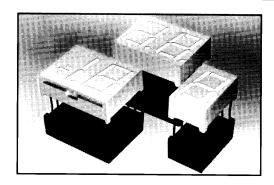


HIGH EFFICIENCY RED MAN6900 SERIES



DESCRIPTION

The MAN6900 Series is a family of large digits which includes double and single digits. The series features the sculptured font which minimizes "gappiness" at the segment intersections. Available models include two-digit, one and one-half digits with polarity sign, and single digits. All models have right hand decimal points and are available in common anode or common cathode configuration. This device has a Red face and Red segments.

FEATURES

- High Efficiency Red nitrogen-doped GaAsP on GaP
- Large, easy to read, digits
- Common anode or common cathode models
- Fast switching excellent for multiplexing
- Low power consumption
- Bold solid segments that are highly legible
- Solid state reliability long operation life
- Rugged plastic construction
- Directly compatible with integrated circuits
- High brightness with high contrast
- Categorized for Luminous Intensity (See Note 6)
- Wide angle viewing...150°
- Low forward voltage
- Two-digit package simplifies alignment and assembly

APPLICATIONS

For industrial and consumer applications such as:

- Digital readout displays
- Instrument panels
- Point of sale equipment
- Digital clocks
- TV and radios

| MODEL NUMBERS | | | | | |
|----------------------|---------------|---|--------------------|--------------------------|--|
| PART NUMBER COLOR | | DESCRIPTION | PACKAGE DRAWING | PIN OUT SPECIFICATION | |
| MAN6910 | High Eff. Red | 2 Digit; Common Anode; Rt. Hand Decimal | Α | Α | |
| MAN6930 | High Eff. Red | | В | В | |
| MAN6940 | High Eff. Red | 2 Digit; Common Cathode; Rt. Hand Decimal | Ā | Ċ | |
| MAN6950 | High Eff. Red | 1½ Digit; Common Cathode; Overflow ±1.8; Rt. Hand Decimal | В | D | |
| MAN6960 | High Eff. Red | Single Digit; Common Anode; Rt. Hand Decimal | Ċ | F | |
| MAN6980 | High Eff. Red | Single Digit; Common Cathode; Rt. Hand Decimal | Č | F | |

RECOMMENDED OPTICAL FILTERS

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

MAN6900 Series

FILTER

Panelgraphic Scarlet 65 Homalite 100-1670



| | MIN. | TYP. | MAX. | UNITS | TEST CONDITIONS |
|--|------|----------|------------|-----------------|--|
| Luminous Intensity, digit average (See Note 1) | 510 | 2200 | | μ cd | I _F =10 mA |
| Peak emission wavelength | | 635 | | nm | |
| Spectral line half width | | 40 | | nm | |
| Forward voltage Segment Decimal point | | | 2.5 2.5 | V V | l _F =20 mA l _F =20 mA |
| Dynamic resistance Segment Decimal point | | 26 26 | | $\Omega \Omega$ | I _F =20 mA I _F =20 mA |
| Capacitance Segment Decimal point | | 35 35 | | pF pF | V=0 V=0 |
| Reverse current Segment Decimal point | | | 100 100 | μΑ μΑ | V _R =5.0 V V _R =5.0 V |

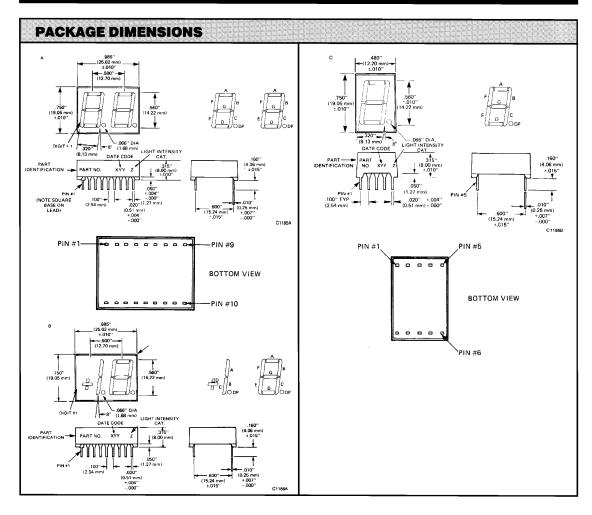
| ABSOLUTE MAXIMUM RATINGS | | | | |
|---|--------------------|--------------------|--------------------|--|
| | MAN6910 MAN6940 | MAN6930 MAN6950 | MAN6960 MAN6980 | |
| Power dissipation at 25°C ambient | 1200 mW | 1050 mW | 600 mW | |
| Derate linearly from 50°C | -17.1 mW/°C | −15.0 mW/°C | -8.6 mW/°C | |
| Storage and operating temperature | -40°C to +85°C | -40°C to +85°C | -40°C to +85°C | |
| Continuous forward current | | | | |
| Total | 480 mA | 420 mA | 240 mA | |
| Per segment | 30 mA | 30 mA | 30 mA | |
| Decimal point | 30 mA | 30 mA | 30 mA | |
| Reverse voltage | | | | |
| Per segment | 6.0 V | 6.0 V | 6.0 V | |
| Decimal point | 6.0 V | 6.0 V | 6.0 V | |
| Soldering time at 260°C (See Notes 3 and 4) | 5 sec. | 5 sec. | 5 sec. | |

| TYPICAL THERMAL CHARACTERISTICS | |
|---|-----------|
| Thermal resistance junction to free air Ф _{JA} | 160°C/W |
| Wavelength temperature coefficient (case temperature) | 1.0Å/°C |
| Forward voltage temperature coefficient | 2.0 mV/°C |

NOTES

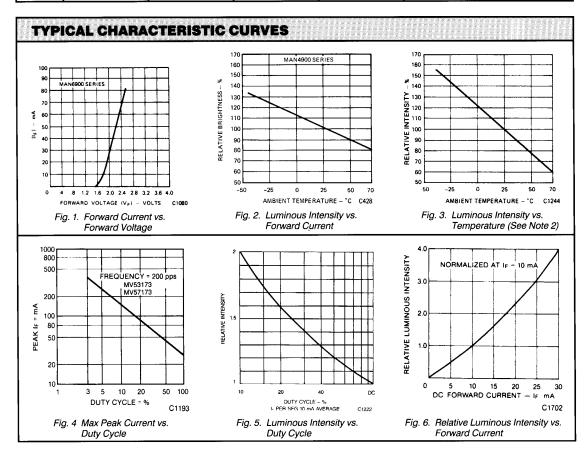
- The digit average Luminous Intensity is obtained by summing the Luminous Intensity of each segment and dividing by the total number of segments. Intensity will not vary more than ±33.3% between all segments within a digit.
 The curve in Figure 3 is normalized to the brightness at 25°C to indicate the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



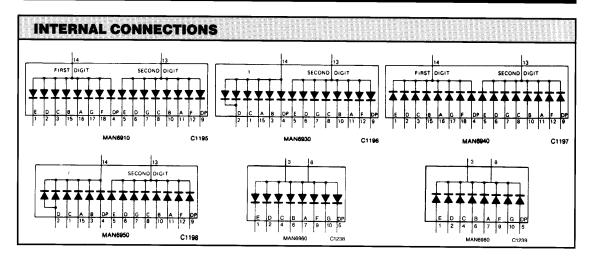




| PIN NO. | ELECTRICAL CONNECTIONS | | | | | | |
|------------|------------------------|----------------|-----------------|-----------------|--------------|--------------|--|
| | A MAN6910 | B MAN6930 | C MAN6940 | D MAN6950 | E MAN6960 | F MAN6980 | |
| 1 | Cathode E 1 | Cathode C 1 | Anode E 1 | Anode C 1 | Cathode E | Anode E | |
| 2 | Cathode D 1 | Cathode D 1 | Anode D 1 | Anode D 1 | Cathode D | Anode D | |
| 3 | Cathode C 1 | Cathode B 1 | Anode C 1 | Anode B 1 | Com. Anode | Com. Cathode | |
| 4 | Cathode D.P. 1 | Cathode D.P. 1 | Anode D.P. 1 | Anode D.P. 1 | Cathode C | Anode C | |
| 5 | Cathode E 2 | Cathode E 2 | Anode E 2 | Anode E 2 | Cathode D.P. | Anode D.P. | |
| 6 | Cathode D 2 | Cathode D 2 | Anode D 2 | Anode D 2 | Cathode B | Anode B | |
| 7 | Cathode G 2 | Cathode G 2 | Anode G 2 | Anode G 2 | Cathode A | Anode A | |
| 8 | Cathode C 2 | Cathode C 2 | Anode C 2 | Anode C 2 | Com. Anode | Com. Cathode | |
| 9 | Cathode D.P. 2 | Cathode D.P. 2 | Anode D.P. 2 | Anode D.P. 2 | Cathode F | Anode F | |
| 10 | Cathode B 2 | Cathode B 2 | Anode B 2 | Anode B 2 | Cathode G | Anode G | |
| 11 | Cathode A 2 | Cathode A 2 | Anode A 2 | Anode A 2 | | | |
| 12 | Cathode F 2 | Cathode F 2 | Anode F 2 | Anode F 2 | | | |
| 13 | Anode Digit 2 | Anode Digit 2 | Cathode Digit 2 | Cathode Digit 2 | | | |
| 14 | Anode Digit 1 | Anode Digit 1 | Cathode Digit 1 | Cathode Digit 1 | | | |
| 15 | Cathode B 1 | Cathode A 1 | Anode B 1 | Anode A 1 | | | |
| 16 | Cathode A 1 | No Connection | Anode A 1 | No Connection | | | |
| 17 | Cathode G 1 | No Connection | Anode G 1 | No Connection | | | |
| 18 | Cathode F 1 | No Connection | Anode F 1 | No Connection | | | |









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