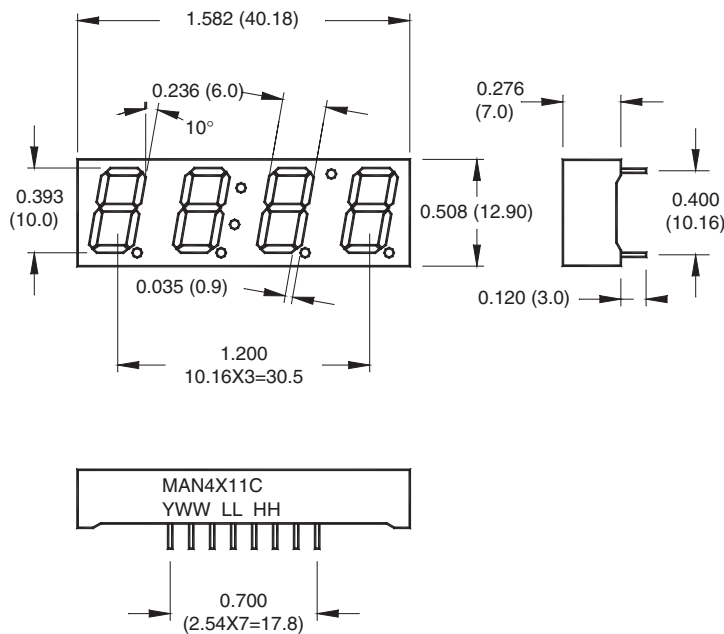


Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C

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			

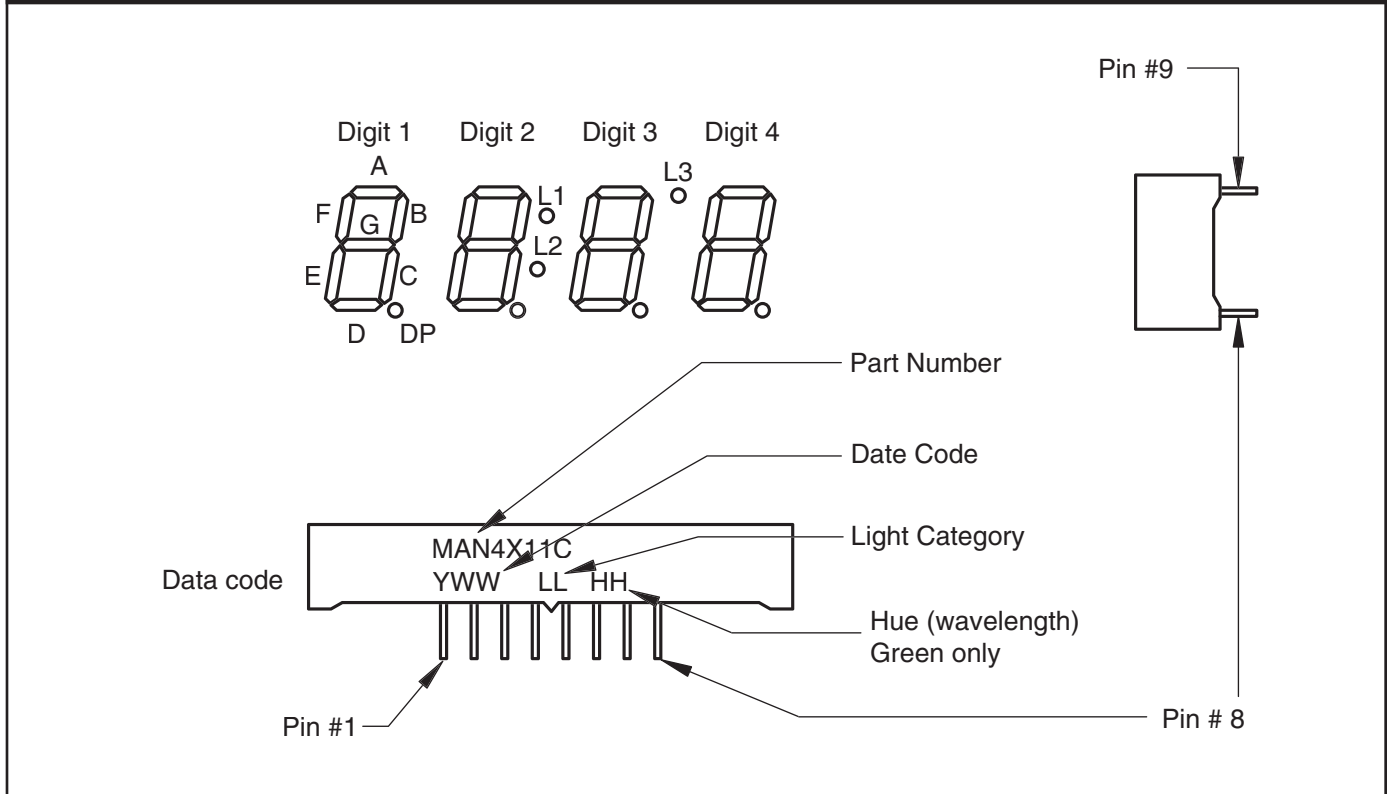
ELECTRO-OPTICAL CHARACTERISTICS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified)					
Part Number Parameter	MSQC4111C	MSQC4411C	MSQC4911C	Units	Test Condition
Luminous intensity ⁽²⁾ (I_V)					
Minimum (Standard Current)	300	800	800	μcd	$I_F = 20\text{mA}$
Typical (Standard Current)	700	2000	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:

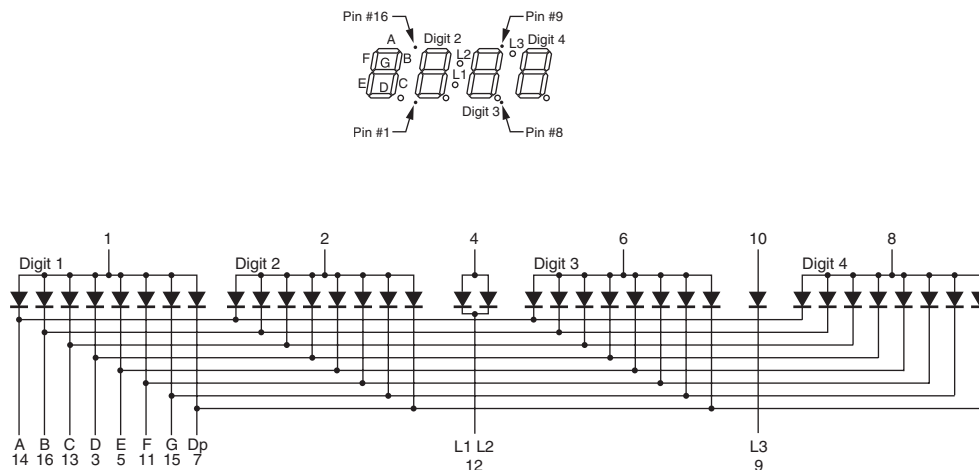
- (1) Data per individual LED element
- (2) Luminous intensity (μcd) = average light output per segment
- (3) B = breakdown

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)

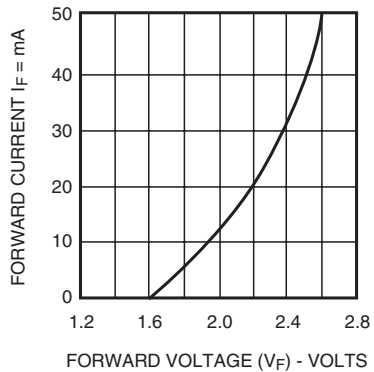


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

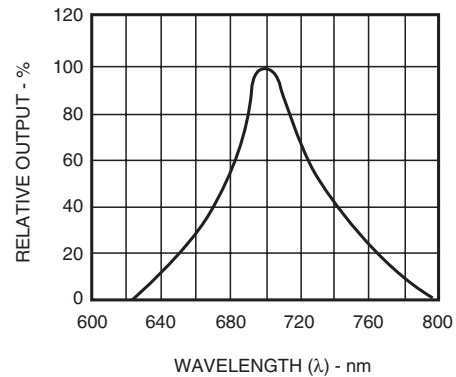


Fig. 2 SPECTRAL RESPONSE

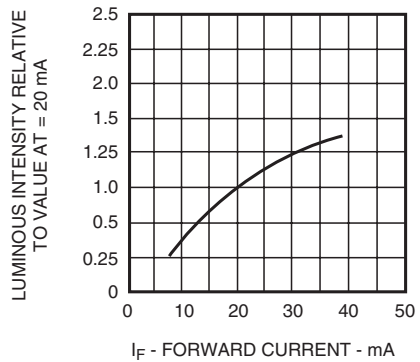


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

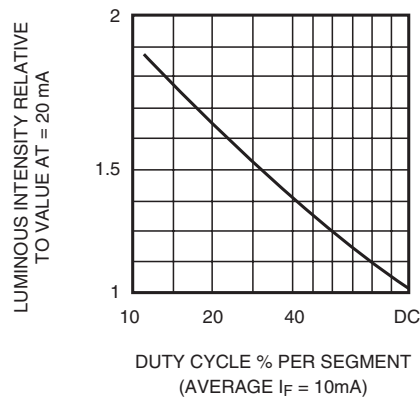


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

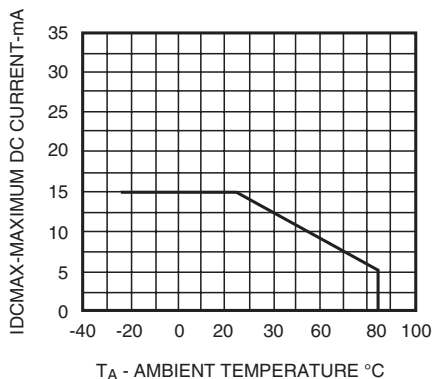


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

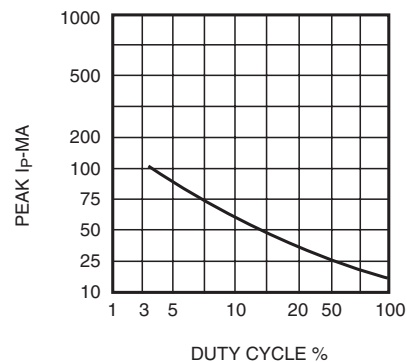


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

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

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

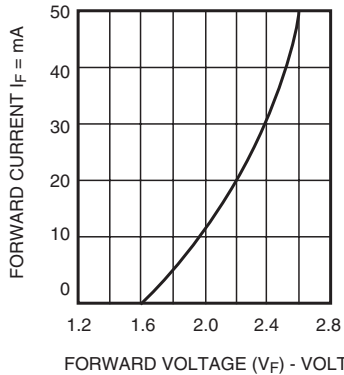


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

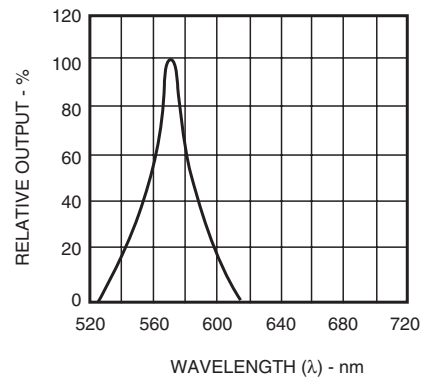


Fig. 2 SPECTRAL RESPONSE

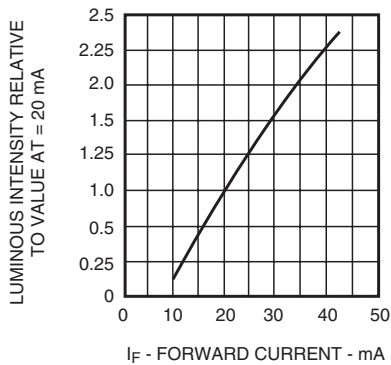


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

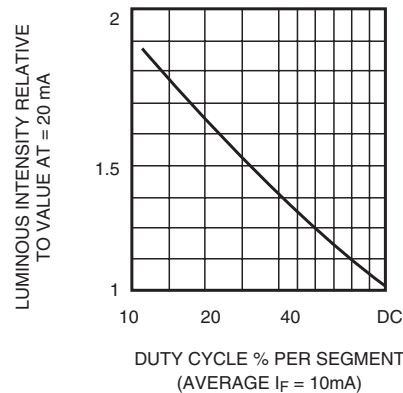


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

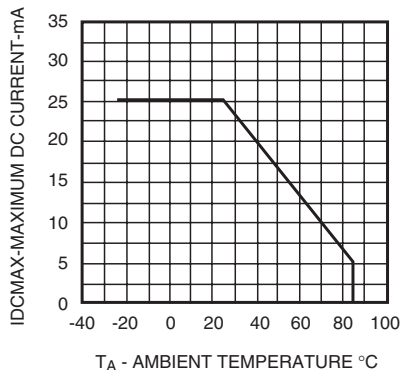


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

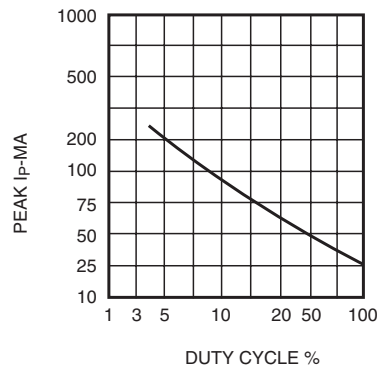


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

Bright Red MSQC4111C
High Efficiency MSQC4911C
Green MSQC4411C

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

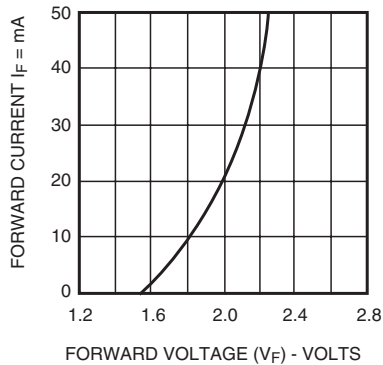


Fig. 1 FORWARD CURRENT VS. FORWARD VOLTAGE

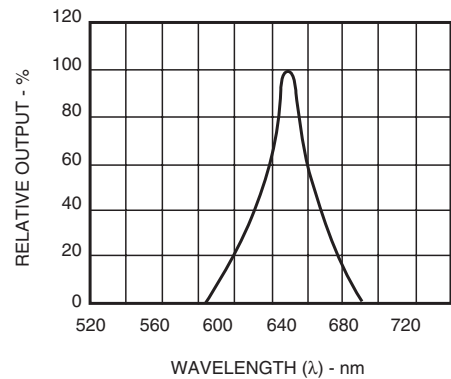


Fig. 2 SPECTRAL RESPONSE

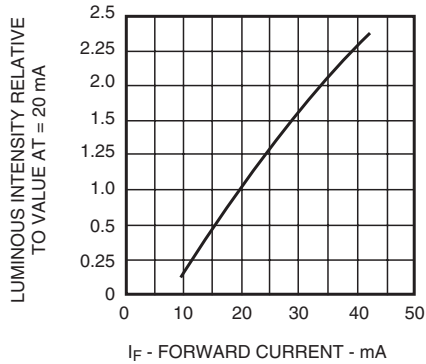


Fig. 3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

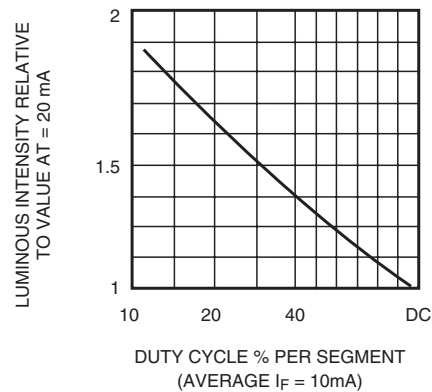


Fig. 5 LUMINOUS INTENSITY VS. DUTY CYCLE

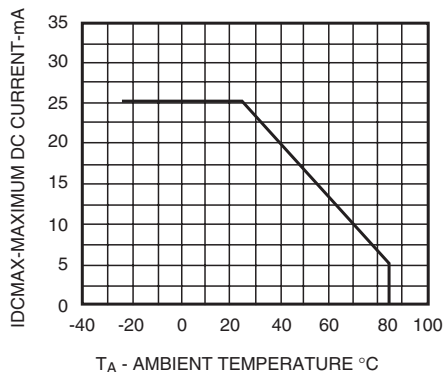


Fig. 4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

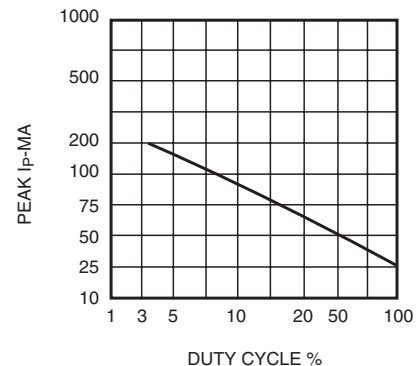


Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1 \text{ KHz}$)

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

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