

Bi-directional 10-way Counter/Selector Dekatron with Auxiliary Anodes and Routing Guides

GCA10G
GSA10G

UNDER REVISION

The cathodes of the counter tube are arranged with 1—9 commoned internally and '0' brought out to a separate connection in order to provide a transfer pulse when the tubes are cascaded. In the case of the Selector tube the cathodes are all brought out to separate base connections. In both tube types additional output electrodes in the form of ten auxiliary anodes placed between the main anode and the cathodes are also brought out to connections in the base. The electrodes can be used to provide negative pulses suitable for the direct operation of a Digitron register tube. The routing guides between '9' and '0' are brought out to separate connections to facilitate bi-directional counting.

Limit Ratings

Maximum counting rate paired pulse drive	10 kp/s
Maximum counting rate single pulse drive	5 kp/s
Minimum main anode supply voltage	440 V
*Maximum main anode current	0.9 mA
*Minimum main anode current	0.5 mA
*Maximum auxiliary anode current	2.5 mA
*Maximum cathode current	3.0 mA
*Minimum cathode current	2.3 mA
Maximum cathode load	3.3 k Ω
Maximum routing guide resistor	4.7 k Ω

*The maximum main and auxiliary anode currents cannot occur with the same operating conditions. The sum of these two currents should not exceed the maximum cathode current.

The current through the auxiliary anodes may be varied by changing the Digitron anode resistor, and similarly, the Dekatron main anode/cathode current can be varied by changing its anode resistor. The two currents are substantially independent of each other.



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Main anode to cathode running voltage	240 V nom.
Auxiliary anode voltage when conducting	225 V nom.

Recommended Operating Conditions

Main anode supply voltage	475 $\pm$ 25 V
Main anode current	0.62 mA
Auxiliary anode current	2.0 mA
Cathode load resistor	3.3 k Ω
Main anode resistor	390 k Ω
Auxiliary anode resistors (Digitron readout Fig. 1)	220 k Ω
Auxiliary biasing resistor (Digitron readout Fig. 1)	1 M Ω
Auxiliary anode resistors (no readout Fig. 2)	33 k Ω
Auxiliary anode biasing resistor (no readout Fig. 2)	100 k Ω
Forced resetting pulse amplitude	—100 V nom.
Forced resetting pulse duration	50 μ S min.
Paired pulse drive Fig. 3 amplitude	120 V nom.
Paired pulse drive Fig. 3 duration	30 μ S
Paired pulse drive Fig. 3 guide two delay	28 μ S
Single pulse drive Fig. 4 amplitude	150 V nom.
Single pulse drive Fig. 4 duration	100 μ S nom.



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Mechanical Data

Mounting position

Any.

For visual indication the tube may be viewed through the dome of the bulb.

Alignment

Cathode '0' is aligned to pin 3 with an accuracy of $\pm 5^\circ$

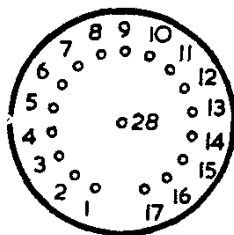
Base

Modified B26A

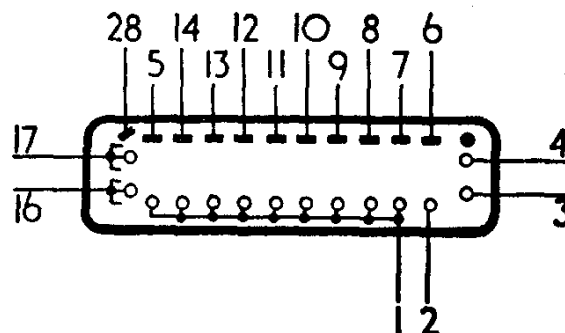
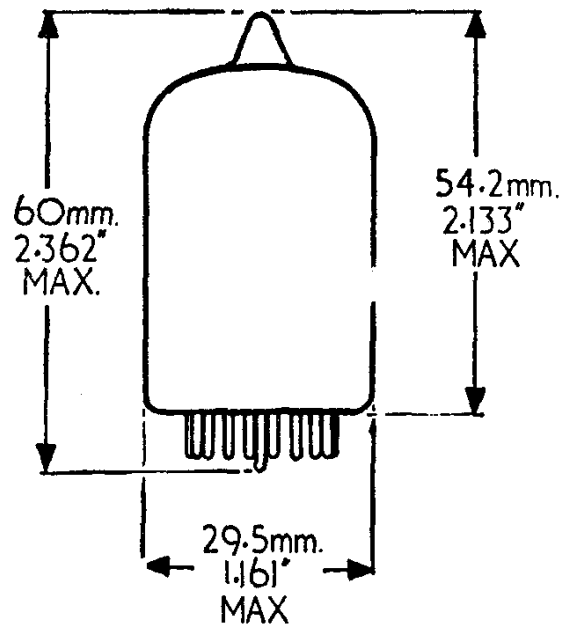
Socket

B27A

GCA10G Base Connections
(underside view)



- Pin 1 Commoned Cathode 1-9
 2 Cathode 0
 3 Routing Guide 2
 4 Routing Guide 1
 5 Auxiliary Anode 1
 6 Auxiliary Anode 0
 7 Auxiliary Anode 9
 8 Auxiliary Anode 8
 9 Auxiliary Anode 7
 10 Auxiliary Anode 6
 11 Auxiliary Anode 5
 12 Auxiliary Anode 4
 13 Auxiliary Anode 3
 14 Auxiliary Anode 2
 15 Do not connect
 16 Guide 2
 17 Guide 1
 28 Main Anode

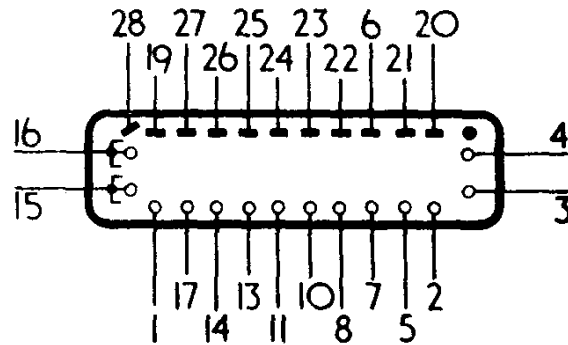
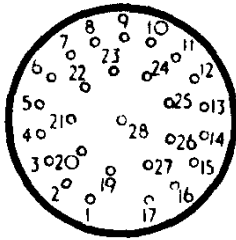


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GSA10G Base Connections
(Underside View)



Pin 1	Cathode 1	Pin 10	Cathode 6	Pin 20	Auxiliary Anode 0
2	Cathode 0	11	Cathode 5	21	Auxiliary Anode 9
3	Routing Guide 2	12	Do not connect	22	Auxiliary Anode 7
4	Routing Guide 1	13	Cathode 4	23	Auxiliary Anode 6
5	Cathode 9	14	Cathode 3	24	Auxiliary Anode 5
6	Auxiliary Anode 8	15	Guide 2	25	Auxiliary Anode 4
7	Cathode 8	16	Guide 1	26	Auxiliary Anode 3
8	Cathode 7	17	Cathode 2	27	Auxiliary Anode 2
9	Do not connect	19	Auxiliary Anode 1	28	Main Anode

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The circuit diagram shows a 10-bit digital-to-analog converter (DAC) using a GSA10G/GCA10G IC. The circuit is powered by a 475V±25V supply. A 100K resistor is connected between the supply and the IC. The IC has 10 pins, with the first two pins labeled G10 and G20. The output of the IC is connected to a 3.3K resistor, which is then connected to the output terminal. The output terminal is also connected to a 3.3K resistor, which is connected to the OA202 RESET pin. The output terminal is labeled 'OUTPUT' and 'OA202 RESET'. The circuit is grounded at 0V.

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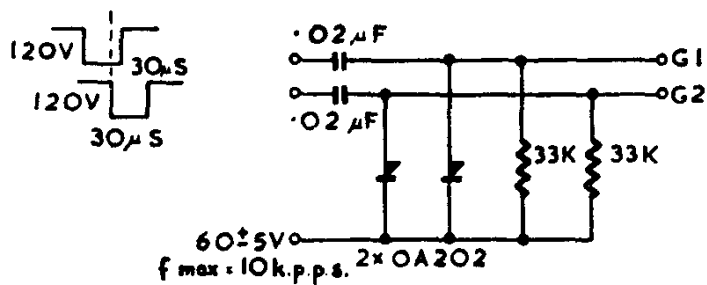


Fig. 3 Paired Pulse Drive.

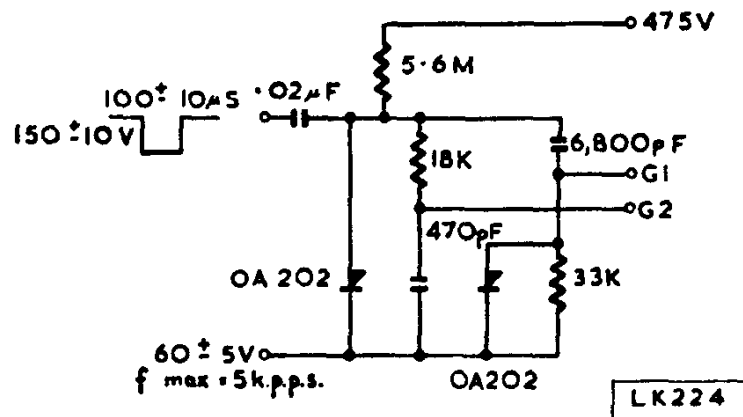


Fig. 4 Single Pulse Drive.

