



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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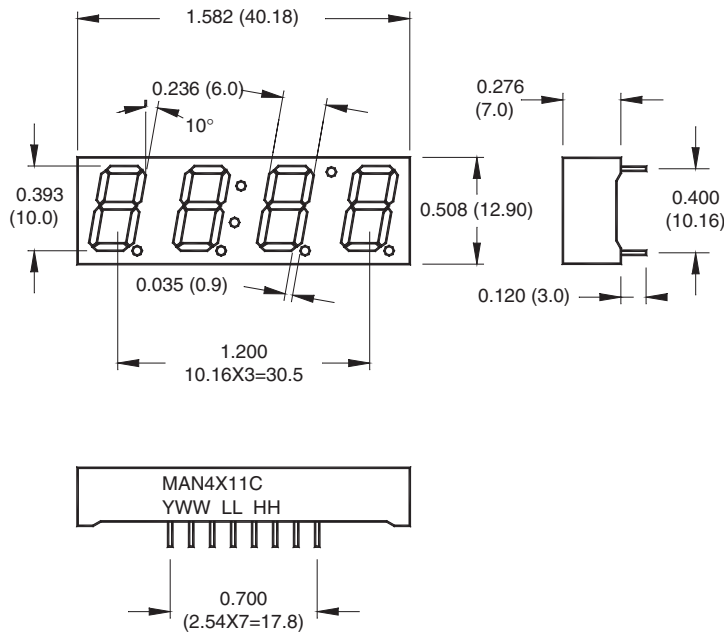
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

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**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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**ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>** ( $T_A = 25^\circ\text{C}$ , 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 standoffs)				5 seconds @ $230^\circ\text{C}$

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

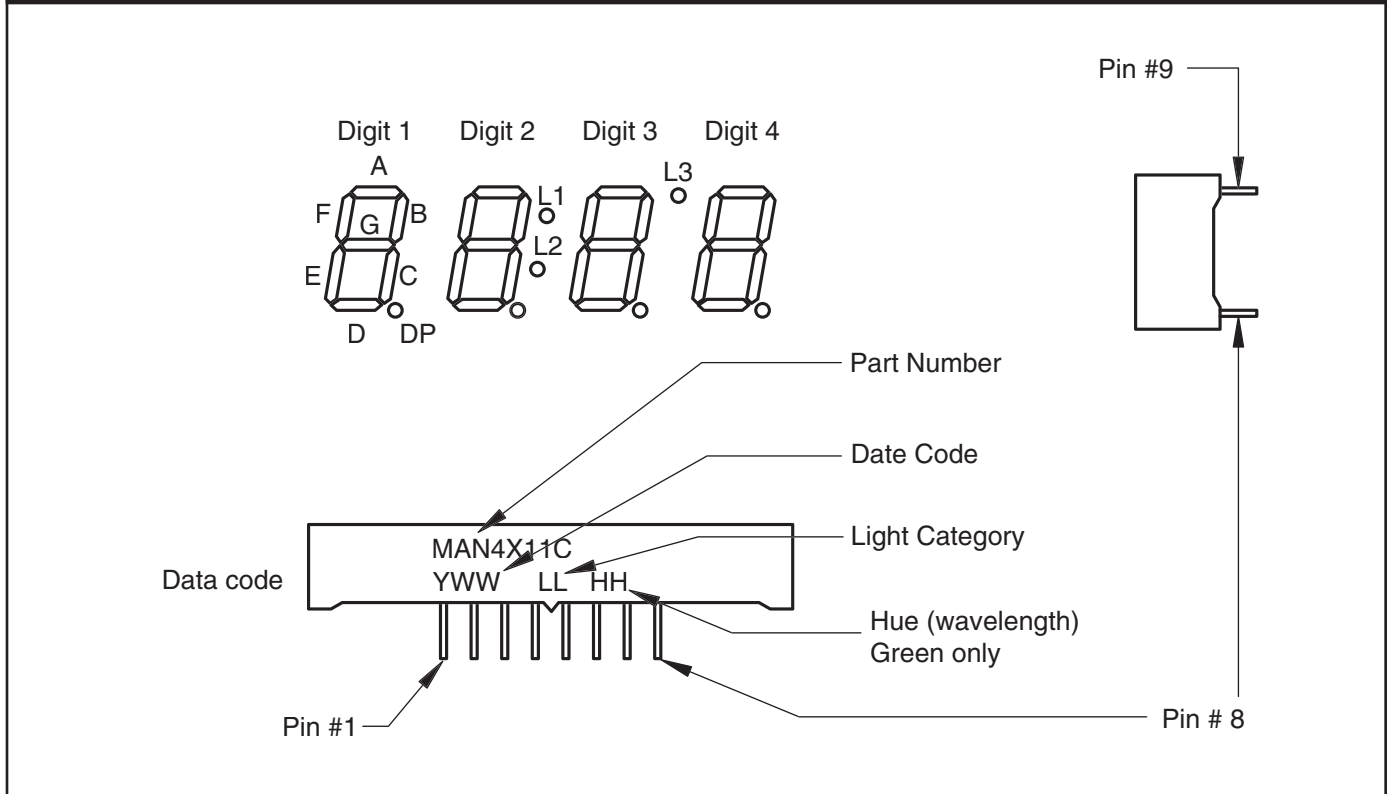
Part Number Parameter	MSQC4111C	MSQC4411C	MSQC4911C	Units	Test Condition
Luminous intensity <sup>(2)</sup> ( $I_V$ )					
Minimum (Standard Current)	300	800	800	$\mu\text{cd}$	$I_F = 20\text{mA}$
Typical (Standard Current)	700	2000	2000	$\mu\text{cd}$	$I_F = 20\text{mA}$
Minimum (Low Current)					Not 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:

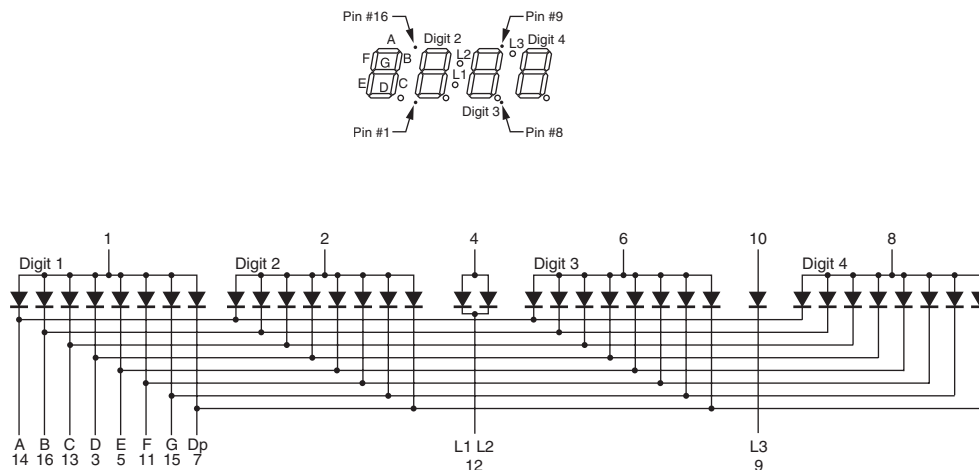
- (1) Data per individual LED element
- (2) Luminous intensity ( $\mu\text{cd}$ ) = average light output per segment
- (3) B = breakdown

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**PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING**



**SCHEMATICS**



**Bright Red MSQC4111C  
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Green MSQC4411C**

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

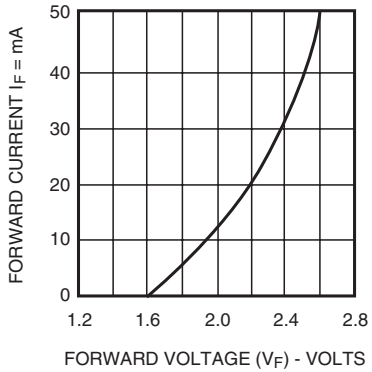


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

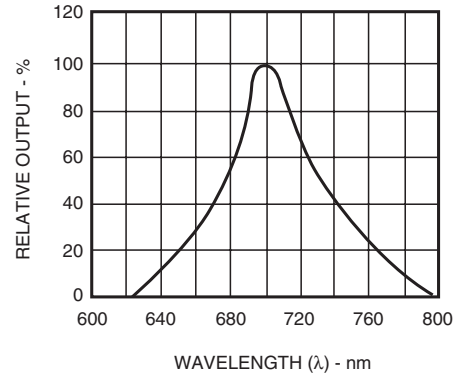


Fig. 2 SPECTRAL RESPONSE

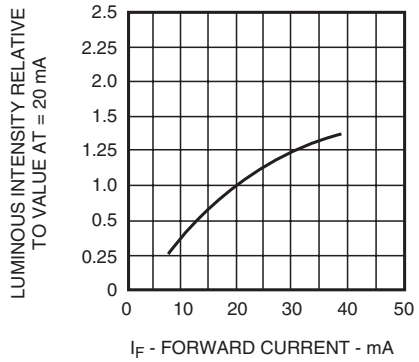


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

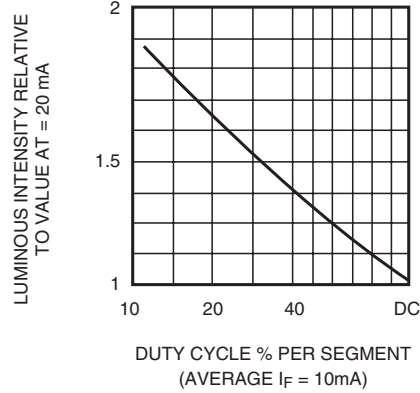


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

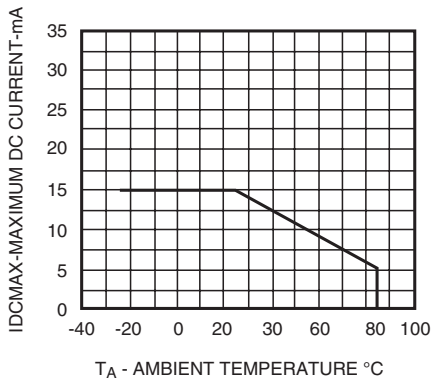


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

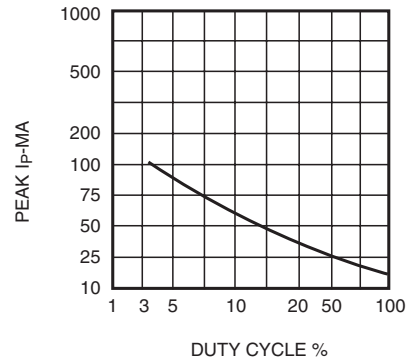


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1\text{ KHz}$ )

**Bright Red MSQC4111C  
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**GRAPHICAL DATA Green ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)**

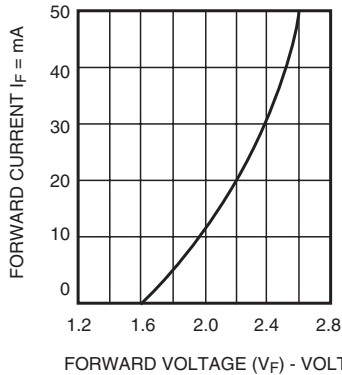


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

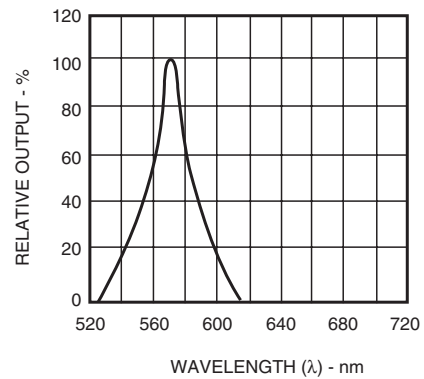


Fig. 2 SPECTRAL RESPONSE

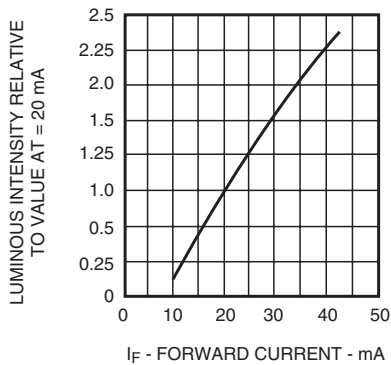


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

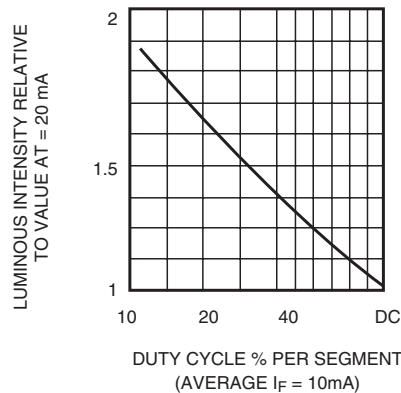


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

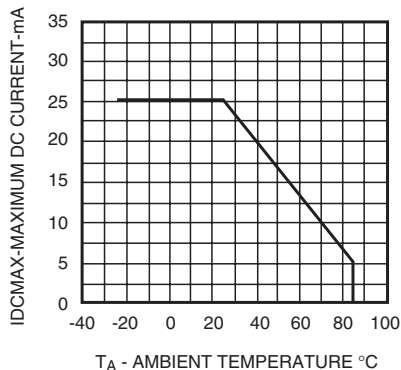


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

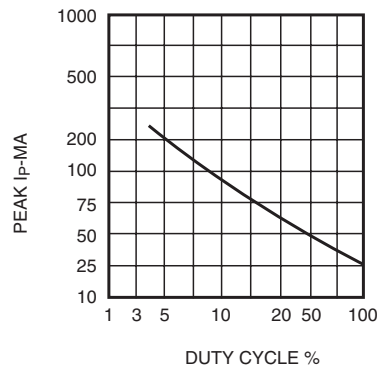


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )

**Bright Red MSQC4111C  
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Green MSQC4411C**

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

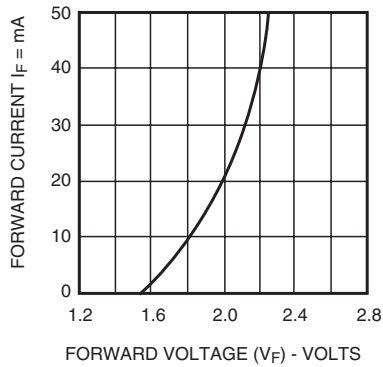


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

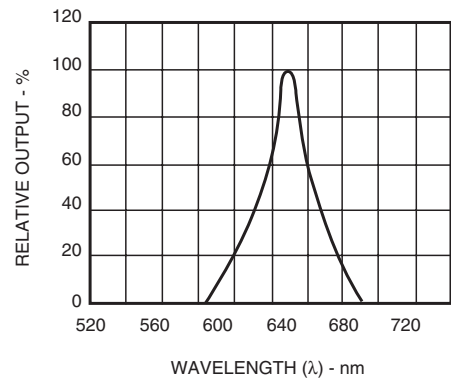


Fig. 2 SPECTRAL RESPONSE

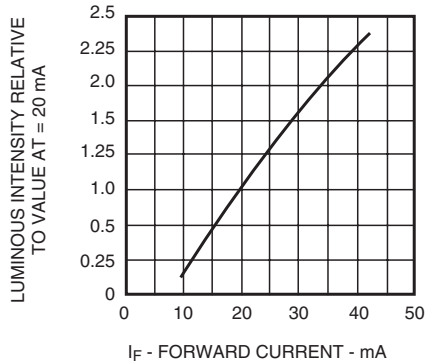


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

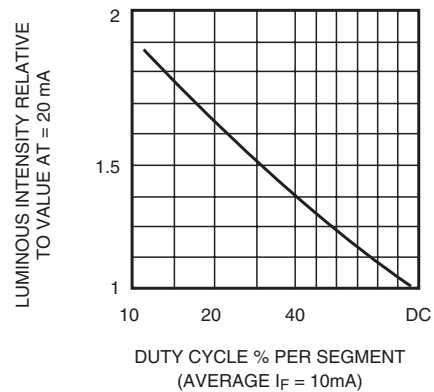


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

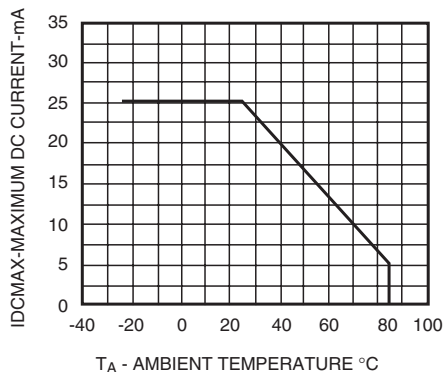


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

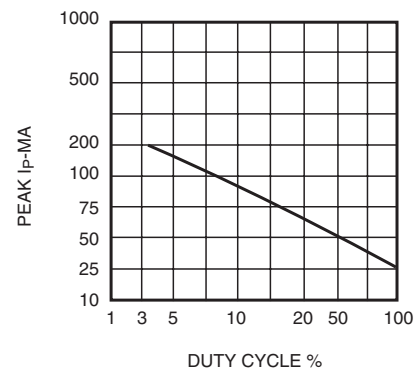


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE  $f = 1 \text{ KHz}$ )

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