

## FEATURES

- Common anode or common cathode models
- High Efficiency Red
- Fast switching—excellent for multiplexing
- Low power consumption
- Bold solid segments that are highly legible
- Solid state reliability—long operation life
- Impact resistant plastic construction
- Directly compatible with integrated circuits
- High brightness with high contrast
- Categorized for Luminous Intensity (See Note 6)
- Standard dual-in-line package configuration
- Wide angle viewing . . . 150°
- These devices have a Red face and Red segments

## APPLICATIONS

For industrial and consumer applications such as:

- Digital readout displays
- Instrument panels
- Point of sale equipment
- Calculators
- Digital clocks

PART NUMBER	COLOR	PACKAGE	DESCRIPTION	PIN OUT SPECIFICATION
MAN3910A	High Efficiency Red	A	Common Anode; Right Hand Decimal	A
MAN3920A	High Efficiency Red	В	Common Anode; Left Hand Decimal	В
MAN3940A	High Efficiency Red	С	Common Cathode; Right Hand Decimal	С
MAN3980A	High Efficiency Red	D	Common Cathode; Right Hand Decimal	D

### **RECOMMENDED OPTICAL FILTERS**

For optimum ON and OFF contrast, one of the following filters or equivalents should be used over the display:

DEVICE TYPE	FILTER
MAN3910A	
MAN3920A	Panelgraphic Scarlet 65
MAN3940A	Homalite 100-1670
MAN3980A	

DESCRIPTION

The MAN3900A Series is a High Efficiency Red LED display. Standard units are also available in Red, Green, Orange and Yellow, with common anode right hand decimal, common anode left hand decimal, and common cathode right hand decimal. They can be mounted in arrays with 0.400-inch (10.16 mm) center-to-center spacing. Units are constructed with Red face and segment color.



SEMICONDUCTOR

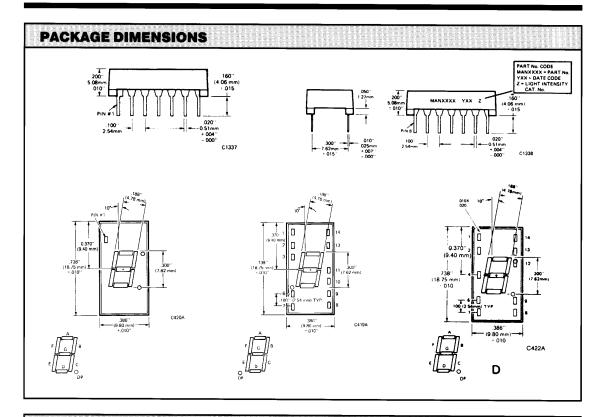
### 0.300-INCH SEVEN SEGMENT DISPLAYS

**ELECTRO-OPTICAL CHARACTERISTICS** (25°C Free Air Temperature Unless Otherwise Specified) MAX. **TEST CONDITONS** MIN. TYP. UNITS MAN3910A, 3920A, 3940A, 3980A 450 1900 Luminous Intensity, digit average μcd l<sub>F</sub>=10 mA (See Note 1 and 3) Peak emission wavelength 635 nm Spectral line half width 40 nm Forward voltage  $I_F = 20 \text{ mA}$  $I_F = 20 \text{ mA}$ Segment 2.5 2.5 v Decimal point v Dynamic resistance Segment 26 Ω l<sub>F</sub>=20 mA 26 Decimal point Ω l<sub>⊧</sub>=20 mA Capacitance Segment 35 pF V=0 Decimal point pF 35 V=0 Reverse current Segment 100  $V_{R} = 5.0V$ μA μA Decimal point 100 V<sub>R</sub>=5.0 V

ABSOLUTE MAXIMUM RATINGS
IAN3910A, MAN3920A, MAN3940A, MAN3980A
ower dissipation at 25°C ambient
erate linearly from 50°C
torage and operating temperature
ontinuous forward current
Total
Per segment 30 m
Decimal point
everse voltage
Per segment
Decimal point
oldering time at 260°C (See Notes 4 and 5) 5 se

TYPICAL THERMAL CHARACTERISTICS	
HIGH EFFICIENCY RED Thermal resistance junction to free air $\Phi_{JA}$	
Wavelength temperature coefficient (case temperature) Forward voltage temperature coefficient	1.0Å/°C



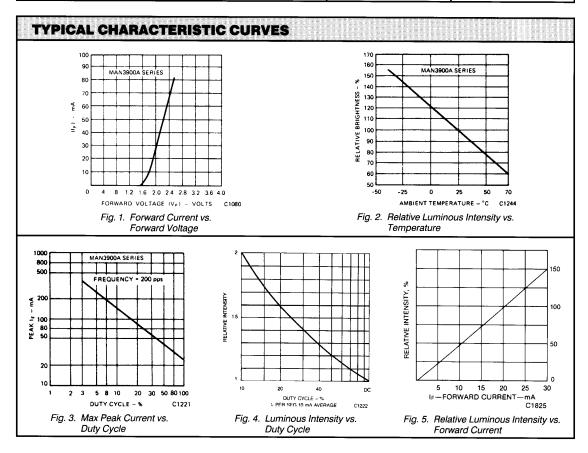


# NOTES

- 1. The digit average Luminous Intensity is obtained by summing the Luminous Intensity of each segment and dividing by the total number of segments. Intensity will not vary more than ±33.3% between all segments within a digit.
- The curve in Figure 3 is normalized to the brightness at 25°C to indicate the relative Luminous Intensity over the operating temperature range.
- 3. The decimal point is designed to have the same surface brightness as the segments, therefore, the Luminous Intensity of the decimal point is .3 times the Luminous Intensity of the segments, since the area of the decimal point is .3 times the area of the average segment.
- Leads of the device immersed to 1/16 inch from the body. Maximum device surface temperature is 140°C.
- 5. For flux removal, Freon TF, Freon TE, Isoproponal or water may be used to their boiling points.
- 6. All displays are categorized for Luminous Intensity. The Intensity category is marked on each part as a suffix letter to the part number.



PIN NO.	ELECTRICAL CONNECTIONS						
	A MAN3910A	B MAN3920A	C MAN3940A	D MAN3980A			
1	Cathode A	Cathode A	Anode F	Common Cathode			
2	Cathode F	Cathode F	Anode G	Anode F			
3	Common Anode	Common Anode	No Pin	Anode G			
4	No Pin	No Pin	Common Cathode	Anode E			
5	No Pin	No Pin	No Pin	Anode D			
6	No Connection	Cathode D.P.	Anode E	Common Cathode			
7	Cathode E	Cathode E	Anode D	Anode D.P.			
8	Cathode D	Cathode D	Anode C	Anode C			
9	Cathode D.P.	No Connection	Anode D.P.	Anode B			
10	Cathode C	Cathode C	No Pin	Anode A			
11	Cathode G	Cathode G	No Pin				
12	No Pin	No Pin	Common Cathode				
13	Cathode B	Cathode B	Anode B				
14	Common Anode	Common Anode	Anode A	1			





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