAdc) Numerical Cathode ik	1	~	4	1	~	4	1.0	~	4.0
	Decimal Point ik(·)	0.4	~	1.5	0.35	~	1.0	0.35	~	1.0
	Range of Avarege Cathode Current (mAdc) Numemerical cathode	0.04	~	0.6	0.04	~	0.6	0.1	~	0.6
	Decimal Point	0.02	~	0.4	0.02	~	0.4	0.04	~	0.15
		50	~	300	50	~	500	50	~	500
	Ambient Temperature (for storage) Ts (deg C)	−65	~	+70	−65	~	+70	−65	~	+70
	Operating Ambient Temperature Tc (deg C)	−10	~	+60	−10	~	+60	−10	~	+55
MECHANICAL DATA	Maximum Viewing Argle (deg) (approx)		120			120			120	
	Weight (g) (approx)		3			4			6	
TYPICAL OPERATING CONDITIONS	Supply Voltage (Vdc)	190	200	250	180	200	220	180	200	220
	Anode Siries Registor (KΩ)	36	43	82	20	30	40	24	36	47
	Decimal Point Series Registor (KΩ)	90	120	240	82	120	150	68	100	120
	Pulse Duratior (mS)									



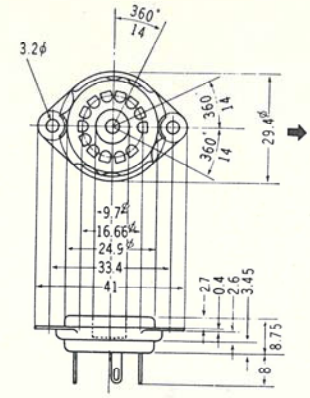
TSM-11P
CD 13



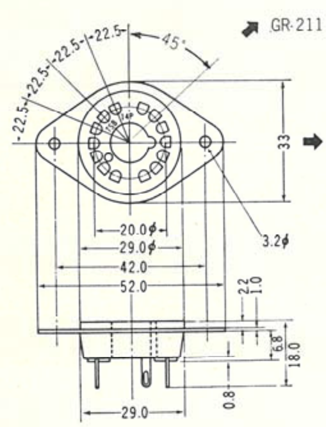
TSM-13P
CD 28



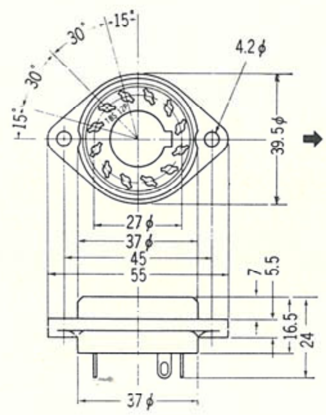
TSR-11P
CD 25, CD 43



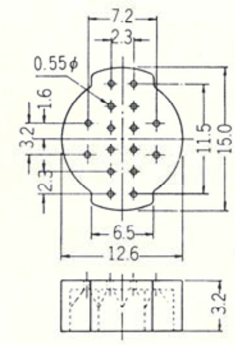
TSB-13P
CD 24



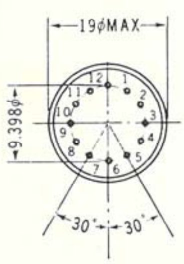
TSB-14P
CD11, GR-211



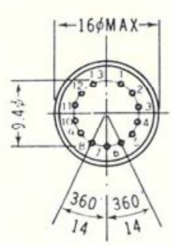
TSB-12P
CD12, CD27 · GR-414 GR-311



C GR-116D116
GR-116P



CD 66
CD 66p



GR-111
GR-111p

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