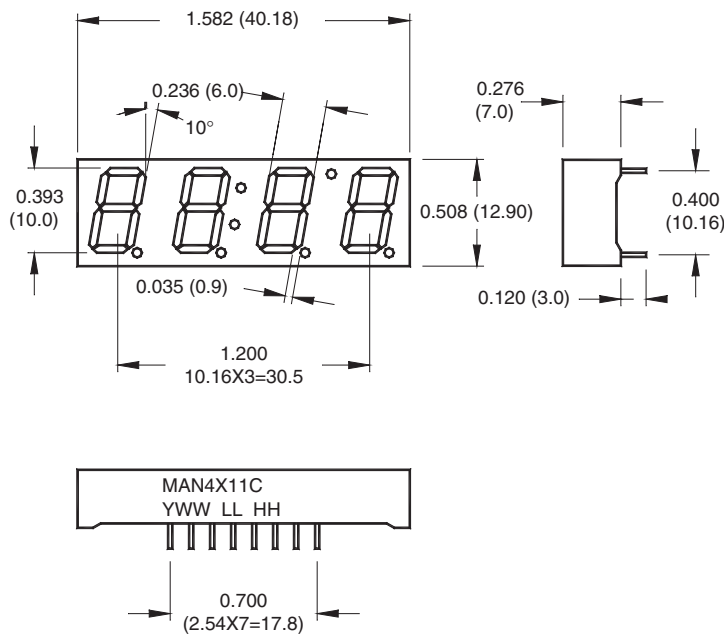


Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C

PACKAGE DIMENSIONS



Notes:

- Dimensions are in mm (inches)
- Tolerances are $\pm 0.25\text{mm}$ (0.010") unless otherwise stated.

Features

- Bright bold segments
- Common Anode/Cathode
- Low Power Consumption
- Low Current Capability
- Neutral Segments
- Grey Face
- Epoxy Encapsulated PCB
- High Performance
- High Reliability

Applications

- Appliances
- Automotive
- Instrumentation
- Process control

MODELS AVAILABLE

| Part Number | Color | Description |
|-------------|---------------------|--|
| MSQC4111C | Bright Red | Four Digit, 12/24 hour Clock Display, CA |
| MSQC4411C | Green | Four Digit, 12/24 hour Clock Display, CA |
| MSQC4911C | High Efficiency Red | Four Digit, 12/24 hour Clock Display, CA |

**Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C**

| ABSOLUTE MAXIMUM RATINGS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified) | | | | |
|--|--|-----------|-----------|-------|
| Part Number Parameter | MSQC4111C | MSQC4411C | MSQC4910C | Units |
| Continuous Forward Current (each segment) | 15 | 25 | 25 | mA |
| Peak Forward Current ($F = 10\text{KHz}$, $D/F = 1/10$) | 60 | 100 | 90 | mA |
| Power Dissipation (P_D) | 40 | 75 | 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 $+85^\circ\text{C}$ | | | |
| Lead soldering time (1/16 inch from standoffs) | 5 seconds @ 230°C | | | |

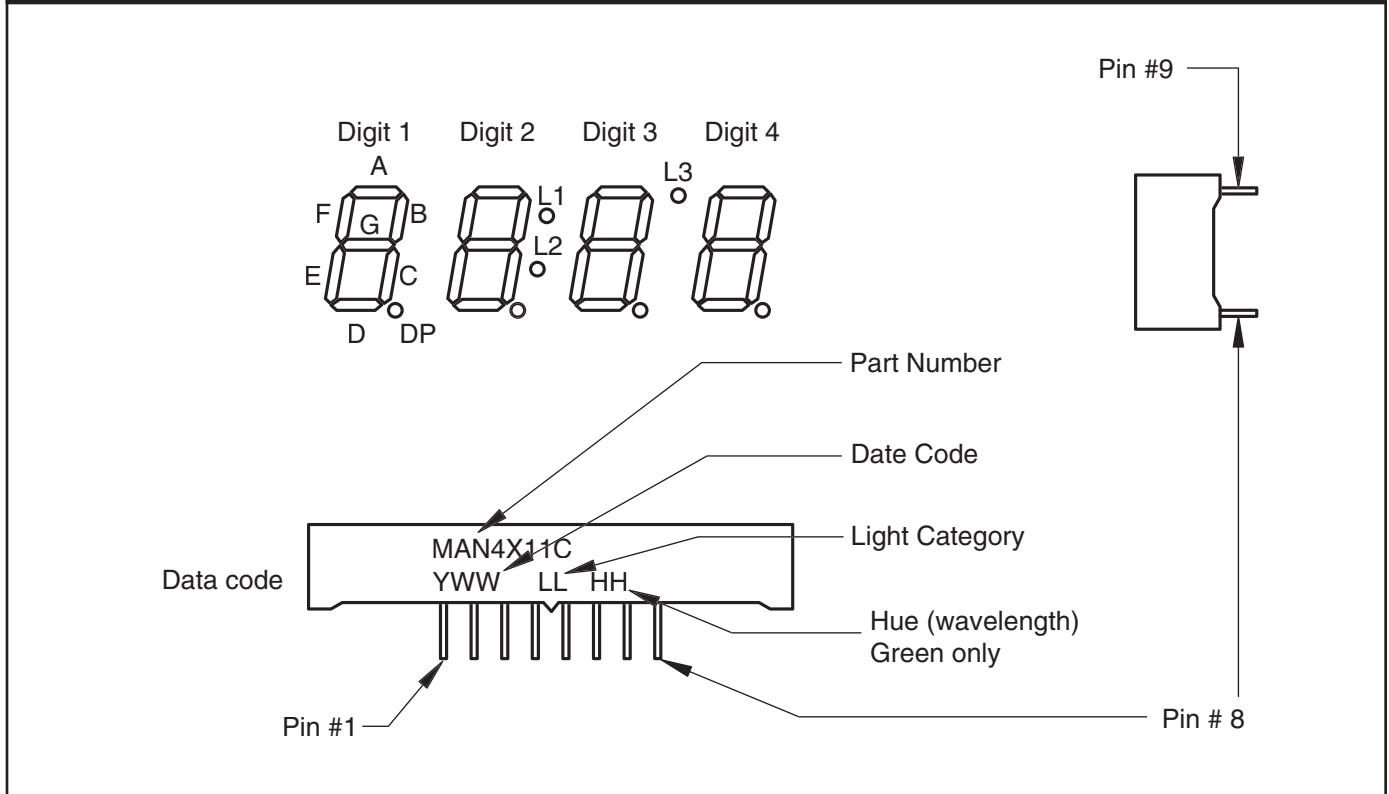
| ELECTRO-OPTICAL CHARACTERISTICS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified) | | | | | |
|---|---------------|-----------|-----------|----------------|------------------------|
| Part Number Parameter | MSQC4111C | MSQC4411C | MSQC4911C | Units | Test Condition |
| Luminous intensity ⁽²⁾ (I_V) | | | | | |
| Minimum (Standard Current) | 300 | 800 | 800 | μcd | $I_F = 20\text{mA}$ |
| Typical (Standard Current) | 700 | 2000 | 2000 | μcd | $I_F = 20\text{mA}$ |
| Minimum (Low Current) | Not Available | | | | |
| Typical (Low Current) | Not Available | | | | |
| Forward Voltage (V_F) | | | | | |
| Typical (Standard Current) | 2.10 | 2.10 | 2.00 | V | $I_F = 20\text{mA}$ |
| Maximum (Standard Current) | 2.80 | 2.80 | 2.80 | V | $I_F = 20\text{mA}$ |
| Typical (Low Current) | Not Available | | | | |
| Maximum (Low Current) | Not Available | | | | |
| Peak Wavelength | 695 | 570 | 635 | nm | $I_F = 20\text{mA}$ |
| Dominant Wavelength | Not Available | | | | |
| Spectral Line 1/2 Width | 90 | 30 | 45 | nm | $I_F = 10\text{mA}$ |
| Reverse B ⁽³⁾ . Voltage (V_R) | 5 | 5 | 5 | V | $I_R = 100\mu\text{A}$ |

NOTES:

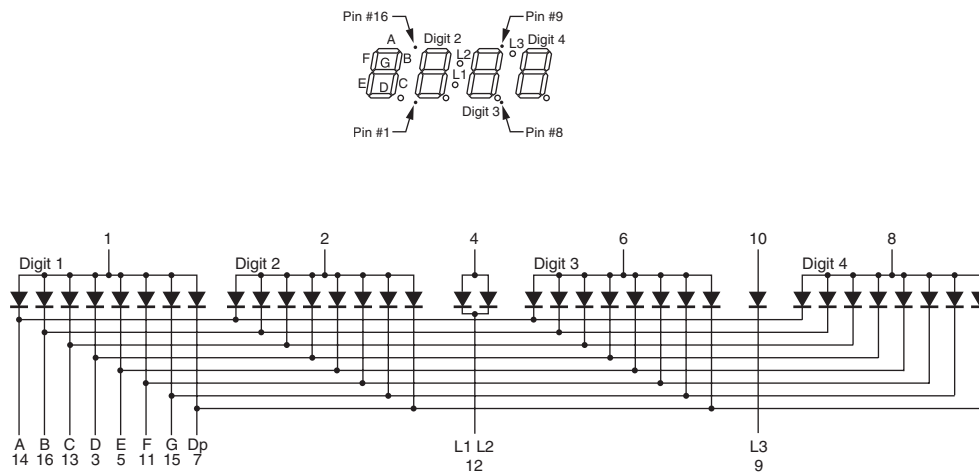
- (1) Data per individual LED element
- (2) Luminous intensity (μcd) = average light output per segment
- (3) B = breakdown

Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C

PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



SCHEMATICS



**Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C**

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

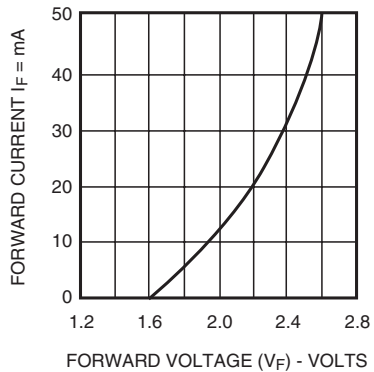


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

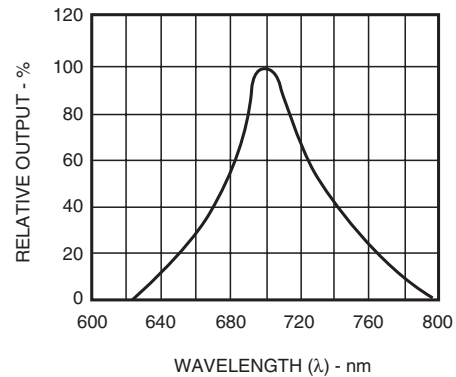


Fig. 2 SPECTRAL RESPONSE

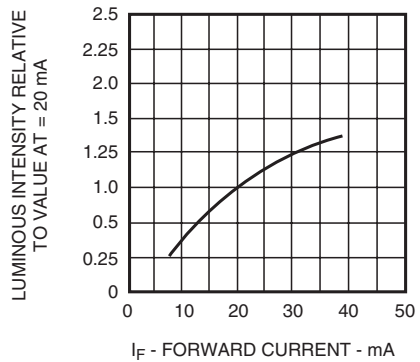


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

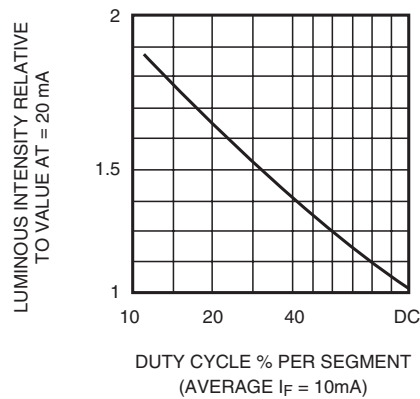


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

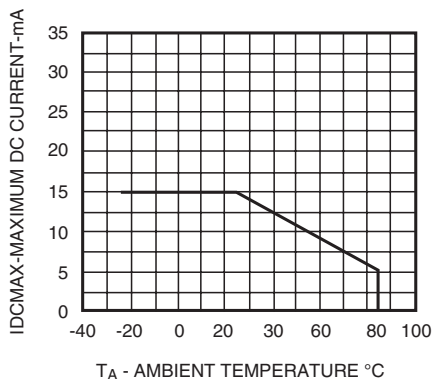


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

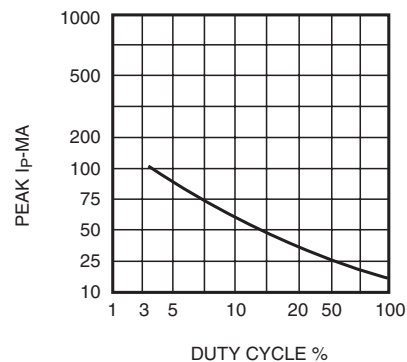


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1\text{KHz}$)

**Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C**

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

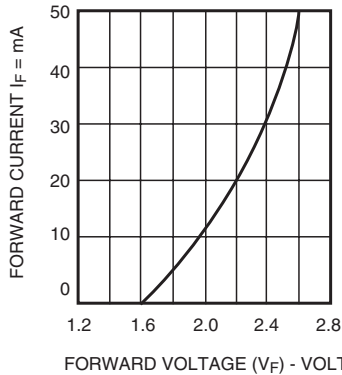


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

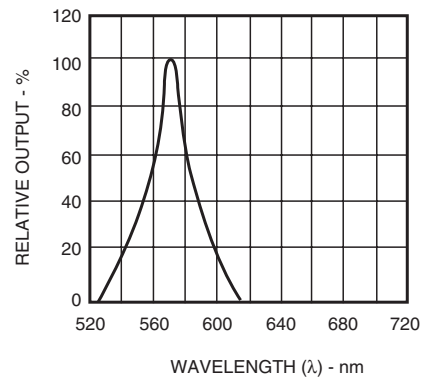


Fig. 2 SPECTRAL RESPONSE

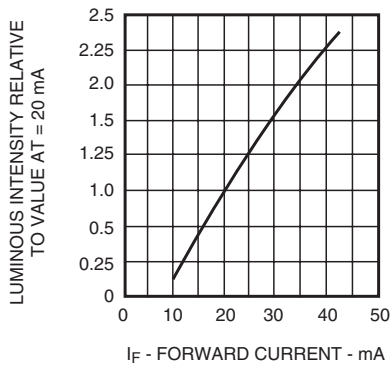


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

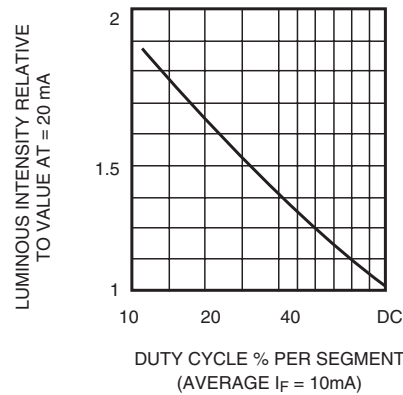


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

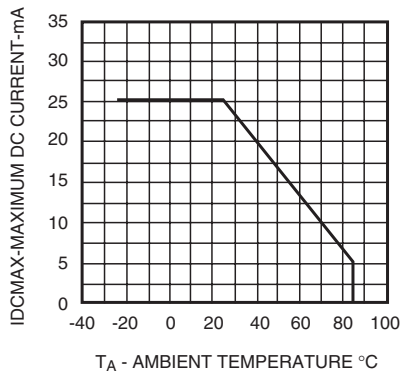


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

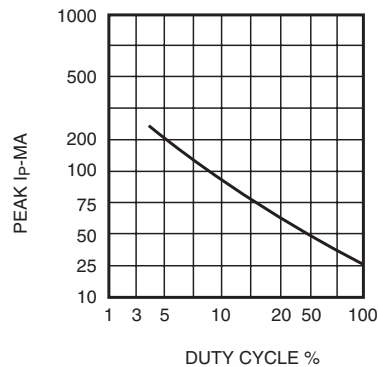


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

**Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C**

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

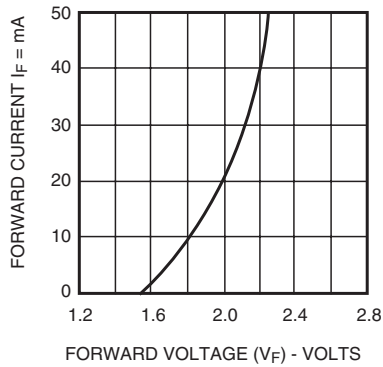


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

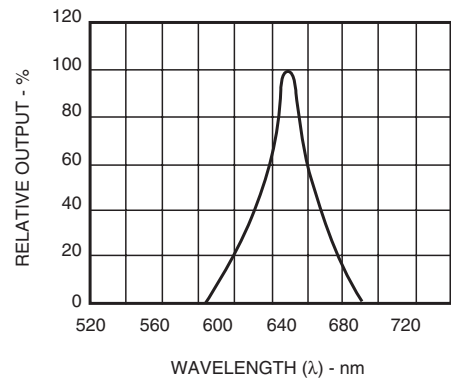


Fig. 2 SPECTRAL RESPONSE

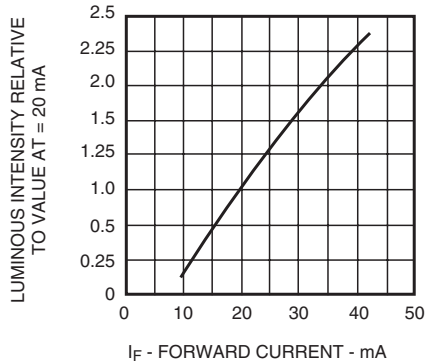


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

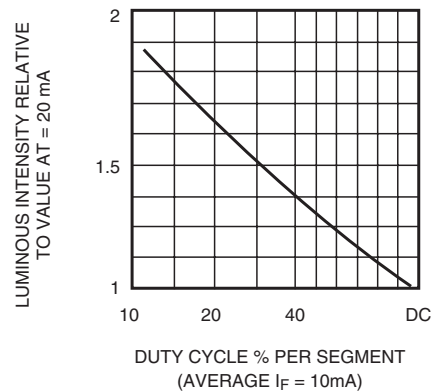


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

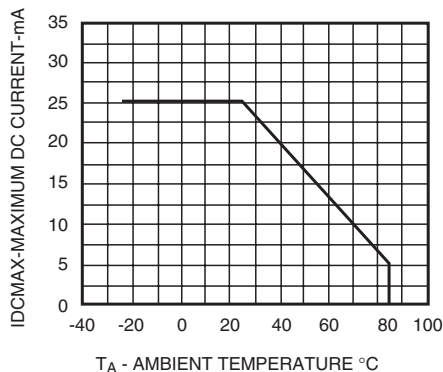


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

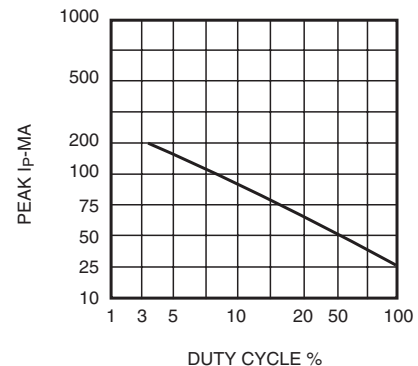


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

**Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C**

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