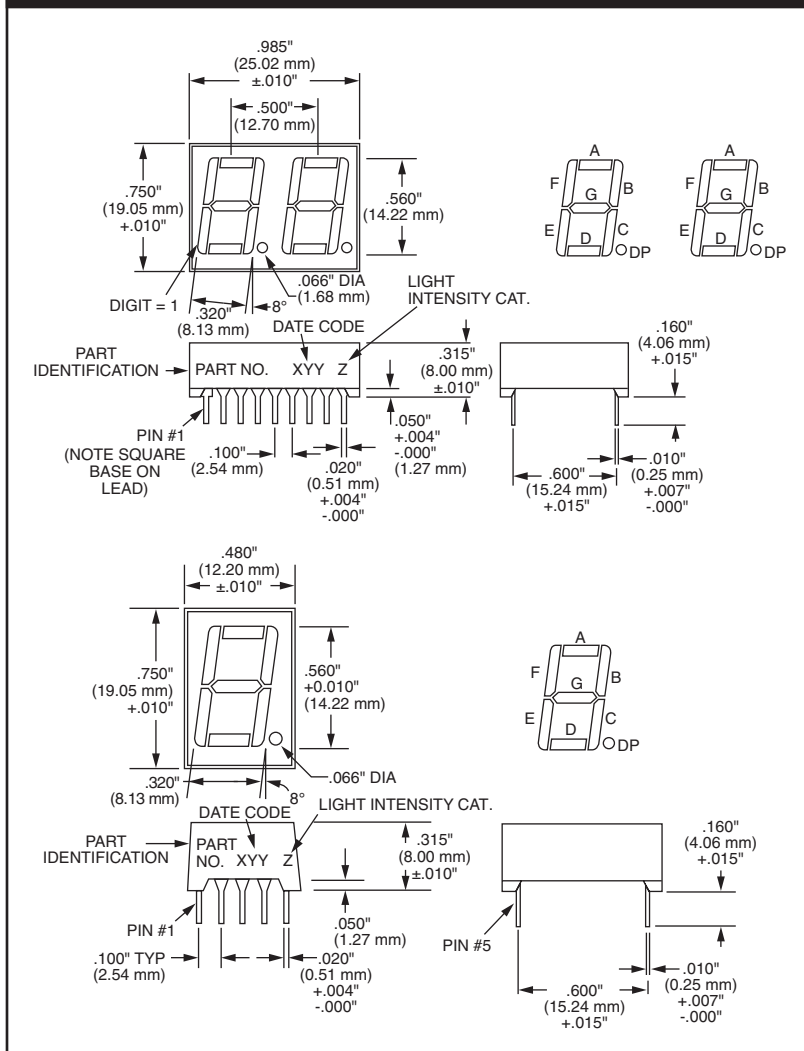


HIGH EFFICIENCY GREEN MAN6400 SERIES

PACKAGE DIMENSIONS



Description

The MAN6400 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. All models have right hand decimal points and are available in common anode or common cathode configuration. This device has a Grey face and clear segments to enhance ON and OFF contrast.

Features

- High Efficiency Green 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 5)
- 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 |
| MAN6410 | High Eff. Green | 2 Digit; Common Anode; Rt. Hand Decimal | A | A |
| MAN6440 | High Eff. Green | 2 Digit; Common Cathode; Rt. Hand Decimal | A | B |
| MAN6460 | High Eff. Green | Single Digit; Common Anode; Rt. Hand Decimal | B | C |
| MAN6980 | High Eff. Green | Single Digit; Common Cathode; Rt. Hand Decimal | B | D |

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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 |
|----------------|--|
| MAN6400 Series | Panelgraphic Green 48 Homalite 100-1440 Green Panelgraphic Grey 10 Homalite 100-1266 Grey |

ELECTRO-OPTICAL CHARACTERISTICS

(Per Diode 25°C Free Air Temperature Unless Otherwise Specified)

| | Min. | Typ. | Max. | Units | Test Conditions |
|--|------|------|------|-------|------------------------|
| Luminous Intensity, digit average (See Note 1) | 510 | 2200 | | μcd | I _F = 10 mA |
| Peak emission wavelength | | 565 | | nm | |
| Spectral line half width | | 30 | | nm | |
| Forward voltage | | | | | |
| Segment | | 2.1 | 2.8 | V | I _F = 20 mA |
| Decimal point | | 2.1 | 2.8 | V | I _F = 20 mA |
| Dynamic resistance | | | | | |
| Segment | | 26 | | Ω | I _F = 20 mA |
| Decimal point | | 26 | | Ω | I _F = 20 mA |
| Capacitance | | | | | |
| Segment | | 35 | | pF | V = 0 |
| Decimal point | | 35 | | pF | V = 0 |
| Reverse current | | | | | |
| Segment | | | 100 | μA | V _R = 3.0V |
| Decimal point | | | 100 | μA | V _R = 3.0V |
| Ratio I _L | | | 2:1 | — | I _F = 10 mA |

ABSOLUTE MAXIMUM RATINGS

| | MAN64X0 |
|---|----------------|
| Power dissipation at 25°C ambient | 600mW |
| Derate linearly from 50°C | |
| Storage and operating temperature | -40°C to +85°C |
| Continuous forward current | |
| Total | |
| Per segment | 30 mA |
| Decimal point | 30 mA |
| Reverse voltage | |
| Per segment | 6.0 V |
| Decimal point | 6.0 V |
| Soldering time at 260°C (See Notes 3 and 4) | 5 sec. |

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TYPICAL THERMAL CHARACTERISTICS

| | |
|---|------------|
| Thermal resistance junction to free air ϕ_{JA} | 160°C/W |
| Wavelength temperature coefficient (case temperature) | 1.0Å/°C |
| Forward voltage temperature coefficient | -2.0 mV/°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 $\pm 33.3\%$ between all segments within a digit.
2. The curve in Figure 3 is normalized to the brightness at 25°C to indicate the relative efficiency over the operating temperature range.
3. Leads of the device immersed to 1/16 inch from the body. Maximum device surface temperature is 140°C.
4. 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.

ELECTRICAL CONNECTIONS

| Pin No. | ELECTRICAL CONNECTIONS | | | |
|---------|------------------------|-----------------|--------------|----------------|
| | A MAN6410 | B MAN6440 | C MAN6460 | D MAN6480 |
| 1 | Cathode E 1 | Anode E 1 | Cathode E | Anode E |
| 2 | Cathode D 1 | Anode D 1 | Cathode D | Anode D |
| 3 | Cathode C 1 | Anode C 1 | Common Anode | Common Cathode |
| 4 | Cathode D.P. 1 | Anode D.P. 1 | Cathode C | Anode C |
| 5 | Cathode E 2 | Anode E 2 | Cathode D.P. | Anode D.P. |
| 6 | Cathode D 2 | Anode D 2 | Cathode B | Anode B |
| 7 | Cathode G 2 | Anode G 2 | Cathode A | Anode A |
| 8 | Cathode C 2 | Anode C 2 | Common Anode | Common Cathode |
| 9 | Cathode D.P. 2 | Anode D.P. 2 | Cathode F | Anode F |
| 10 | Cathode B 2 | Anode B 2 | Cathode G | Anode G |
| 11 | Cathode A 2 | Anode A 2 | | |
| 12 | Cathode F 2 | Anode F 2 | | |
| 13 | Anode Digit 2 | Cathode Digit 2 | | |
| 14 | Anode Digit 1 | Cathode Digit 1 | | |
| 15 | Cathode B 1 | Anode B 1 | | |
| 16 | Cathode A 1 | Anode A 1 | | |
| 17 | Cathode G 1 | Anode G 1 | | |
| 18 | Cathode F 1 | Anode F 1 | | |

HIGH EFFICIENCY GREEN MAN6400 SERIES

TYPICAL CHARACTERISTIC CURVES

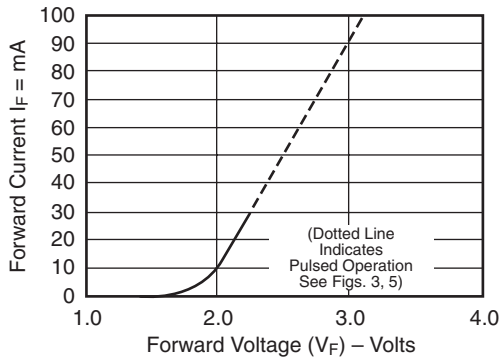


Fig. 1 Forward Current vs. Forward Voltage

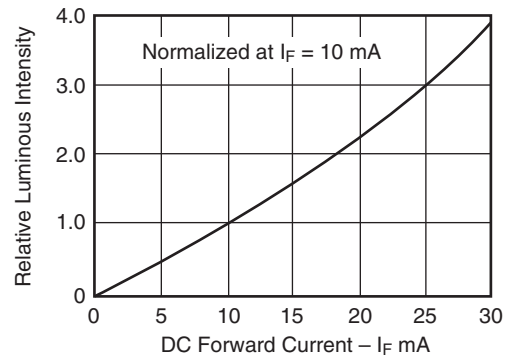


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

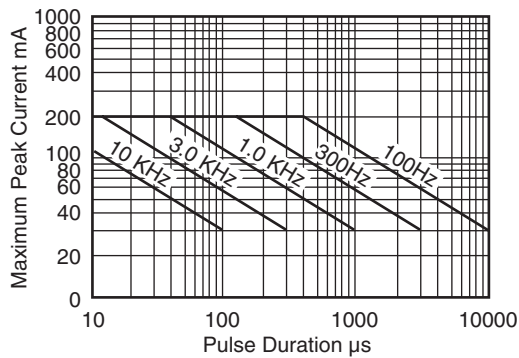


Fig. 3 Maximum Peak Current vs. Pulse Duration

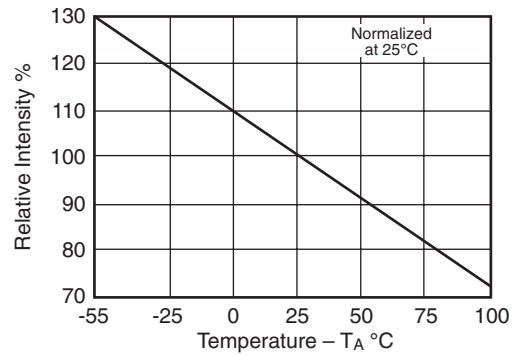


Fig. 4 Relative Luminous Intensity vs. Temperature

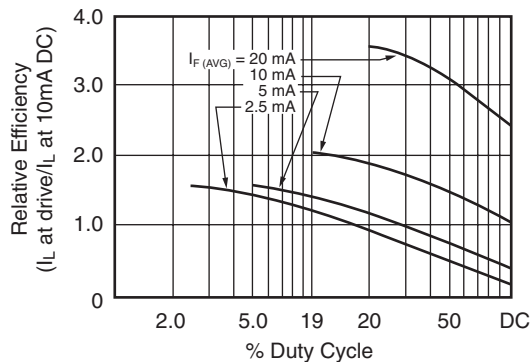
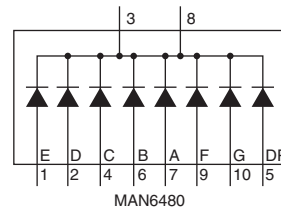
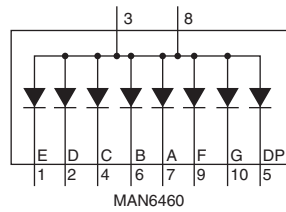
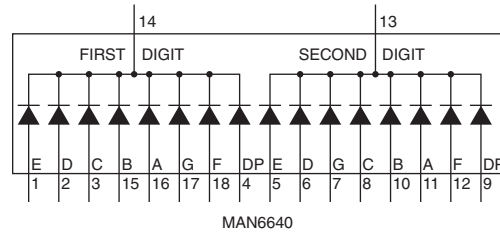
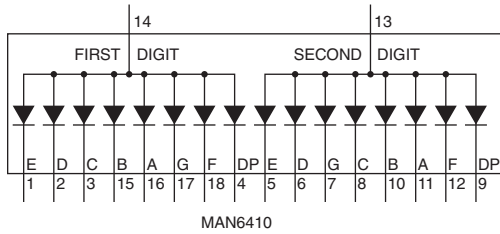


Fig. 5 Relative Efficiency vs. Duty Cycle

HIGH EFFICIENCY GREEN MAN6400 SERIES

INTERNAL CONNECTIONS



HIGH EFFICIENCY GREEN MAN6400 SERIES

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- Консультации по применению компонента;
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- Техническая поддержка проекта;
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