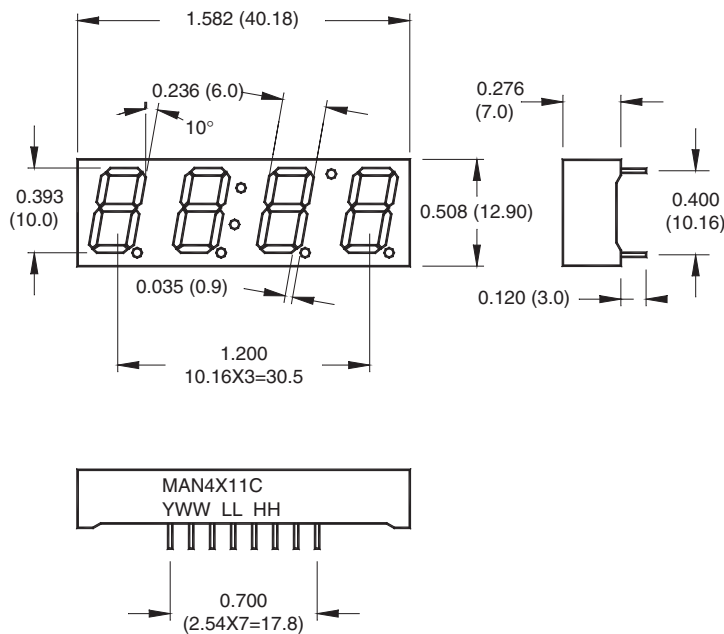


**Bright Red MSQC4111C**  
**High Efficiency MSQC4911C**  
**Green MSQC4411C**

## 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**

<b>ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup></b> ( $T_A = 25^\circ\text{C}$ , 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 $25^\circ\text{C}$	0.17	0.33	0.33	mW
Reverse Voltage per Die	5 Volts			
Operating and Storage Temperature Range	$-40^\circ\text{C}$ to $+85^\circ\text{C}$			
Lead soldering time (1/16 inch from standoff)	5 seconds @ $230^\circ\text{C}$			

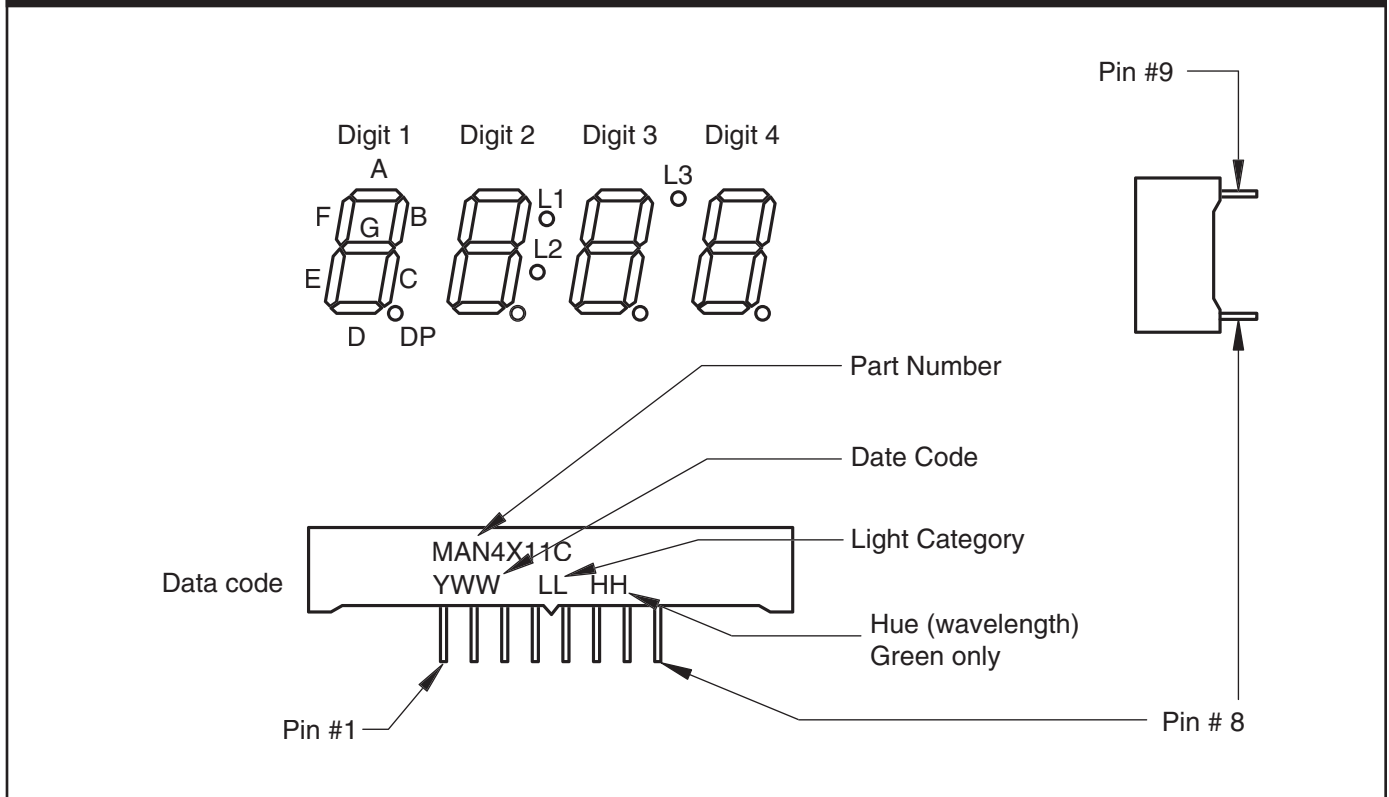
<b>ELECTRO-OPTICAL CHARACTERISTICS<sup>(1)</sup></b> ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)					
Part Number Parameter	MSQC4111C	MSQC4411C	MSQC4911C	Units	Test Condition
Luminous intensity <sup>(2)</sup> ( $I_V$ )					
Minimum (Standard Current)	300	800	800	$\mu\text{cd}$	$I_F = 20\text{mA}$
Typical (Standard Current)	700	2000	2000	$\mu\text{cd}$	$I_F = 20\text{mA}$
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 <sup>(3)</sup> . Voltage ( $V_R$ )	5	5	5	V	$I_R = 100\mu\text{A}$

NOTES:

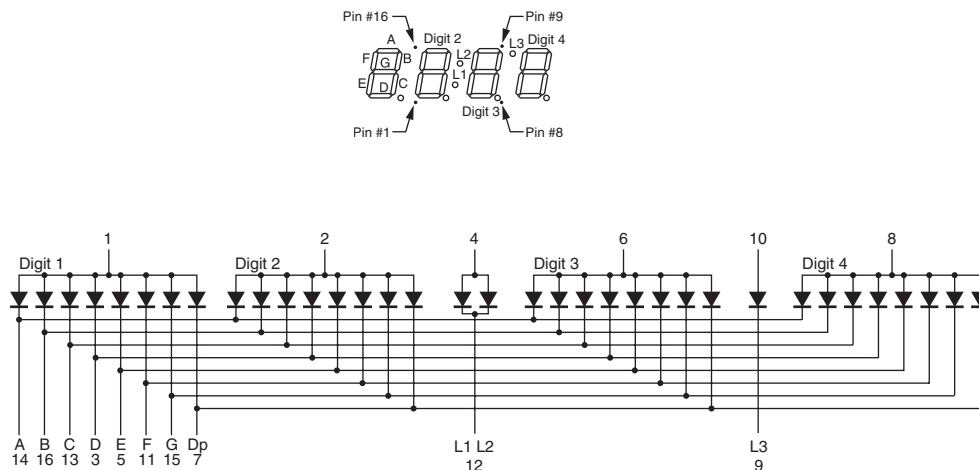
- (1) Data per individual LED element
- (2) Luminous intensity ( $\mu\text{cd}$ ) = average light output per segment
- (3) B = breakdown

**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)**

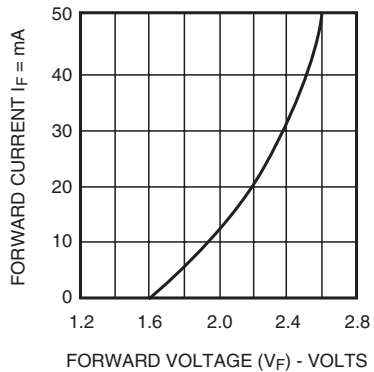


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

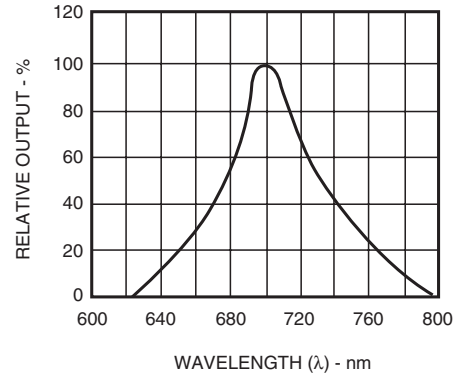


Fig. 2 SPECTRAL RESPONSE

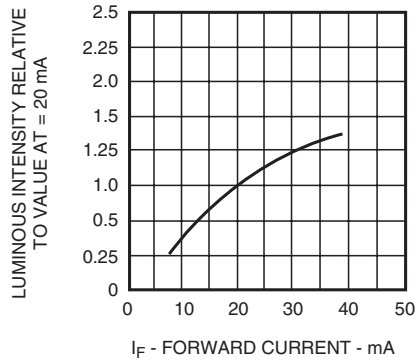


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

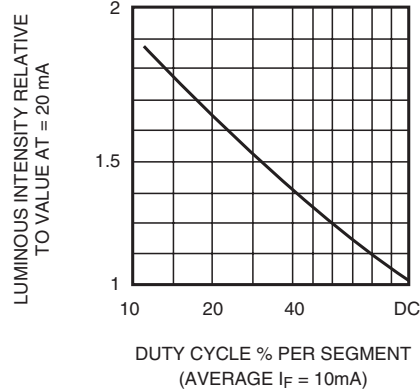


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

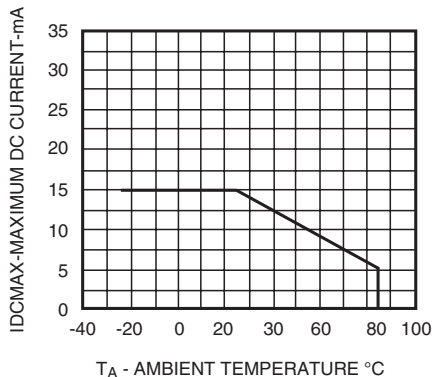


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

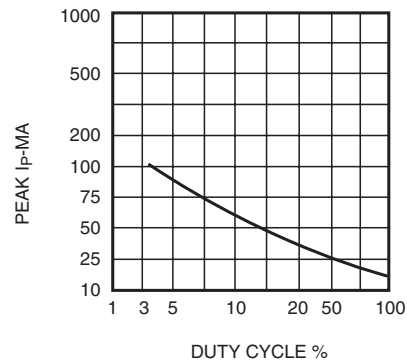


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{KHz}$ )

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

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

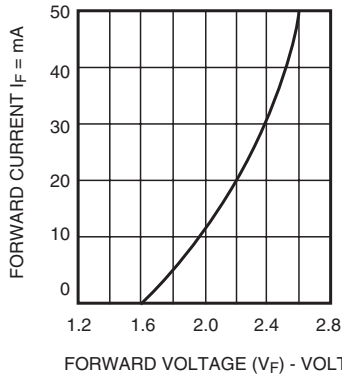


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

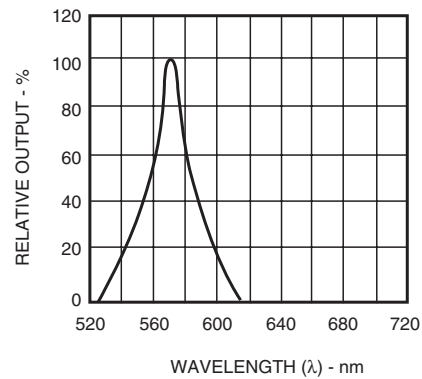


Fig. 2 SPECTRAL RESPONSE

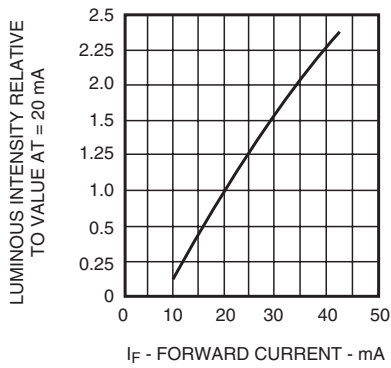


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

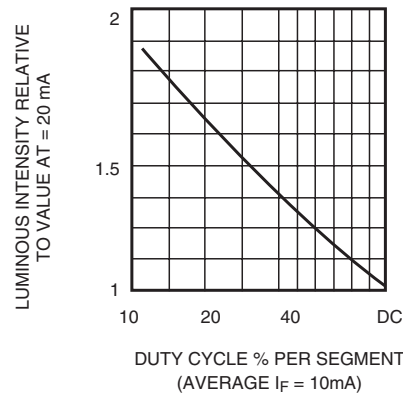


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

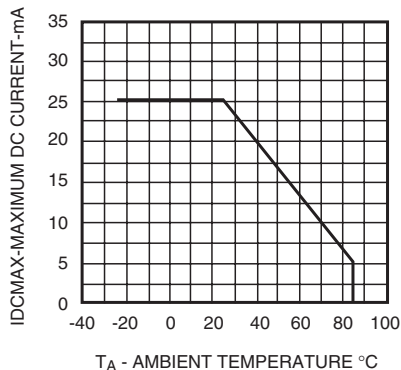


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

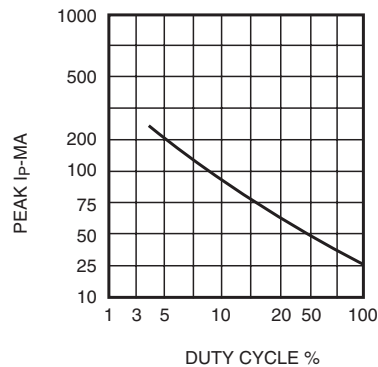


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

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

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

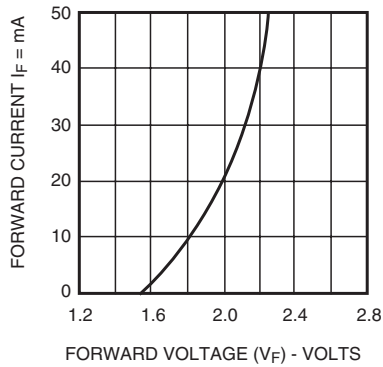


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

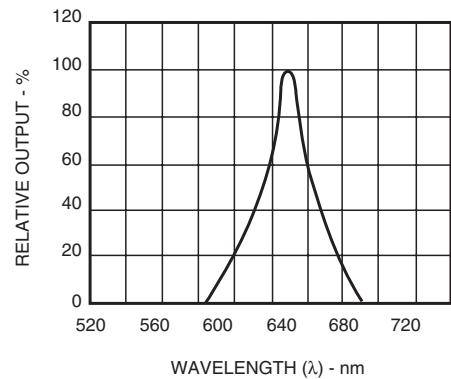


Fig. 2 SPECTRAL RESPONSE

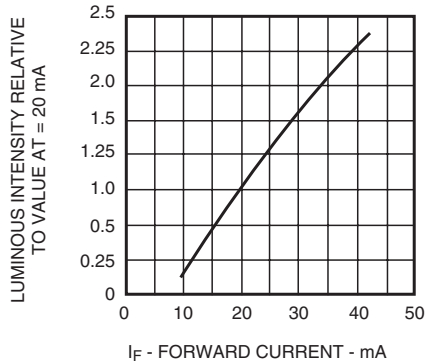


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

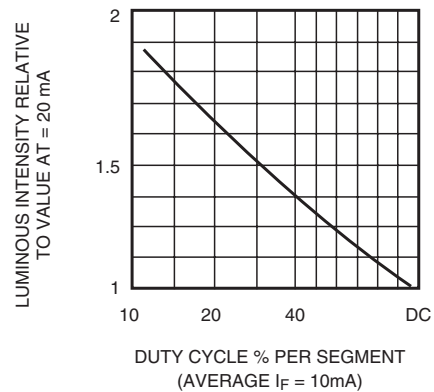


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

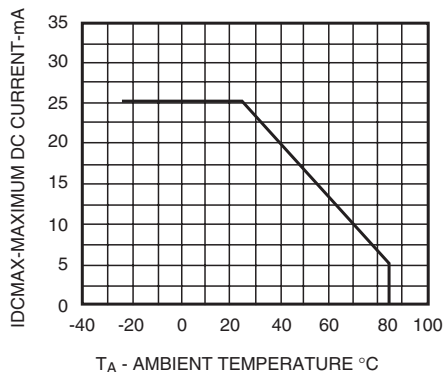


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

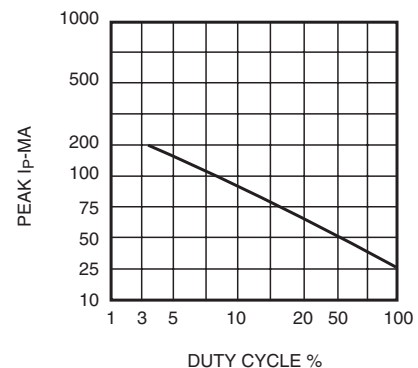


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )

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

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