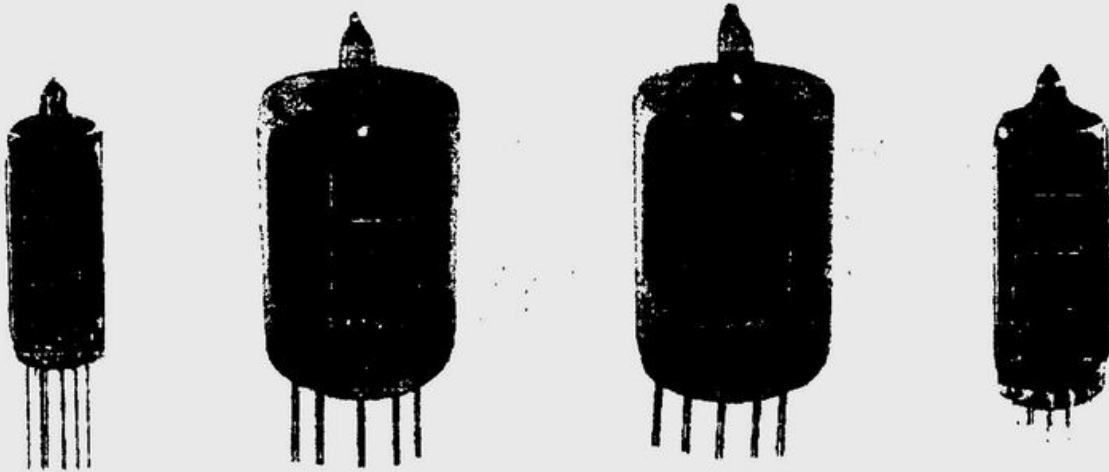


IEE-APOLLO™

DA Series

Incandescent Digital Displays



The IEE APOLLO Readout tube consists of 7 luminescent segments in a single plane arrangement on a black ceramic base sealed in a glass envelope. A directly viewed light source is provided by each of the segments. This single-plane indicating system provides an ultra wide viewing angle and superb readability. Extra long life is assured by rugged unit construction. Brightness is fully adjustable from zero output to a level easily viewed even in direct sunlight by simply varying the

- Rugged construction . . . Environmental and operational tests (shock and vibration), show no segment linearity deviation.
- Long life expectancy (more than 100,000 hours in accelerated life tests for 5 Volt type)
- Subminiature size permits compact equipment design
- Visibility curve ideally suited to the human eye (broad spectrum)
- Compatible with standard driver/decoders
- Low voltage operation

voltage. Any desired filter color may be selected and Fresnel lenses permit display magnification.

Electronic Measuring Instruments (Digital Voltmeters, Frequency Counters, etc.) Precision Devices — Medical Equipment — Digital Clocks — Numerical Controls — Flow Meters — Store Scales — Computers — Counters — Vending Machines — Cash Registers — Stock Quotations — Marine Instruments — Tachometers — Tripmeters, etc.

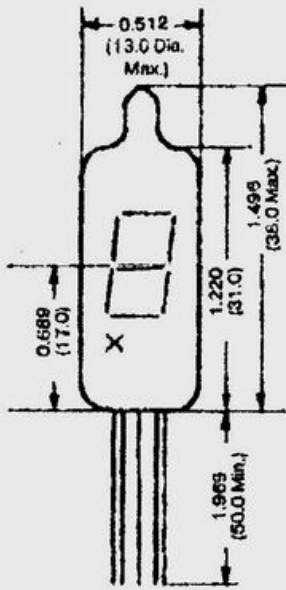
Any desired color may be obtained by employing filters. Increased illumination offers unexcelled color filtering, even for visibility in bright sunlight

Numerals, decimal points, alphabetical characters (A-C-E-F-H-J-L-P-U) may be displayed

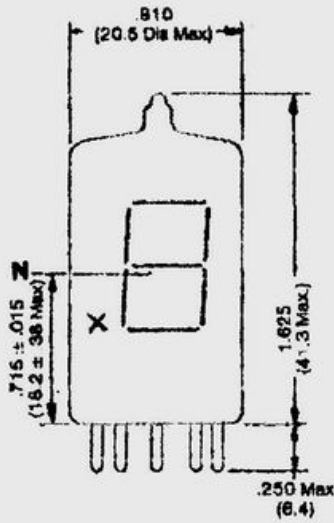
- Wide single plane viewing angle (140°)
- Sharp contrast (black background)
- Brightness fully adjustable
- AC or DC operation

DIMENSIONAL OUTLINE

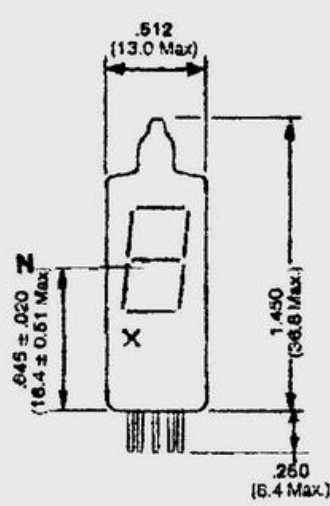
DA-1300 Series



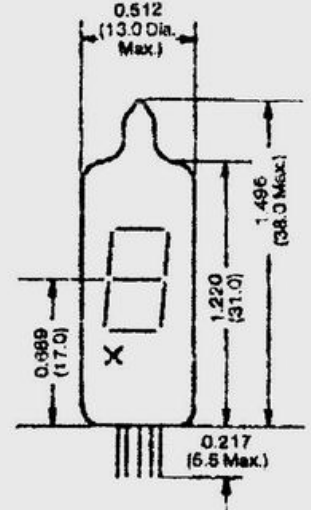
DA-2000 Series



DA-2100 Series



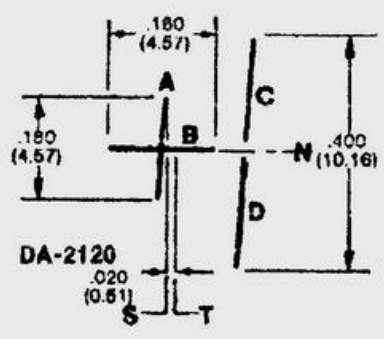
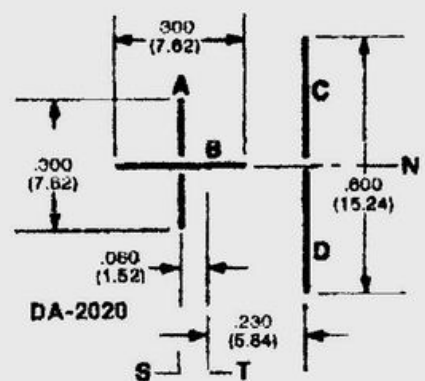
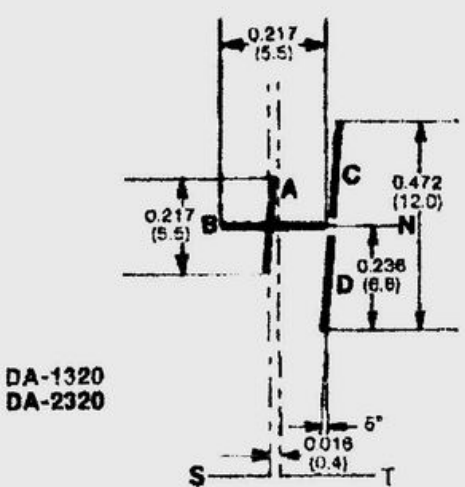
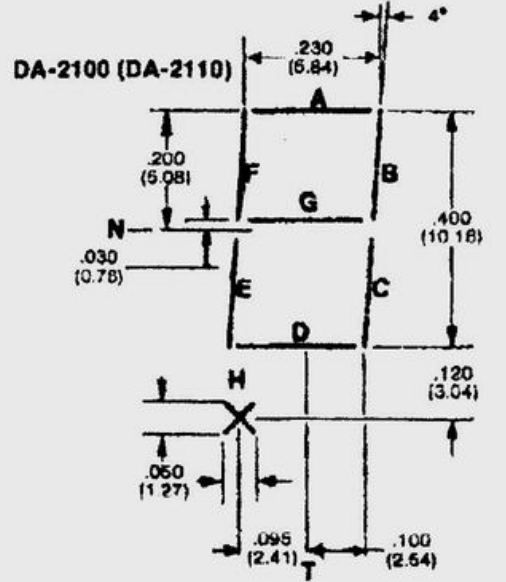
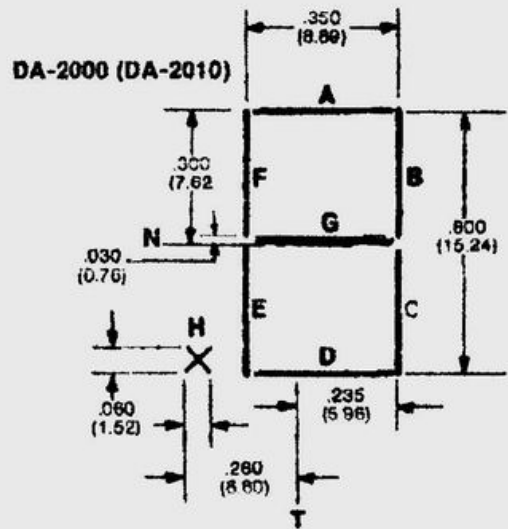
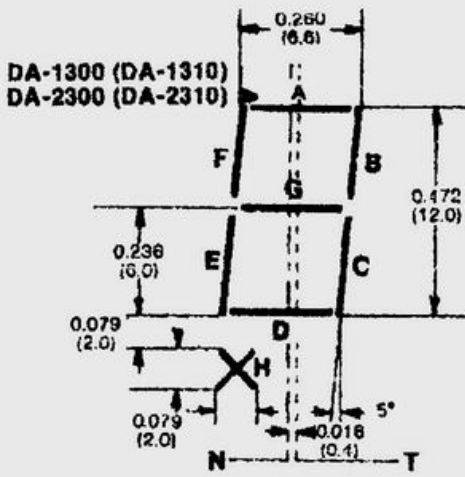
DA-2300 Series



Specifications subject to change without notice.

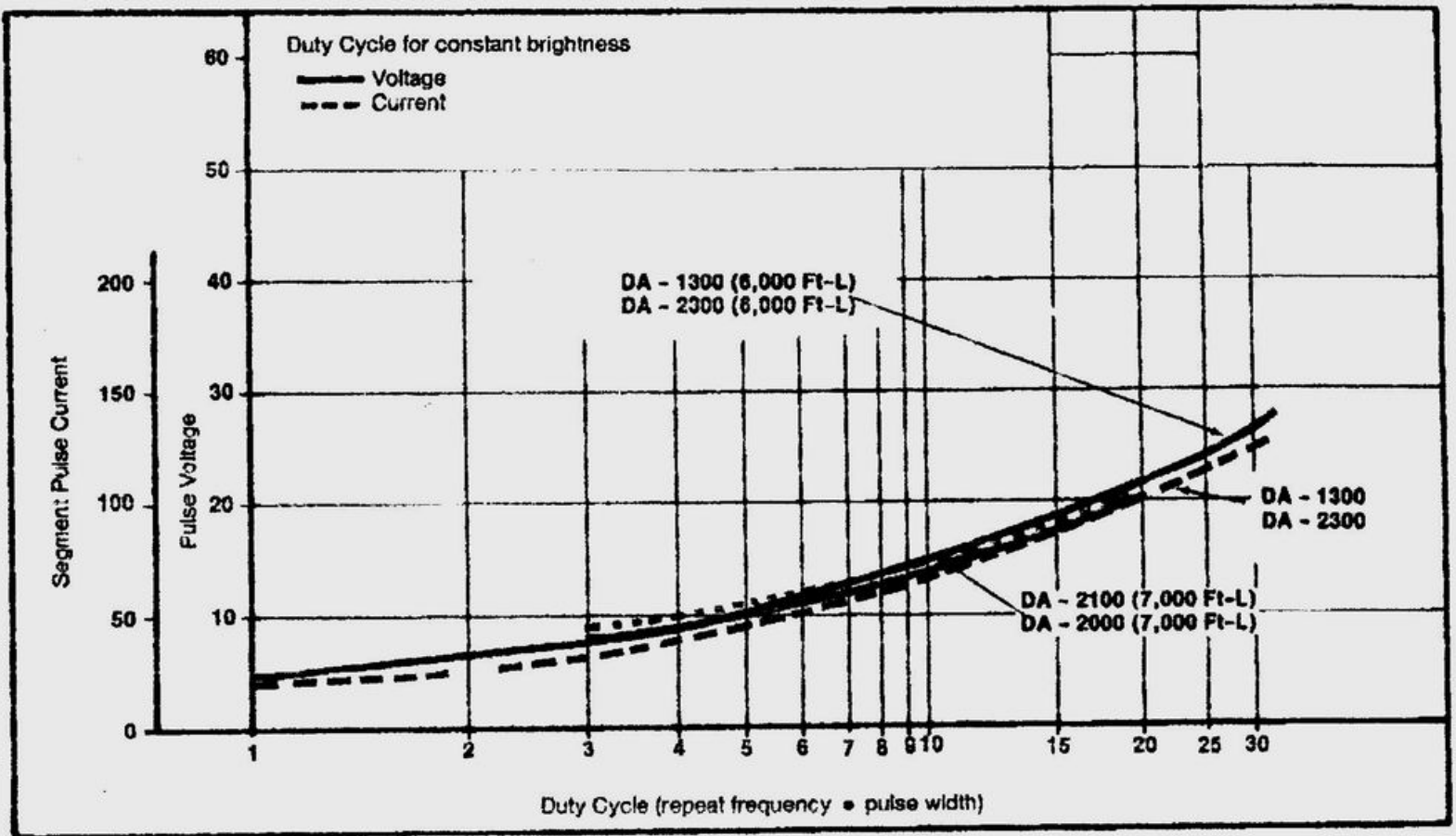
N : center of character
S : center of sign
T : center of readout tube

SEGMENT ASSIGNMENT AND DIMENSIONS

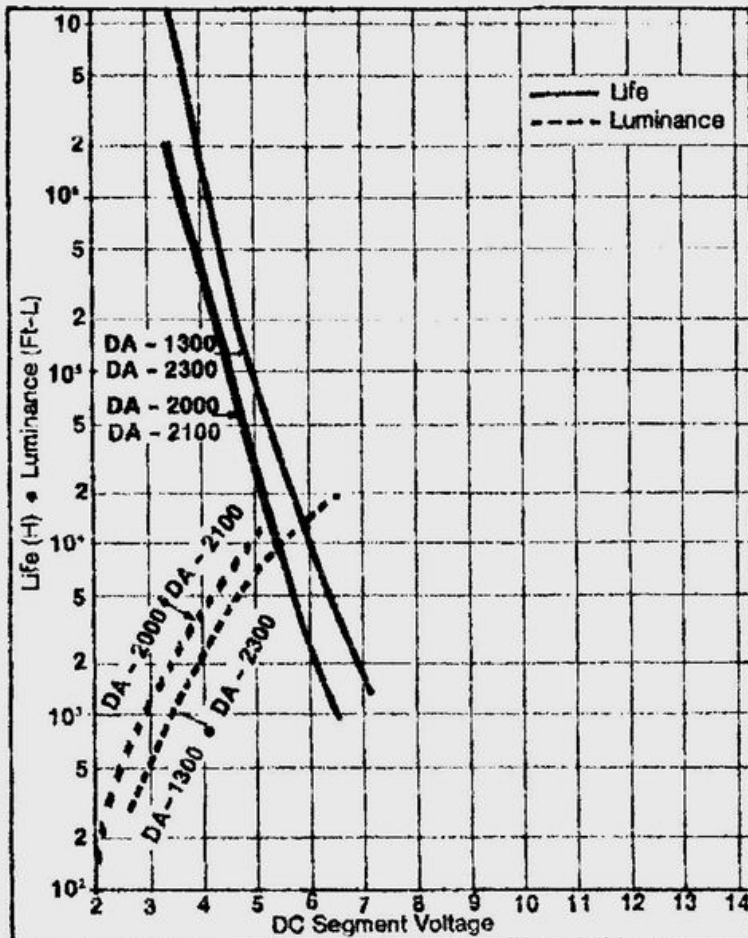


All dimensions are in inches and (millimeters).
Specifications subject to change without notice.

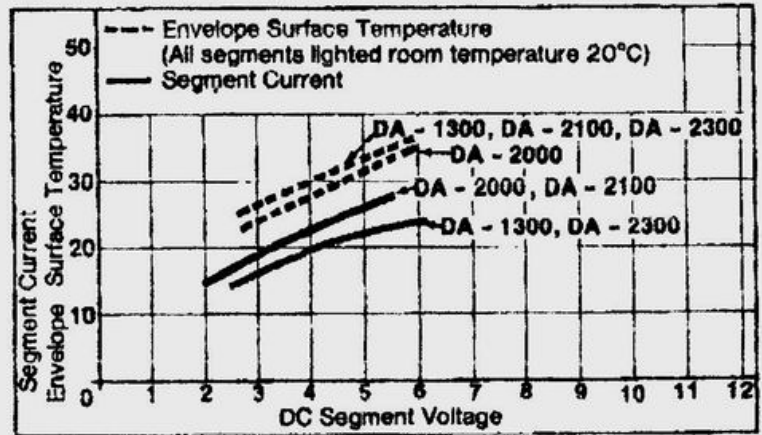
PULSE DRIVE CHARACTERISTICS



SEGMENT VOLTAGE vs SEGMENT LUMINANCE • LIFE

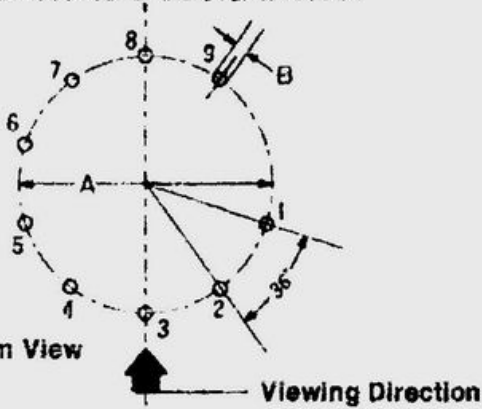


SEGMENT VOLTAGE vs SEGMENT CURRENT • ENVELOPE TEMPERATURE



The technical portion of this catalog is designed to assist the engineer with the problem of applying these devices to electrical, electronic, and electromechanical applications. The information provided herein, as well as any additional data supplied by IEE representatives, is for general use only in order to enable the purchaser to make an independent determination as to the suitability of any of these products for his intended application. Therefore, performance under any particular customer use conditions must be based upon the purchaser's independent conclusions, and no conclusion, representation or warranty is made or implied as to the suitability of any of these devices for a particular requirement or use, due to the wide variety of possible applications, and/or conditions beyond our control.

BASE DIAGRAM LEAD & PIN CIRCLE DIMENSIONS & DESIGNATION



SEGMENT ASSIGNMENT

Display	Type/Pin No.	1	2	3	4	5	6	7	8	9
	DA - 1300	NC	COM	E	D	C	G	A	B	F
	DA - 2000									
	DA - 2100									
	DA - 2300									
	DA - 1310	H	COM	E	D	C	G	A	B	F
	DA - 2010									
	DA - 2110									
	DA - 2310									
	DA - 1320	NC	COM	NC	NC	NC	D	B	C	A
	DA - 2020									
	DA - 2120									
	DA - 2320									

All dimensions are in inches and (millimeters). Specifications subject to change without notice.

Series No.	DA-1300	DA-2000	DA-2100	DA-2300
A	.281 (7.1)	.468 (11.8)	.230 (5.8)	.230 (5.9)
B	.016 (0.4)	.040 (1.0)	.020 (0.5)	.020 (0.5)

CHARACTERISTICS

Series	Unit	DA-1300	DA-2000	DA-2100	DA-2300	
DC Segment Voltage	V	5.0	4.5	4.5	5.0	
Recommended Voltage Range	V	3.5~5.0	3.5~5.0	3.5~5.0	3.5~5.0	
Segment Current (per. seg.)	mA	23	24	24	23	
Brightness (per. seg.)	FL	6,000	7,000	7,000	6,000	
Life Expectancy (per. seg.)	H	100,000	100,000	100,000	100,000	
Response Time	Ascent to visibility	mS	15	15	15	
	Descent to 50% of luminance	mS	10	20	20	10
Viewing Angle		140°	140°	120°	140°	
Temperature Range	°C	-50~+70	-50~+70	-50~+70	-50~+70	
Weight	gr	5	8.5	5	5	
Character Dimensions	Horizontal	in.	.260	.350	.230	.260
	Vertical	in.	.472	.600	.400	.472
Mechanical	Vibration		MIL-STD-202D (201A)			
	Shock		MIL-STD-202D (213, Cond. J)			

SOCKETS

Series No.	Type	Source
DA - 1300	Individual	Auto-Swage, Inc., Conn.
DA - 2000	Noval 9-Pin	Methode, ILL. Cinch Mfg., ILL.
DA - 2100	TO-5 10 Pin	Methode, ILL.
DA - 2300	TO-5 10 Pin	Cinch Mfg., ILL. Jerrymyn, CA.

FILTERS

Circular Polarized, Polaroid, MASS. Anti-Reflection, Panelgraphic, N.J.

INTEGRATED DRIVER/DECODERS

*BCD-7 Type	TI	Signetics	NS	Motorola	Fairchild
	SN7447A	N7447	DM7447	MC7447	9357B