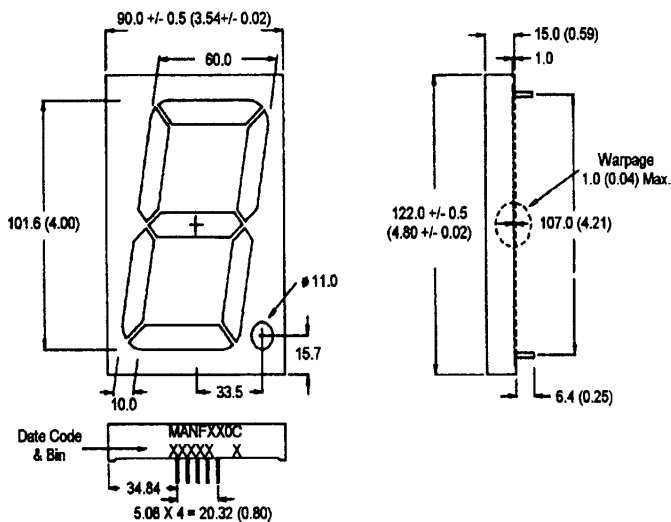


**AlGaAs RED MANF260C, MANF280C  
GREEN MANF460C, MANF480C  
HIGH EFF. RED MANF960C, MANF980C**

**PACKAGE DIMENSIONS**



**NOTES: Dimensions are in mm (inch).  
All pins are 0.6 (0.02) diameter  
Tolerances are ± 0.25 (0.1) unless otherwise noted.**

**FEATURES**

- Easy to read digit
- Common anode or cathode
- Low power consumption
- Highly visible bold segments
- High brightness with high contrast
- White segments on a grey face
- Directly compatible with integrated circuits
- Rugged plastic/epoxy construction

**APPLICATIONS**

- Digital readout displays
- Instrument panels

**MODEL NUMBERS**

| <u>Part number</u> | <u>Color</u>        | <u>Description</u>                 |
|--------------------|---------------------|------------------------------------|
| MANF260C           | AlGaAs Red          | Common Anode; right hand decimal   |
| MANF280C           | AlGaAs Red          | Common Cathode; right hand decimal |
| MANF460C           | Green               | Common Anode; right hand decimal   |
| MANF480C           | Green               | Common Cathode; right hand decimal |
| MANF960C           | High efficiency red | Common Anode; right hand decimal   |
| MANF980C           | High efficiency red | Common Cathode; right hand decimal |

(For other color options, contact your local area Sales Office )

**ABSOLUTE MAXIMUM RATING** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

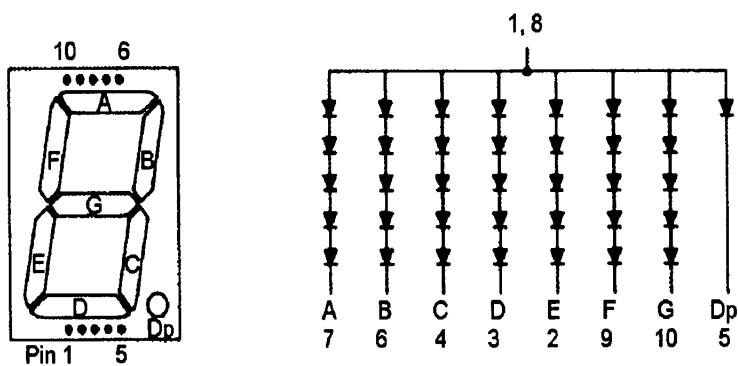
|   | AlGaAs Red<br>MANF<br>260C<br>280C | Green<br>MANF<br>460C<br>480C | High Eff. Red<br>MANF<br>960C<br>980C | Unit  |
|---|------------------------------------|-------------------------------|---------------------------------------|---|
| Part number   |                                    |                               |                                       |   |
| Continuous forward current ( $I_f$ )  |                                    |                               |                                       |   |
| Per die   | 25                                 | 30                            | 30                                    | mA  |
| Peak forward current per die ( $I_p$ )<br>(at $f = 10.0$ KHz, Duty factor = 1/10) | 200                                | 90                            | 90                                    | mA  |
| Power dissipation ( $P_D$ ) per die   | 100*                               | 70 *                          | 70*                                   | mW  |
| *Derate linearly from $25^\circ\text{C}$  | 0.5                                | 0.33                          | 0.33                                  | mW/ $^\circ\text{C}$                        |
| Reverse voltage per dice.....   |                                    |                               |                                       | 5V  |
| Operating and Storage temperature range.....                                      |                                    |                               |                                       | - $40^\circ\text{C}$ to $+85^\circ\text{C}$ |
| Lead soldering time (at 1/16 inch from the bottom of lamp).....                   |                                    |                               |                                       | 5 seconds @ $230^\circ\text{C}$             |

**ELECTRO - OPTICAL CHARACTERISTICS** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

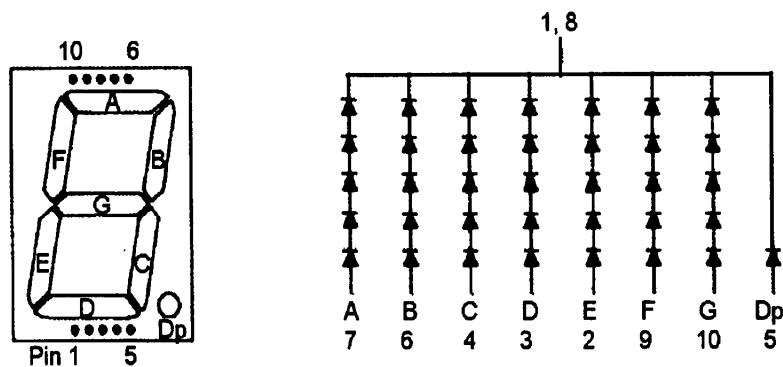
|                                     | AlGaAs Red<br>MANF<br>260C<br>280C | Green<br>MANF<br>460C<br>480C | High Eff. Red<br>MANF<br>960C<br>980C | Test<br>Condition |
|-------------------------------------|------------------------------------|-------------------------------|---------------------------------------|-------------------|
| Part number                         |                                    |                               |                                       |                   |
| Luminous intensity (ucd)            |                                    |                               |                                       |                   |
| typical                             | 9000                               | 7900                          | 6300                                  | $I_f = 20$ mA     |
| Forward voltage ( $V_F$ )           |                                    |                               |                                       |                   |
| typical                             | 9.0                                | 10.5                          | 10.0                                  | $I_f = 20$ mA     |
| maximum                             | 12.5                               | 14.0                          | 14.0                                  | $I_f = 20$ mA     |
| Peak wavelength (nm)                | 660                                | 570                           | 635                                   | $I_f = 20$ mA     |
| Spectral line half width (nm)       | 20                                 | 30                            | 45                                    | $I_f = 20$ mA     |
| Reverse breakdown voltage ( $V_R$ ) | 10                                 | 10                            | 10                                    | $I_R = 100$ uA    |

**PINOUT**

**MANFX60C - Common Anode**



**MANFX80C - Common Cathode**



**GRAPHICAL DETAIL: AlGaAs Red** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

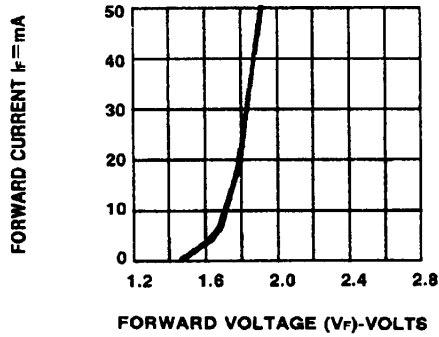


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

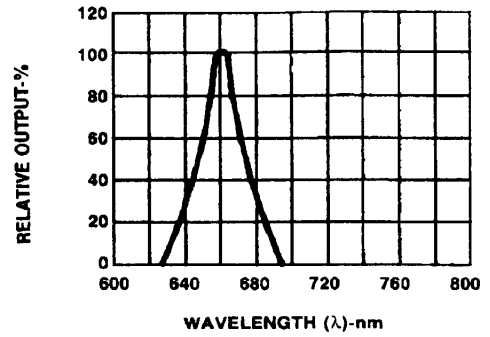


Fig.2 SPECTRAL RESPONSE

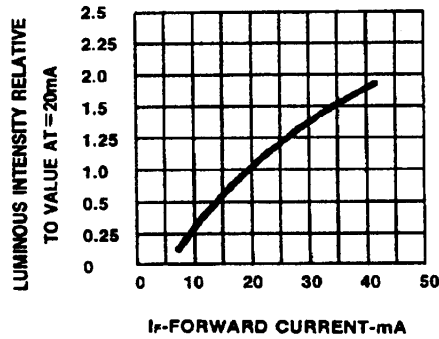


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

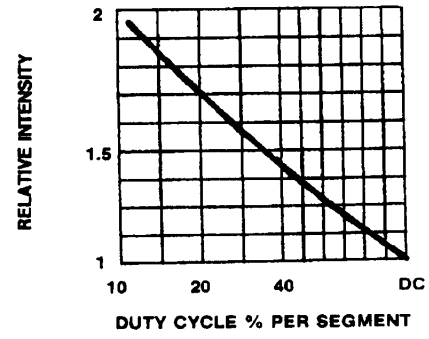


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

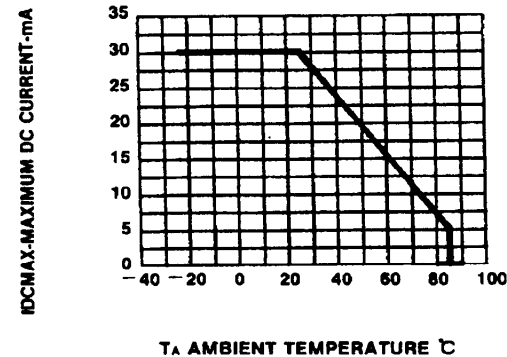


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

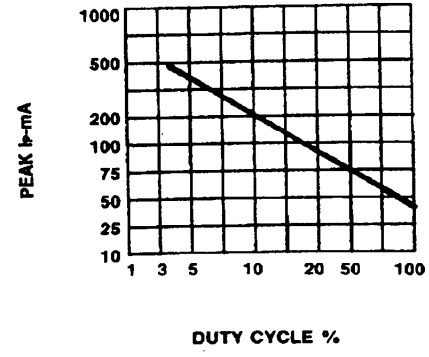


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1$  KHz)

**GRAPHICAL DETAIL: Green** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

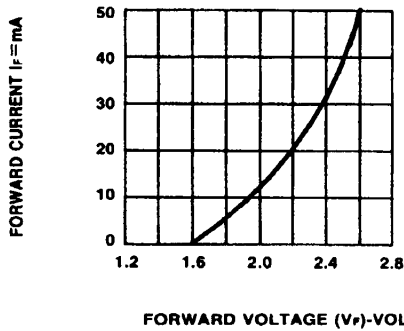


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

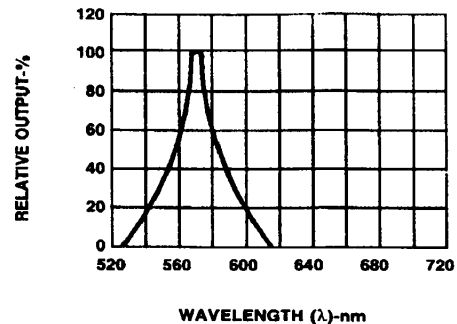


Fig.2 SPECTRAL RESPONSE

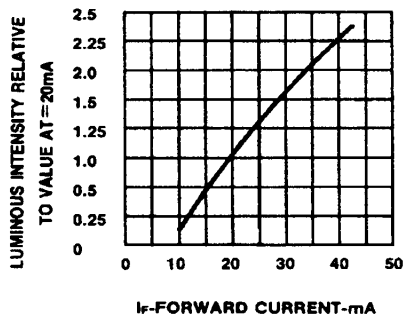


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

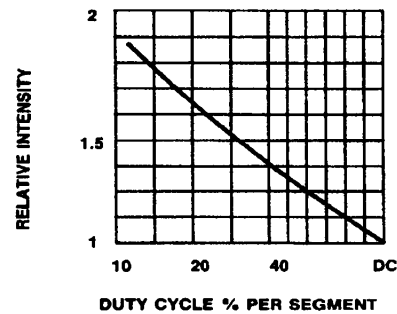


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

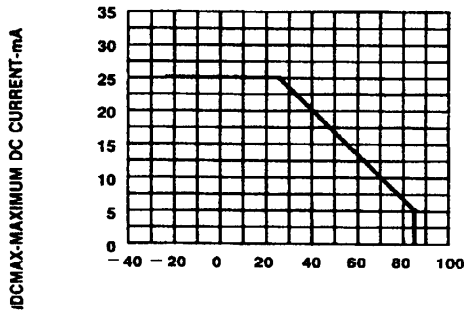


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

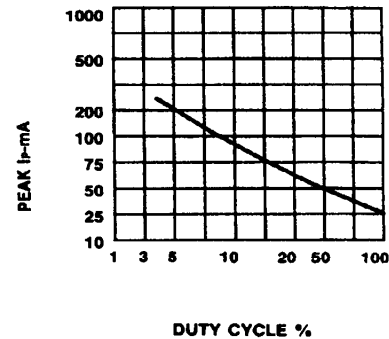


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

**GRAPHICAL DETAIL: High Efficiency Red** ( $T_A = 25^\circ\text{C}$  unless otherwise specified)

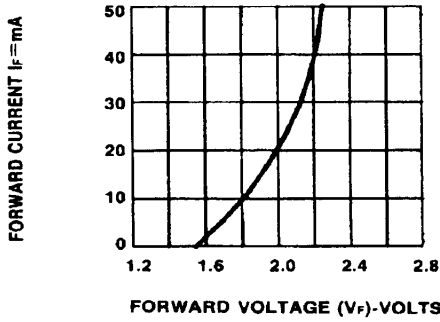


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

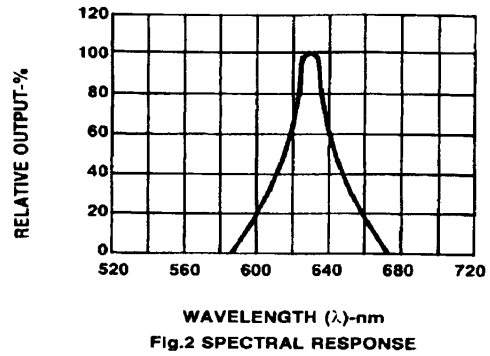


Fig.2 SPECTRAL RESPONSE

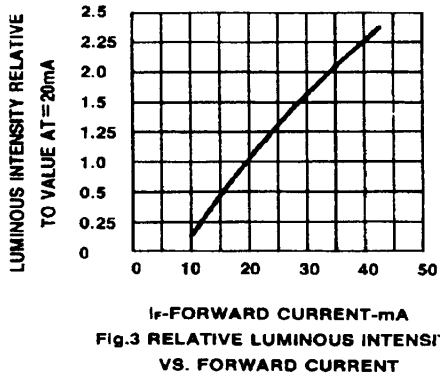


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

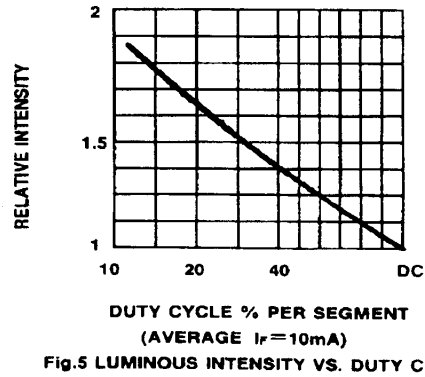


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

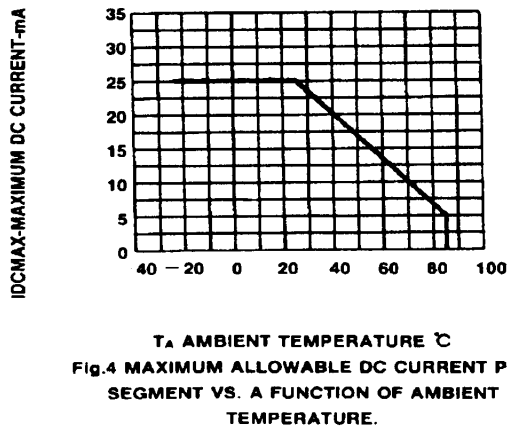


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

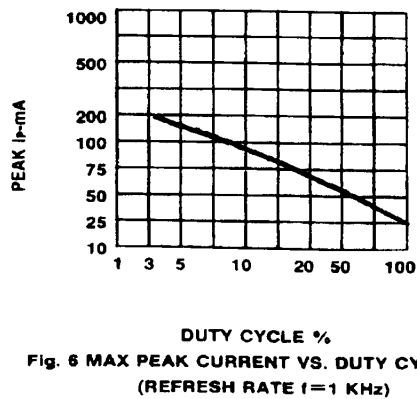


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f=1\text{ KHz}$ )

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