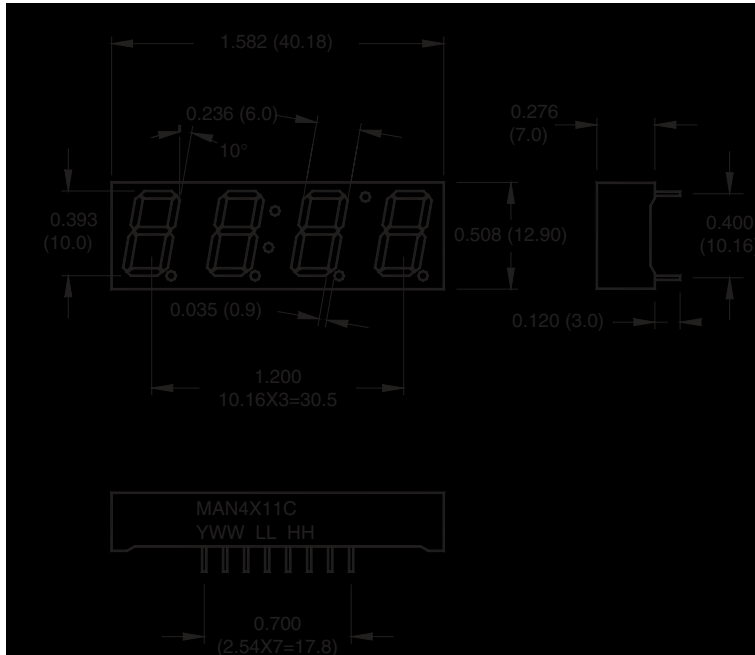


# 0.4 inch (10.2mm) 4 Digit CLOCK STICK DISPLAY

**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

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<b>ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup></b> ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)				
Part Number Parameter	MSQC4111C	MSQC4411C	MSQC4910C	Units
<b>Continuous Forward Current</b> (each segment)	15	25	25	mA
<b>Peak Forward Current</b> ( $F = 10\text{KHz}$ , $D/F = 1/10$ )	60	100	90	mA
<b>Power Dissipation (<math>P_D</math>)</b>	40	75	70	mW
<b>*Derate Linearly from <math>25^\circ\text{C}</math></b>	0.17	0.33	0.33	mW
<b>Reverse Voltage per Die</b>	5 Volts			
<b>Operating and Storage Temperature Range</b>	$-40^\circ\text{C}$ to $+85^\circ\text{C}$			
<b>Lead soldering time (1/16 inch from standoffs)</b>	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
<b>Luminous intensity<sup>(2)</sup> (<math>I_V</math>)</b>					
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				
<b>Forward Voltage (<math>V_F</math>)</b>					
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				
<b>Peak Wavelength</b>	695	570	635	nm	$I_F = 20\text{mA}$
<b>Dominant Wavelength</b>	Not Available				
<b>Spectral Line 1/2 Width</b>	90	30	45	nm	$I_F = 10\text{mA}$
<b>Reverse B<sup>(3)</sup>. Voltage (<math>V_R</math>)</b>	5	5	5	V	$I_R = 100\mu\text{A}$

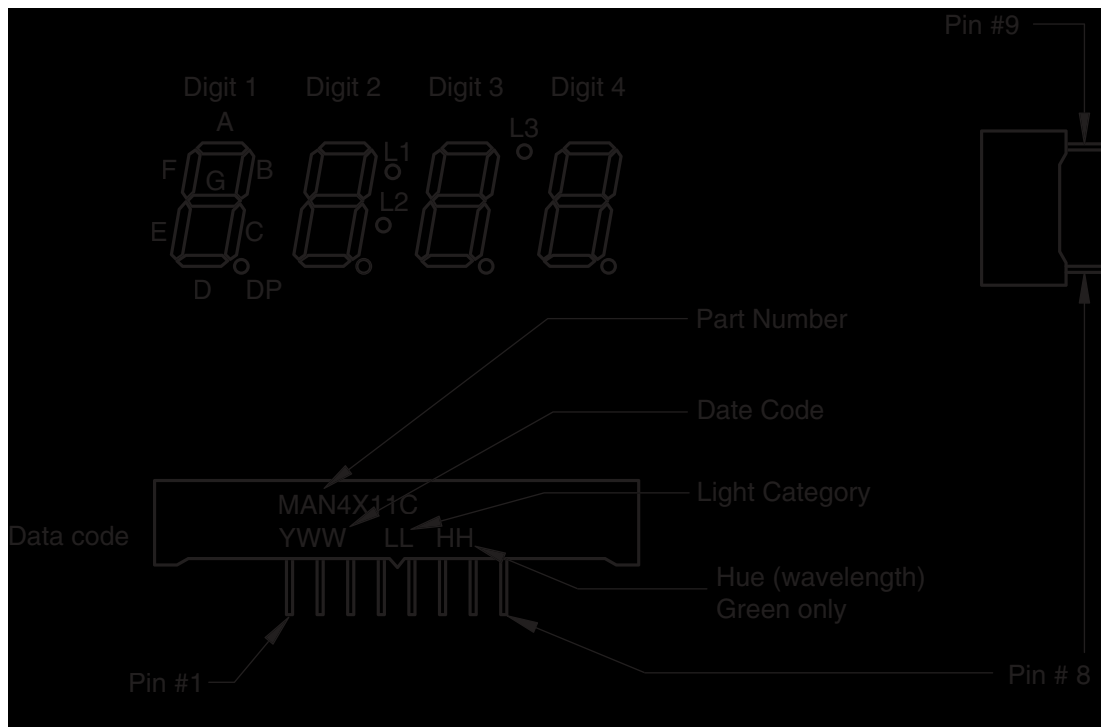
**NOTES:**

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

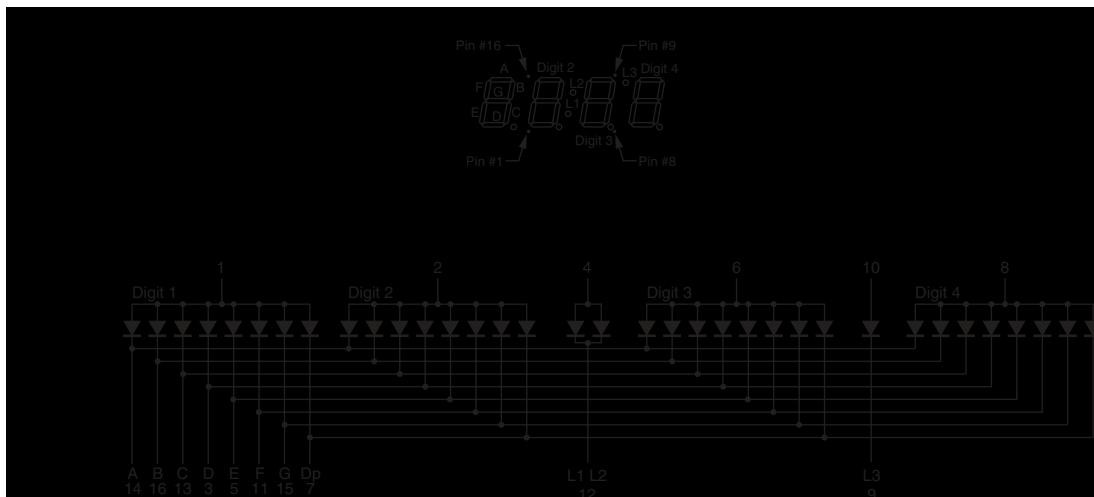
# 0.4 inch (10.2mm) 4 Digit CLOCK STICK DISPLAY

Bright Red MSQC4111C  
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## PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



## SCHEMATICS



# 0.4 inch (10.2mm) 4 Digit CLOCK STICK DISPLAY

Bright Red MSQC4111C  
High Efficiency MSQC4911C  
Green MSQC4411C

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

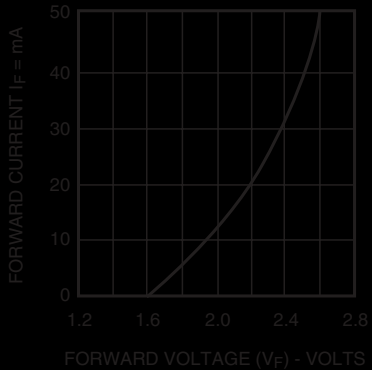


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

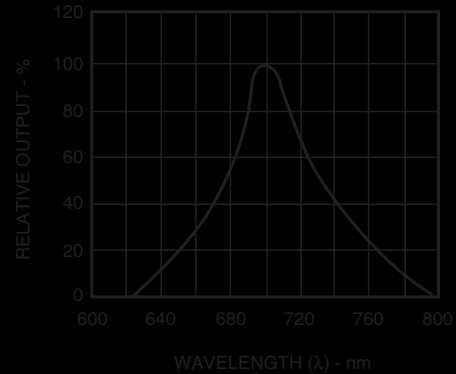


Fig. 2 SPECTRAL RESPONSE

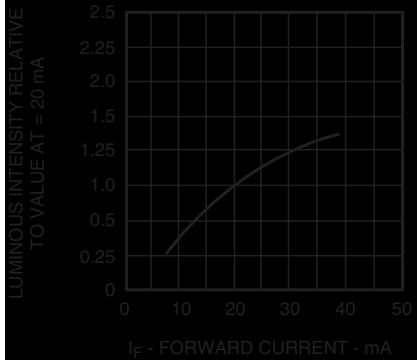


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

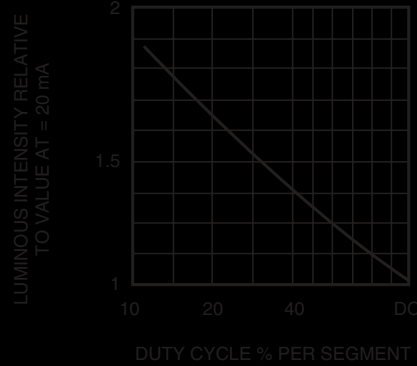


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

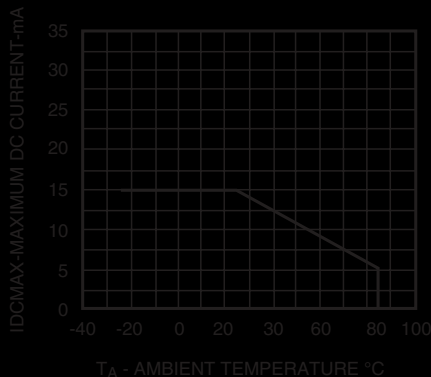


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

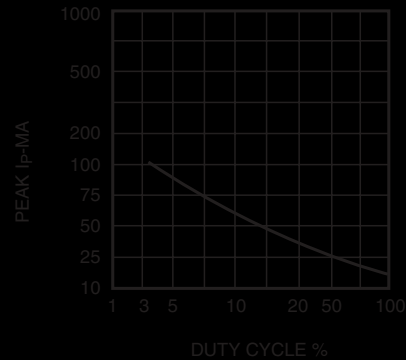
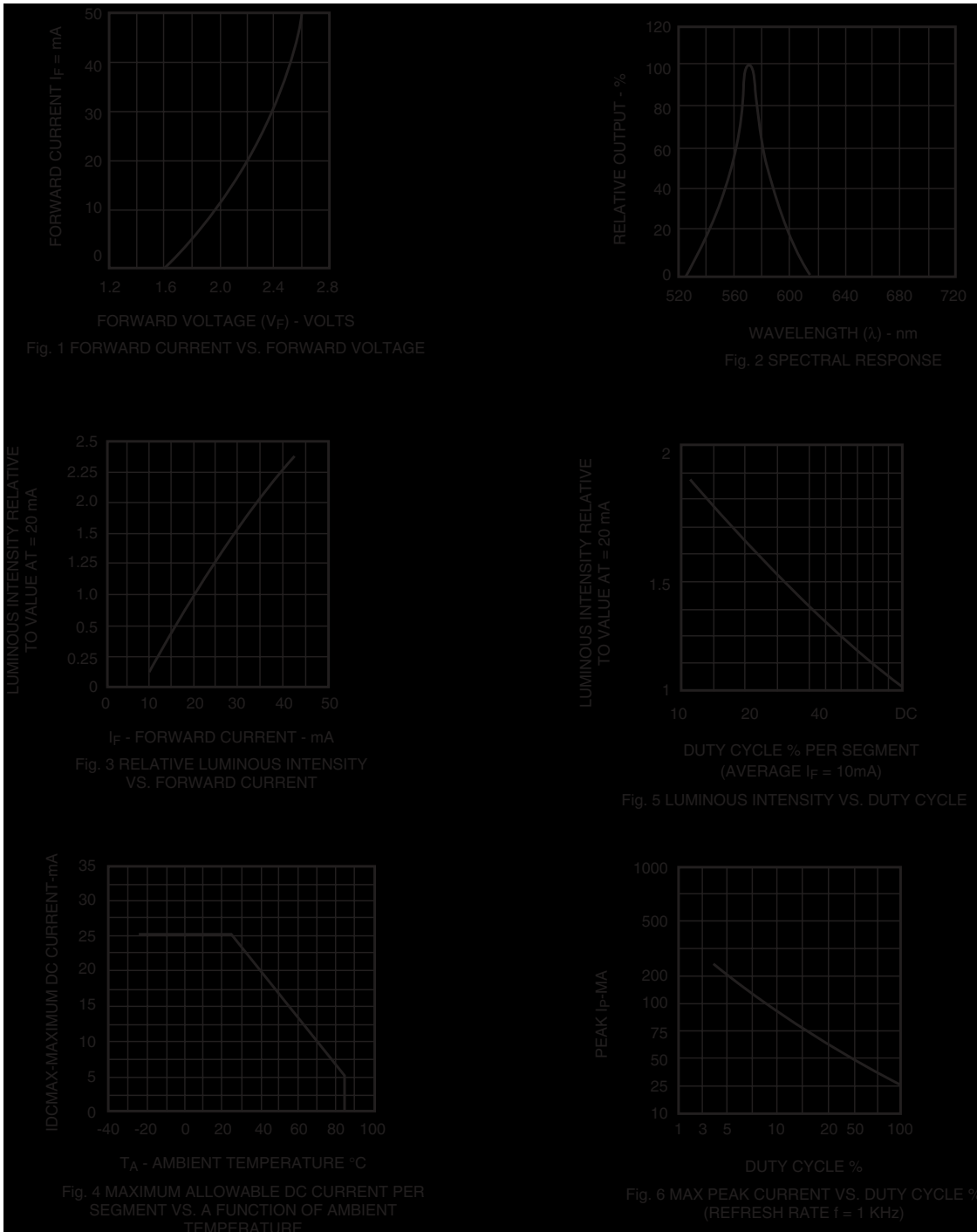


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )

# 0.4 inch (10.2mm) 4 Digit CLOCK STICK DISPLAY

Bright Red MSQC4111C  
High Efficiency MSQC4911C  
Green MSQC4411C

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



# 0.4 inch (10.2mm) 4 Digit CLOCK STICK DISPLAY

Bright Red MSQC4111C  
High Efficiency MSQC4911C  
Green MSQC4411C

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

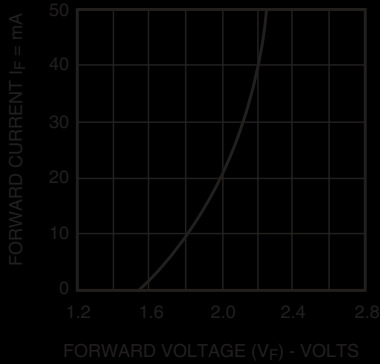


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

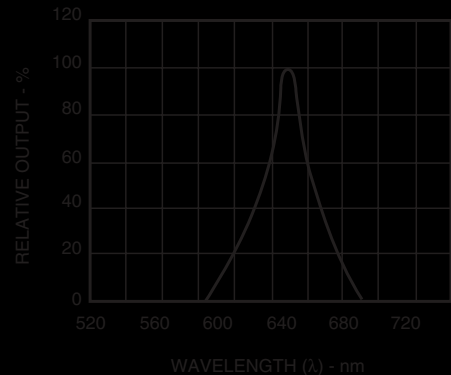


Fig. 2 SPECTRAL RESPONSE

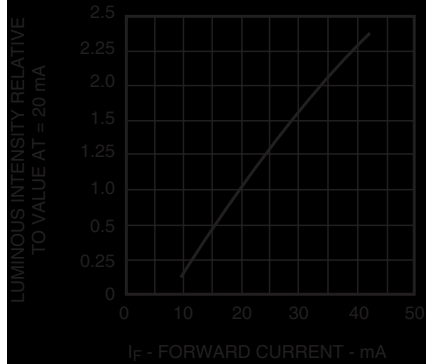


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

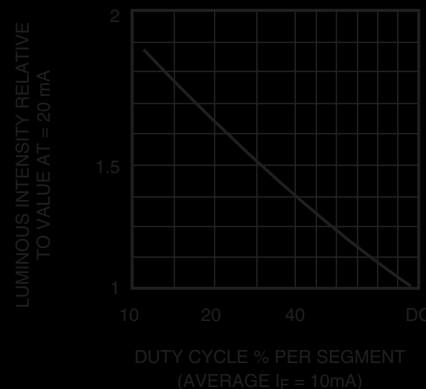


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

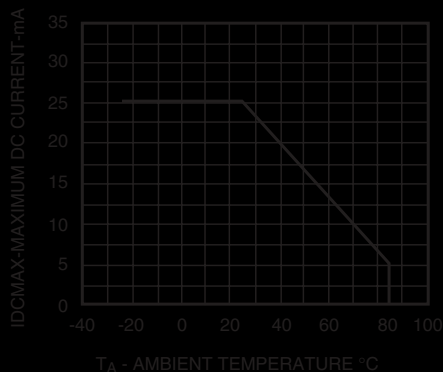


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

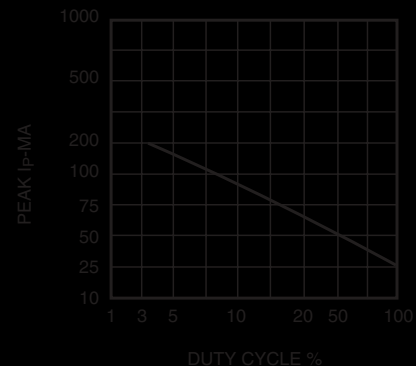


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1$  KHz)



# 0.4 inch (10.2mm) 4 Digit CLOCK STICK DISPLAY

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## **DISCLAIMER**

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.