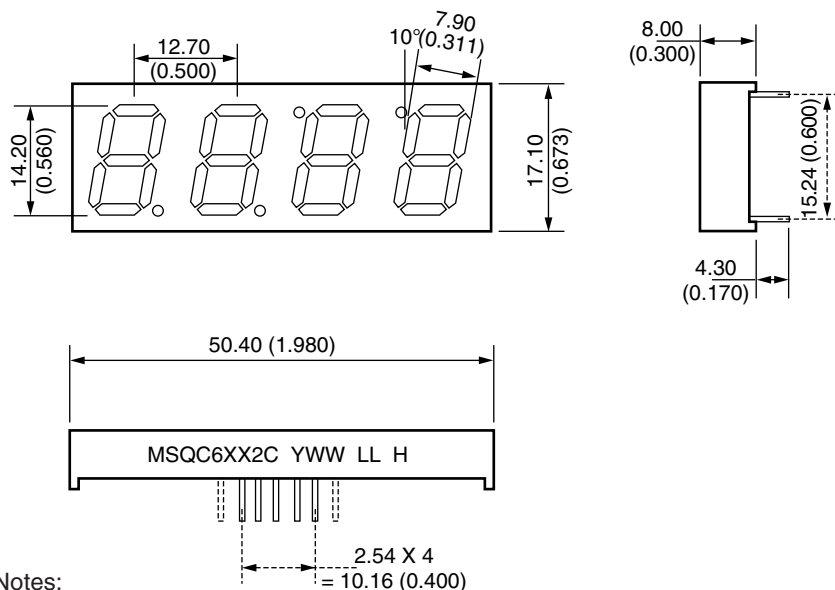


# 14mm (0.56 inch) Four Digit MULTIPLEX CLOCK STICK DISPLAY

**Bright Red MSQC6112C, MSQC6142C**  
**High Efficiency Red MSQC6912C, MSQC6942C**  
**Green MSQC6412C, MSQC6442C**

## PACKAGE DIMENSIONS



### Notes:

- Dimensions are in mm (inches)
- All Pins 0.5 (0.020) Diameter
- 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
- High Performance
- High Reliability

## Applications

- Appliances
- Automotive
- Instrumentation
- Process Control

## MODELS AVAILABLE

Part Number	Colour	Description
MSQC6112C	Bright Red	Clock Display, Common Anode, gray face, neutral segments
MSQC6142C	Bright Red	Clock Display, Common Cathode, gray face, neutral segments
MSQC6412C	Green	Clock Display, Common Anode, gray face, green segments
MSQC6442C	Green	Clock Display, Common Cathode, gray face, green segments
MSQC6912C	H.E.R	Clock Display, Common Anode, gray face, neutral segments
MSQC6942C	H.E.R.	Clock Display, Common Cathode, gray face, neutral segments

(For other colour options, contact your local area Sales Manager)

## BRIGHT RED MSQC6112C, MSQC6142C HIGH EFFICIENCY RED MSQC6912C, MSQC6942C GREEN MSQC6412C, MSQC6442C

### ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup> (T<sub>A</sub> = 25°C, unless otherwise specified)

Part Number Parameter	MSQC6112C MSQC6142C	MSQC6412C MSQC6442C	MSQC6912C MSQC6942C	Units
Continuous Forward Current (each segment)	15	25	25	mA
Peak Forward Current (F = 10KHz, D/F = 1/10)	60	90	90	mA
Power Dissipation (P <sub>D</sub> )	40	70	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°C			
Lead soldering time (1/16 inch from standoff)	5 seconds @ 230°C			

### ELECTRO-OPTICAL CHARACTERISTICS<sup>(1)</sup> (T<sub>A</sub> = 25°C, unless otherwise specified)

Part Number Parameter	MSQC6112C MSQC6142C	MSQC6412C MSQC6442C	MSQC6912C MSQC6942C	Units	Test Condition
Luminous intensity <sup>(2)</sup> (I <sub>V</sub> )					
Minimum (Standard Current)	300	800	800	μcd	I <sub>F</sub> = 10mA
Typical (Standard Current)	700	2400	2000	μcd	I <sub>F</sub> = 10mA
Minimum (Low Current)	Not Available				
Typical (Low Current)	Not Available				
Forward Voltage (V <sub>F</sub> )					
Typical (Standard Current)	2.10	2.10	2.00	V	I <sub>F</sub> = 20mA
Maximum (Standard Current)	2.80	2.80	2.80	V	I <sub>F</sub> = 20mA
Typical (Low Current)	Not Available				
Maximum (Low Current)	Not Available				
Peak Wavelength	695	570	635	nm	I <sub>F</sub> = 20mA
Dominant Wavelength	Not Available				
Spectral Line 1/2 Width	90	30	45	nm	I <sub>F</sub> = 10mA
Reverse B <sup>(3)</sup> . Voltage (V <sub>R</sub> )	5	5	5	V	I <sub>R</sub> = 100uA

#### NOTES:

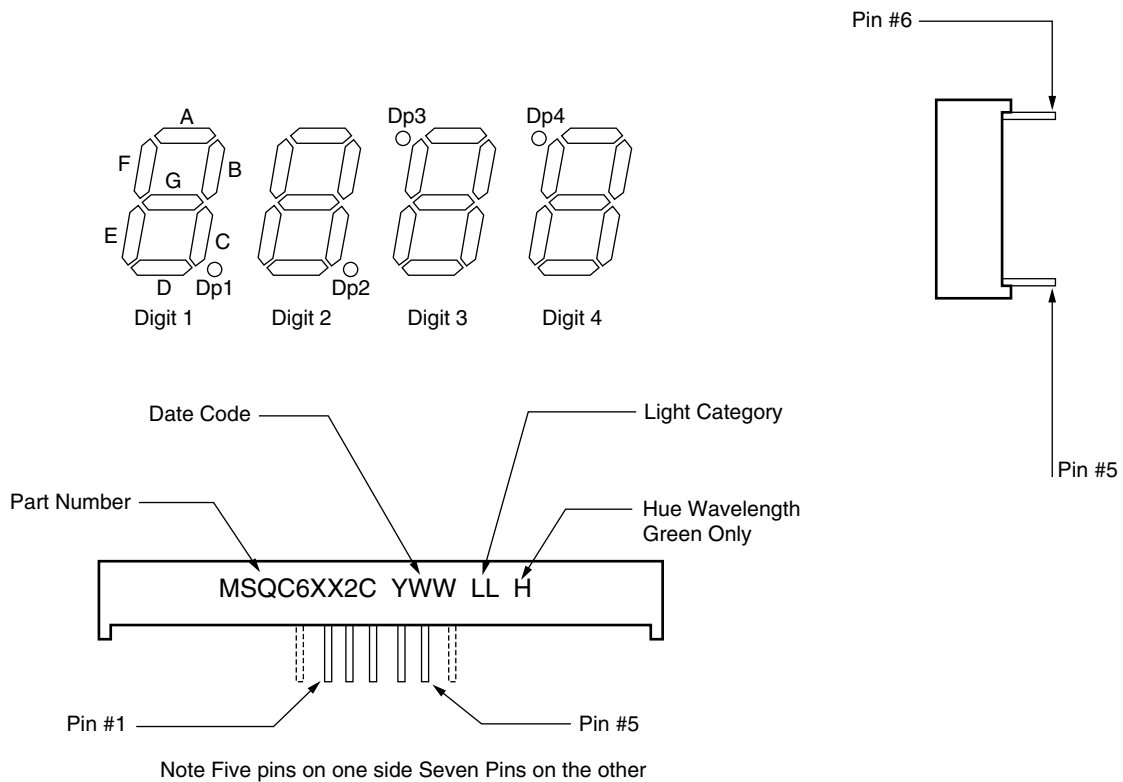
(1) Data per individual LED element

(2) Luminous intensity (ucd) = average light output per segment

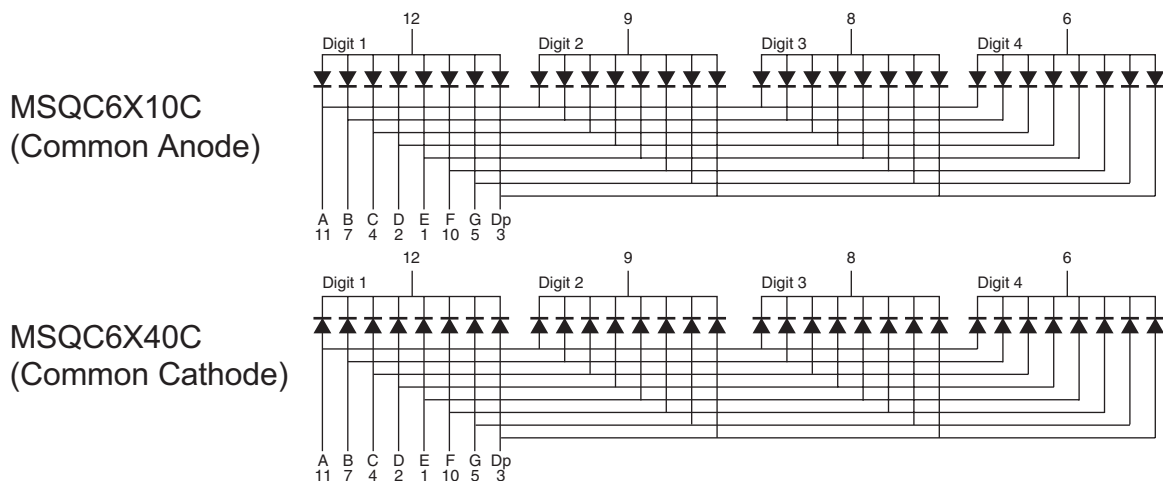
(3) B = breakdown

**BRIGHT RED MSQC6112C, MSQC6142C**  
**HIGH EFFICIENCY RED MSQC6912C, MSQC6942C**  
**GREEN MSQC6412C, MSQC6442C**

## PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



## SCHEMATICS



## BRIGHT RED MSQC6112C, MSQC6142C HIGH EFFICIENCY RED MSQC6912C, MSQC6942C GREEN MSQC6412C, MSQC6442C

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

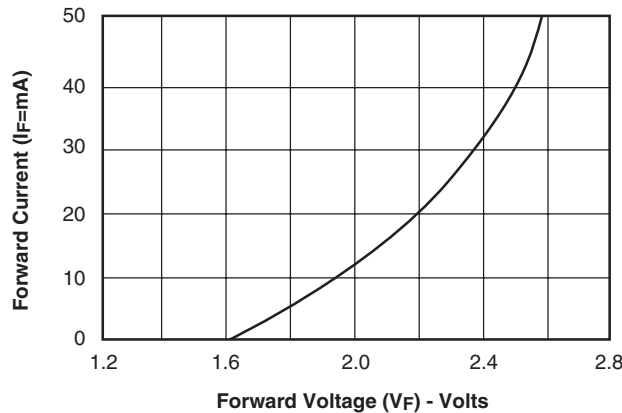


Fig. 1 Forward Current vs. Forward Voltage

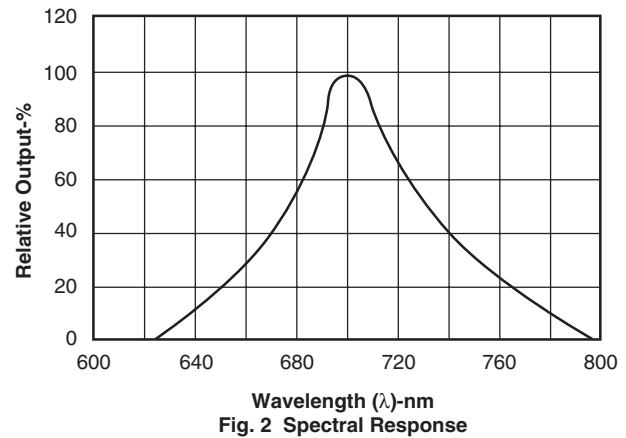


Fig. 2 Spectral Response

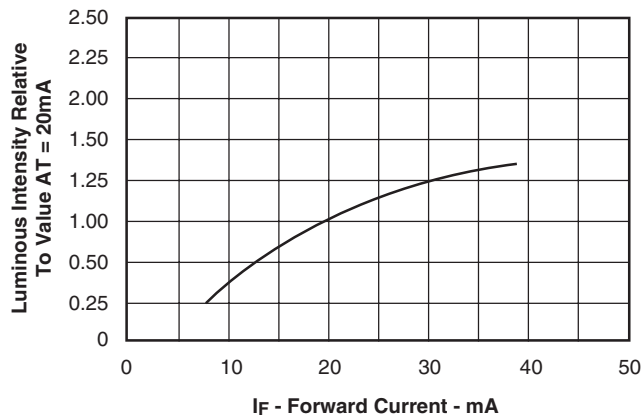


Fig. 3 Relative Luminous Intensity vs. Forward Current

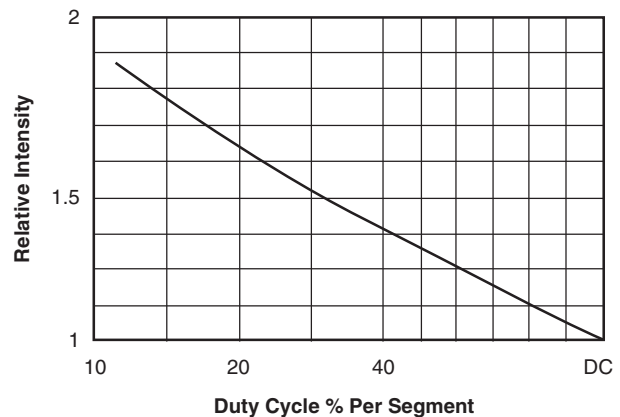


Fig. 5 Luminous Intensity vs. Duty Cycle

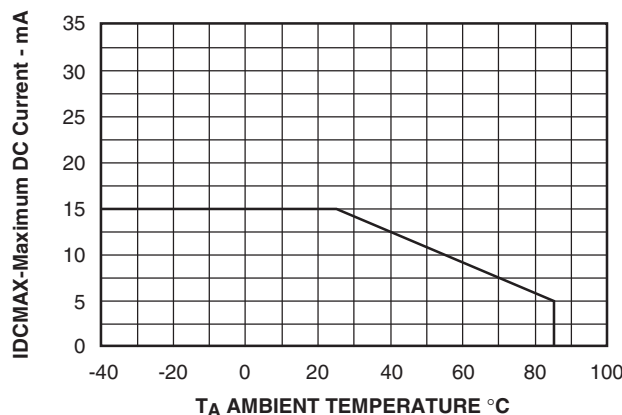


Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

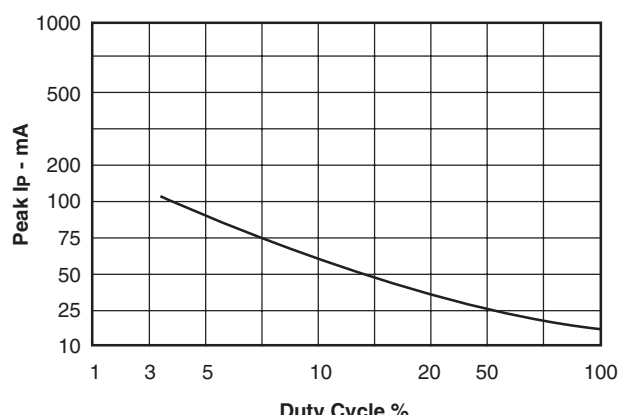
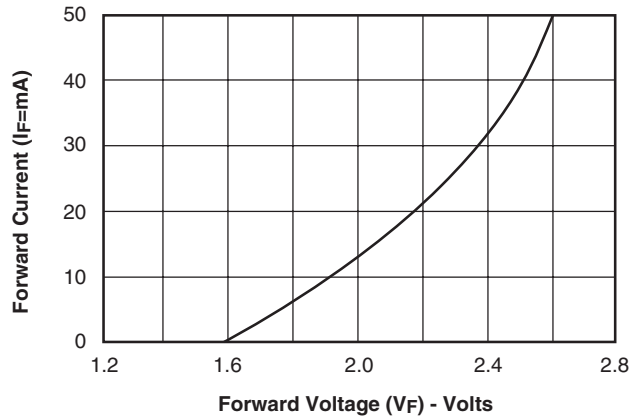


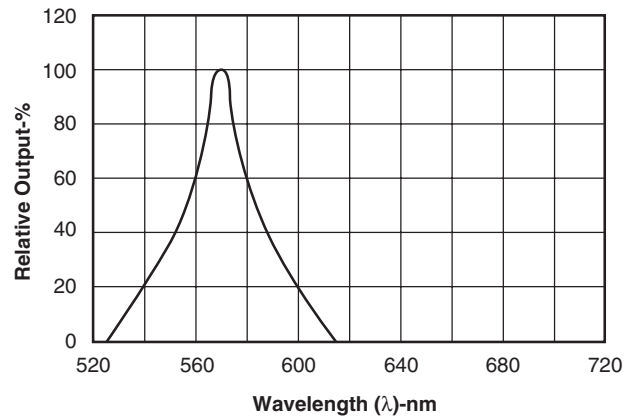
Fig. 6 Max Peak Current vs. Duty Cycle % (Refresh Rate  $f=1\text{ KHz}$ )

**BRIGHT RED MSQC6112C, MSQC6142C**  
**HIGH EFFICIENCY RED MSQC6912C, MSQC6942C**  
**GREEN MSQC6412C, MSQC6442C**

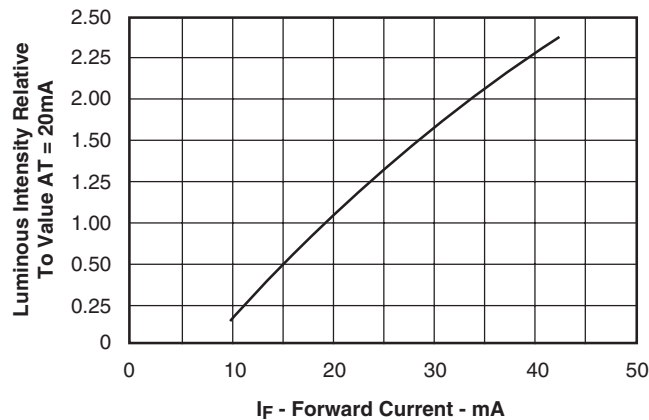
**GRAPHICAL DATA Green ( $T_A = 25^\circ\text{C}$ , unless otherwise specified)**



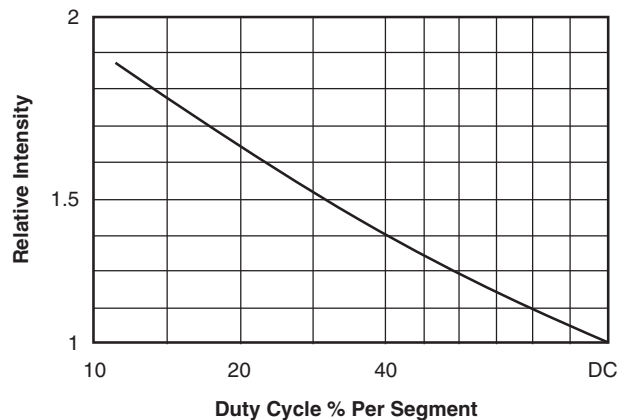
**Fig. 1 Forward Current vs. Forward Voltage**



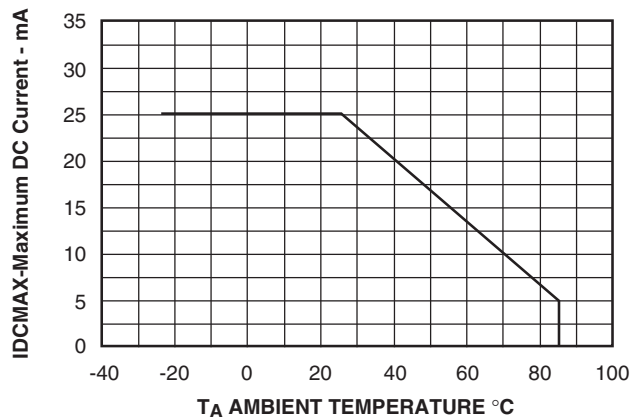
**Fig. 2 Spectral Response**



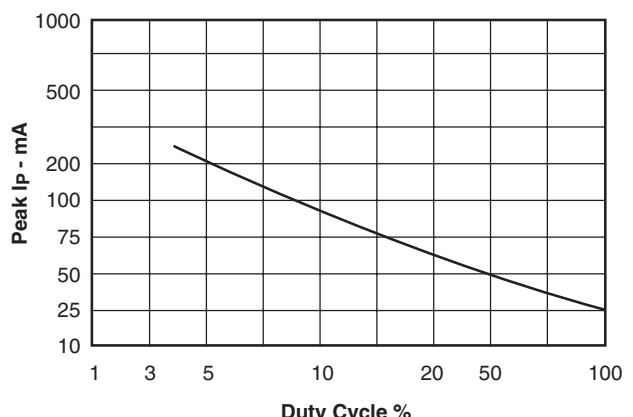
**Fig. 3 Relative Luminous Intensity vs. Forward Current**



**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 MSQC6112C, MSQC6142C HIGH EFFICIENCY RED MSQC6912C, MSQC6942C GREEN MSQC6412C, MSQC6442C

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

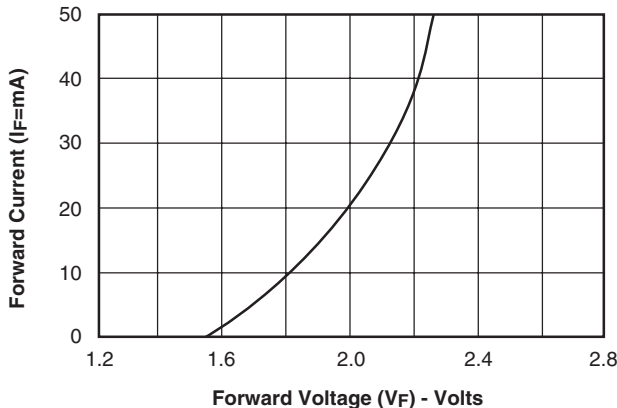


Fig. 1 Forward Current vs. Forward Voltage

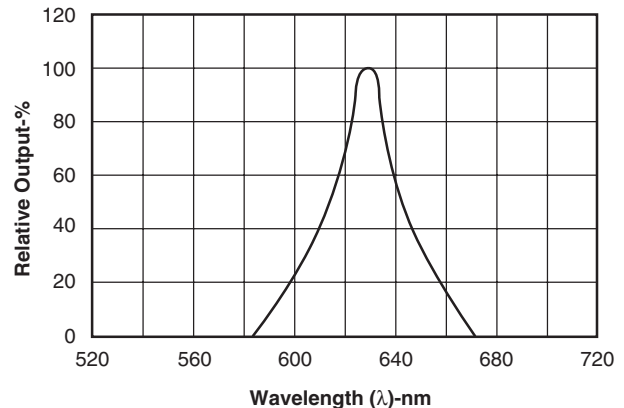


Fig. 2 Spectral Response

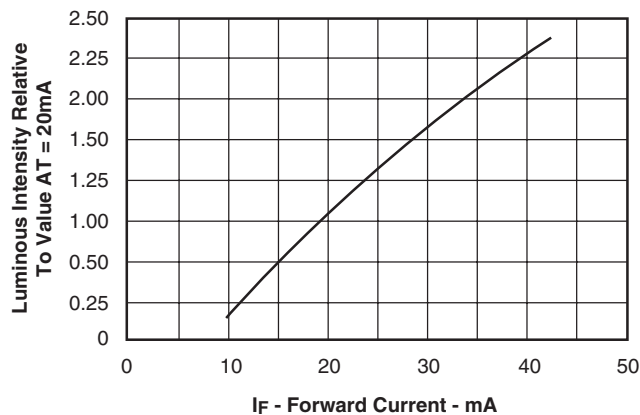


Fig. 3 Relative Luminous Intensity vs. Forward Current

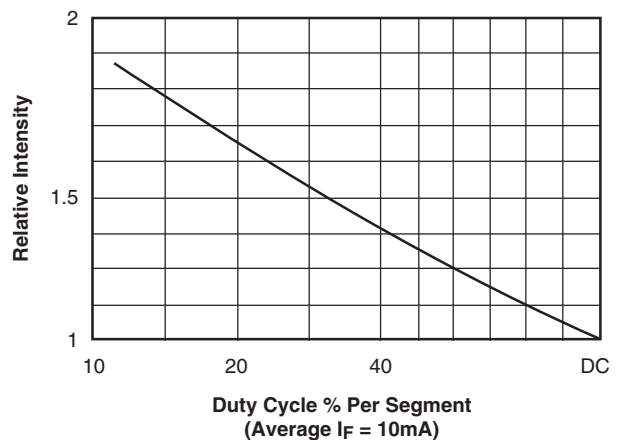


Fig. 5 Luminous Intensity vs. Duty Cycle

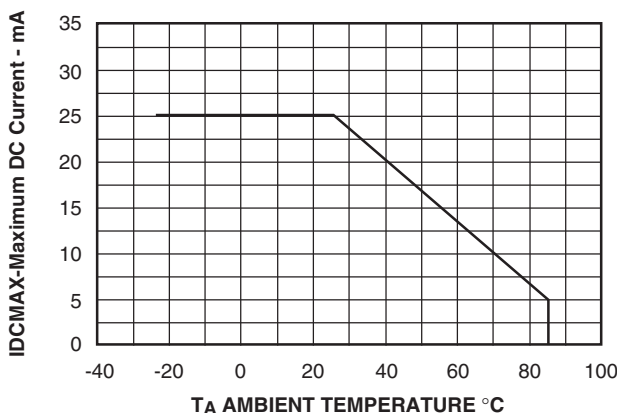


Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

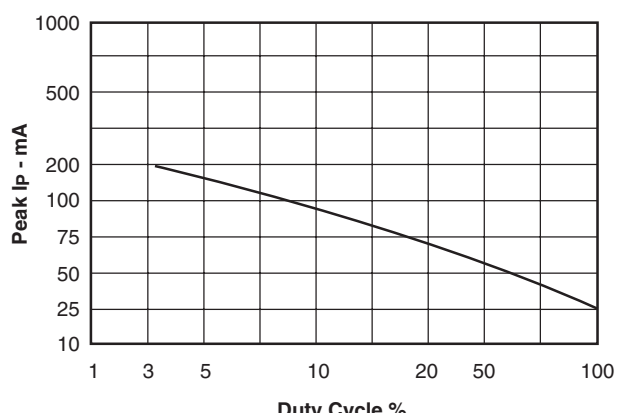


Fig. 6 Max Peak Current vs. Duty Cycle % (Refresh Rate  $f=1\text{ KHz}$ )

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**BRIGHT RED MSQC6112C, MSQC6142C  
HIGH EFFICIENCY RED MSQC6912C, MSQC6942C  
GREEN MSQC6412C, MSQC6442C**

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