

**Bright Red MANC3110, MANC3140
High Efficiency Red MANC3910, MANC3940
Green MANC3410, MANC3440**

TR/QTO/SV001

| PACKAGE DIMENSIONS | | FEATURES |
|---|--|---|
| <p>Technical drawing showing package dimensions in inches (mm):</p> <ul style="list-style-type: none"> Top view: 0.300 (7.62) width, 0.200 (5.08) height, 0.390 (9.91) total height, 0.010 (0.25) lead thickness, 0.200 (5.08) lead length, 10° lead angle. Side view: 0.150 (3.81) lead height, 0.100 (2.54) lead length, 0.020 (0.508) lead thickness. Perspective view: 0.500 (12.70) total height, 0.300 (7.62) width, 0.117 (2.97) segment height, 0.168 (4.27) segment width, 0.035 (0.89) lead thickness. | | <ul style="list-style-type: none"> •Bright Bold Segments •Common Anode/Cathode •Low Power Consumption •Low Current Capability •Neutral Segments •Grey Face •Epoxy Encapsulated Frame •High Performance •High Reliability |
| <p>NOTES:</p> <ul style="list-style-type: none"> •Dimensions are inches (mm) •Tolerances are +/- 0.010 (0.25mm) unless otherwise stated. | | <p>APPLICATIONS</p> <ul style="list-style-type: none"> •Appliances •Automotive •Instrumentation •Process Control |

| MODELS AVAILABLE | | | |
|------------------|---------------------|----------------|-----------------------------------|
| Part Number | Colour | Description | Recommended I _F Levels |
| MANC3110 | Bright Red | Common Anode | Standard Current (5mA - 20mA) |
| MANC3140 | Bright Red | Common Cathode | Standard Current (5mA - 20mA) |
| MANC3410 | Green | Common Anode | Standard Current (5mA - 20mA) |
| MANC3440 | Green | Common Cathode | Standard Current (5mA - 20mA) |
| MANC3910 | High Efficiency Red | Common Anode | Standard Current (5mA - 20mA) |
| MANC3940 | High Efficiency Red | Common Cathode | Standard Current (5mA - 20mA) |
| | | | |
| | | | |

(For other colour options, contact your local area Sales Manager)

ABSOLUTE MAXIMUM RATINGS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified)

| Part Number | MANC3110 | MANC3410 | MANC3910 | |
|--|-------------------|----------|----------|-------|
| Parameter | MANC3140 | MANC3440 | MANC3940 | Units |
| Continuous Forward Current (each segment) | 15 | 25 | 25 | mA |
| Peak Forward Current ($F = 10\text{KHz}$, $D/F = 1/10$) | 60 | 90 | 90 | mA |
| Power Dissipation (P_D) | 40 | 70 | 70 | mW |
| *Derate Linearly from 25°C | 0.17 | 0.33 | 0.33 | mW |
| Reverse Voltage per Die | 5 Volts | | | |
| Operating and Storage Temperature Range | -40°C to +85°C | | | |
| Lead soldering time (1/16 inch from standoffs) | 5 seconds @ 230°C | | | |

ELECTRO-OPTICAL CHARACTERISTICS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified)

| Part Number | MANC3110 | MANC3410 | MANC3910 | | |
|--|----------|----------|----------|-------|------------------------|
| Parameter | MANC3140 | MANC3440 | MANC3940 | Units | Test Condition |
| Luminous intensity⁽²⁾ (I_V) | | | | | |
| Minimum (Standard Current) | | 860 | 980 | ucd | $I_F = 5\text{mA}$ |
| Typical (Standard Current) | 700 | 6800 | 5390 | ucd | $I_F = 20\text{mA}$ |
| For low current versions see | MAN3H10 | MAN3G10 | MAN3R10 | | |
| | MAN3H40 | MAN3G40 | MAN3R40 | | |
| Forward Voltage (V_F) | | | | | |
| Typical (Standard Current) | 2.10 | 2.10 | 2.00 | Volts | $I_F = 20\text{mA}$ |
| Maximum (Standard Current) | 2.80 | 2.80 | 2.50 | Volts | $I_F = 20\text{mA}$ |
| | | | | | |
| Peak Wavelength | 700 | 568 | 643 | nm | $I_F = 20\text{mA}$ |
| Dominant Wavelength | | 573 | 632 | nm | $I_F = 20\text{mA}$ |
| Spectral Line 1/2 Width | 90 | 30 | 45 | nm | $I_F = 10\text{mA}$ |
| Reverse B⁽³⁾.Voltage (V_R) | 5 | 5 | 5 | Volts | $I_R = 100\mu\text{A}$ |

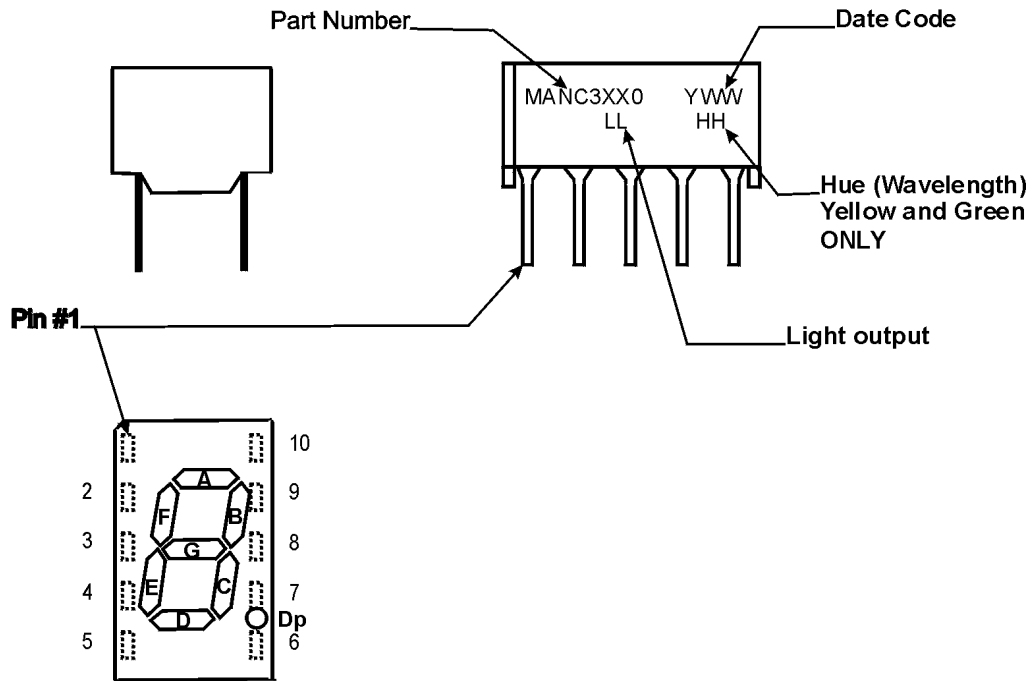
NOTES:

(1) Data per individual LED element

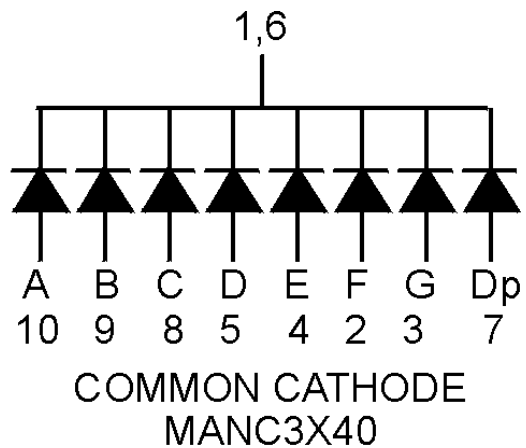
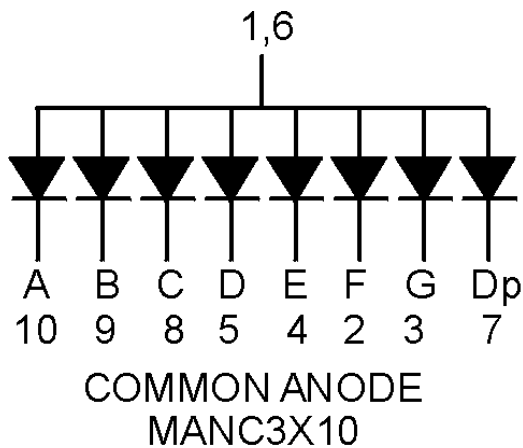
(2) Luminous intensity (ucd) = average light output per segment

(3) B = breakdown

PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



SCHEMATICS



GRAPHICAL DATA Bright Red ($T_A = 25^\circ\text{C}$, unless otherwise specified)

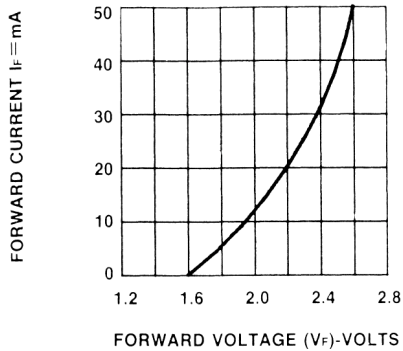


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

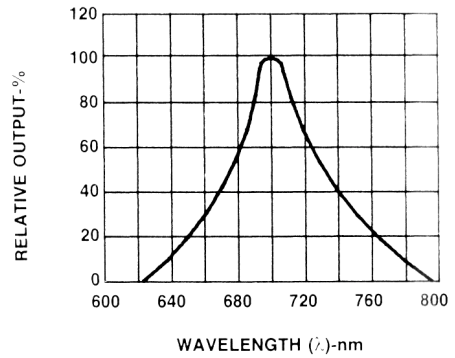


Fig.2 SPECTRAL RESPONSE

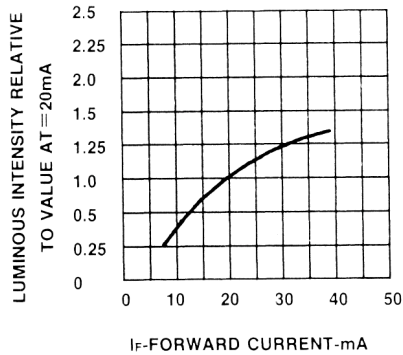


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

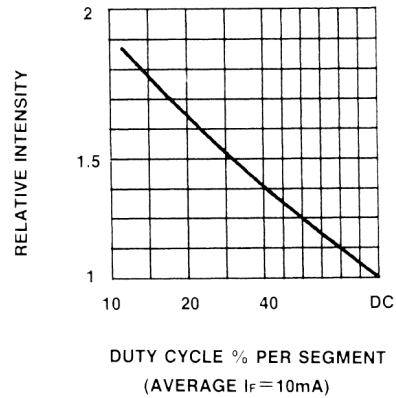


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

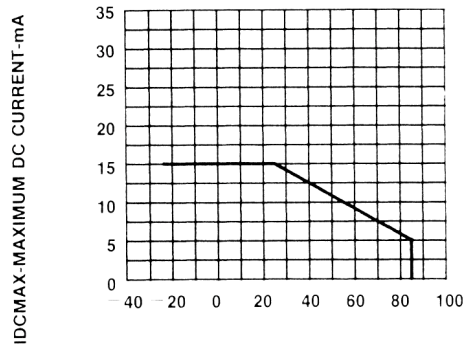


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

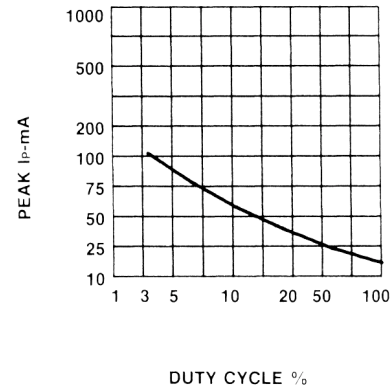


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1\text{ kHz}$)

GRAPHICAL DATA Green ($T_A = 25^\circ\text{C}$, unless otherwise specified)

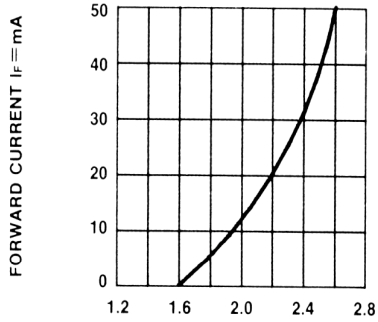


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

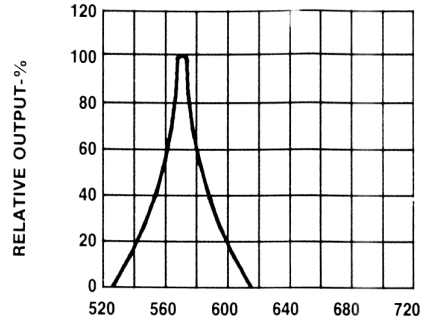


Fig.2 SPECTRAL RESPONSE

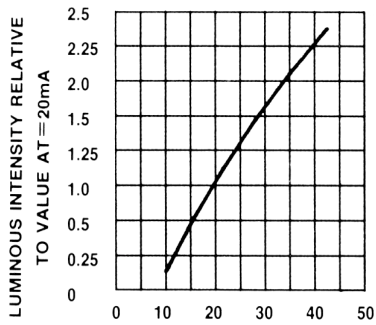


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

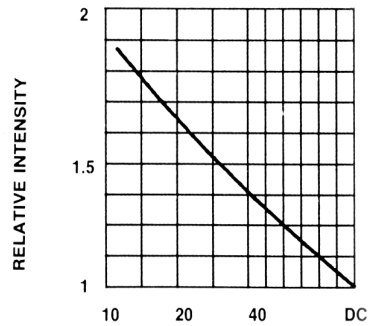


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

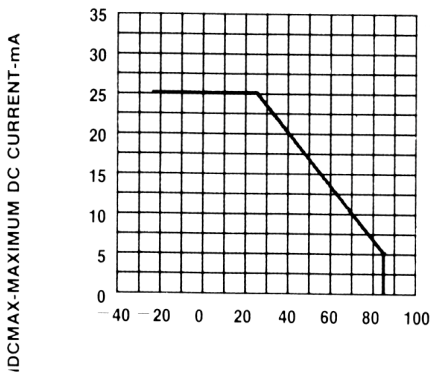


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.

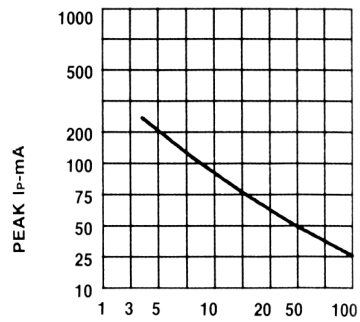


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE (REFRESH RATE $f = 1\text{ KHz}$)

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

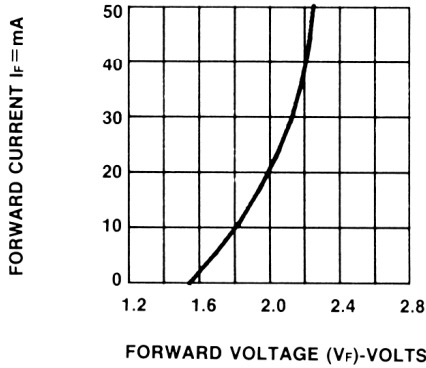


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

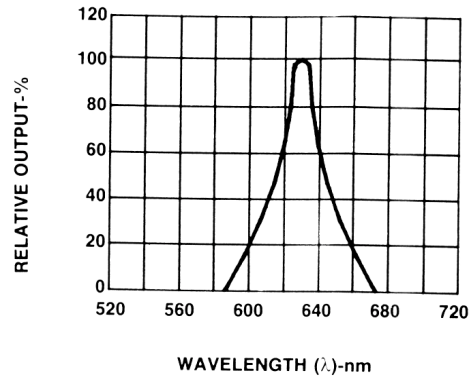


Fig.2 SPECTRAL RESPONSE

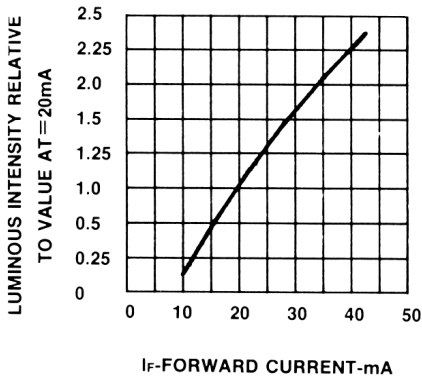


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

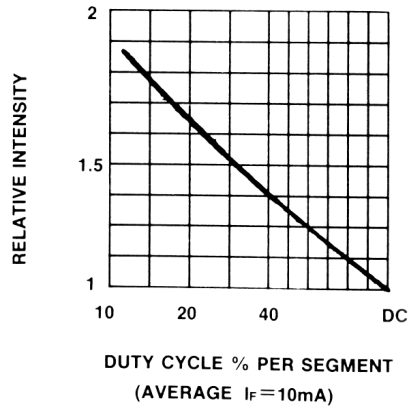


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

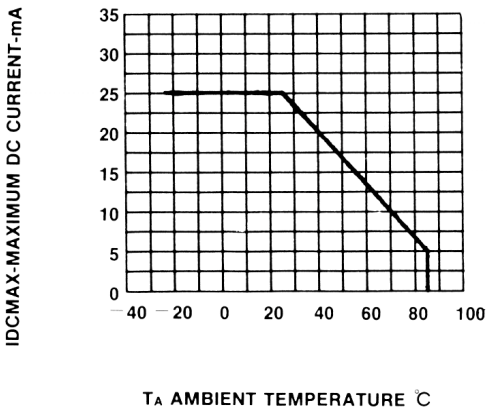


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE.

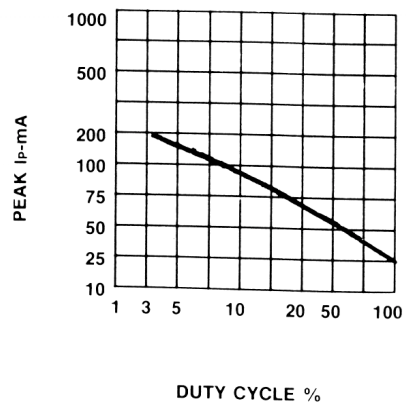


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

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