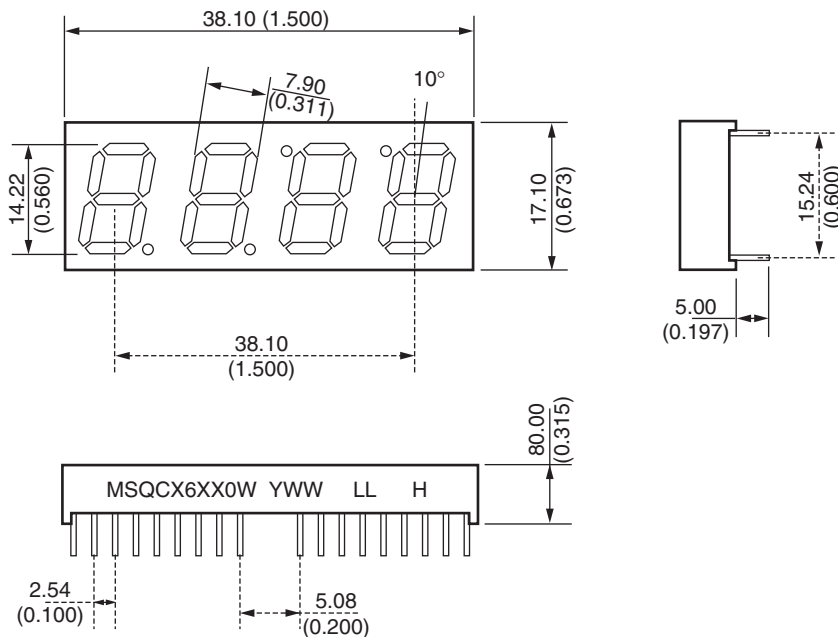


14mm (0.56 inch) Four Digit CLOCK STICK DISPLAY

Bright Red MSQC6110C, MSQC6140C
High Efficiency Red MSQC6910C, MSQC6940C
Green MSQC6410C, MSQC6440C

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
MSQC6110C	Bright Red	Four Digit, Clock Display, Common Anode
MSQC6140C	Bright Red	Four Digit, Clock Display, Common Cathode
MSQC6410C	Green	Four Digit, Clock Display, Common Anode
MSQC6440C	Green	Four Digit, Clock Display, Common Cathode
MSQC6910C	High Efficiency Red	Four Digit, Clock Display, Common Anode
MSQC6940C	High Efficiency Red	Four Digit, Clock Display, Common Cathode

Bright Red MSQC6110C, MSQC6140C
High Efficiency Red MSQC6910C, MSQC6940C
Green MSQC6410C, MSQC6440C

ABSOLUTE MAXIMUM RATINGS⁽¹⁾ ($T_A = 25^\circ\text{C}$, unless otherwise specified)

Part Number Parameter	MSQC6110C MSQC6140C	MSQC6410C MSQC6440C	MSQC6910C MSQC6940C	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	0.24	0.68	0.63	mW
Reverse Voltage per Die	5 Volts			
Operating and Storage Temperature Range	-25°C to $+105^\circ\text{C}$			
Lead soldering time (1/16 inch from standoff)	5 seconds @ 230°C			

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

Part Number Parameter	MSQC6110C MSQC6140C	MSQC6410C MSQC6440C	MSQC6910C MSQC6940C	Units	Test Condition
Luminous intensity⁽²⁾ (I_V)					
Minimum (Standard Current)	300	800	900	μcd	$I_F = 20\text{mA}$
Typical (Standard Current)	700	2000	2200	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)	2.60	2.80	2.80	V	$I_F = 20\text{mA}$
Typical (Low Current)	Not Available				
Maximum (Low Current)	Not Available				
Peak Wavelength	697	565	635	nm	$I_F = 20\text{mA}$
Dominant Wavelength	700	569	627	nm	$I_F = 20\text{mA}$
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:

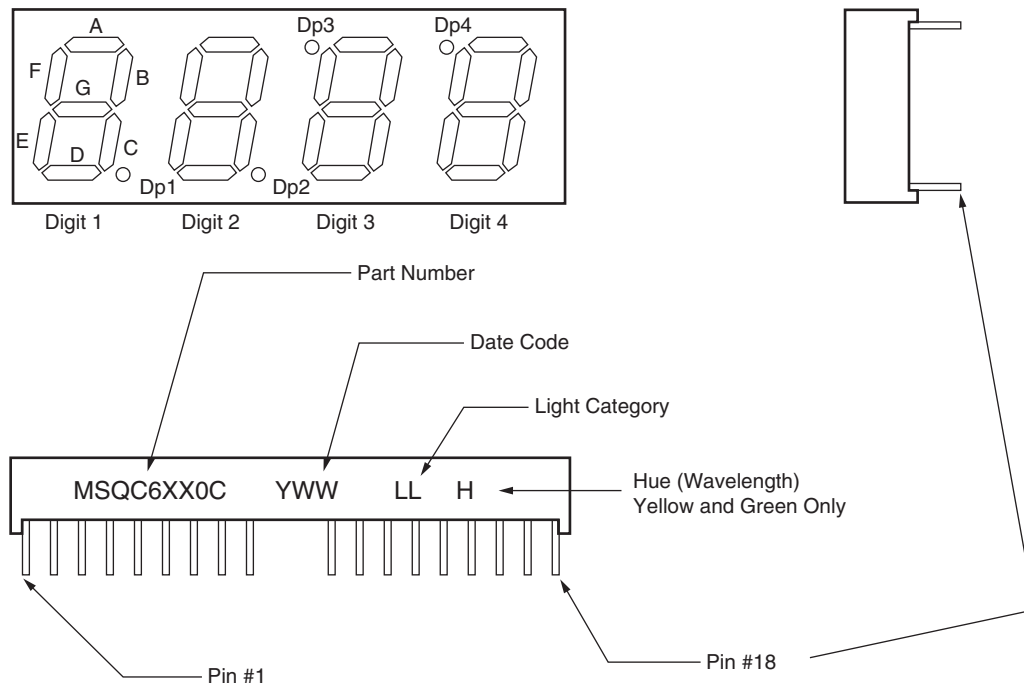
(1) Data per individual LED element

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

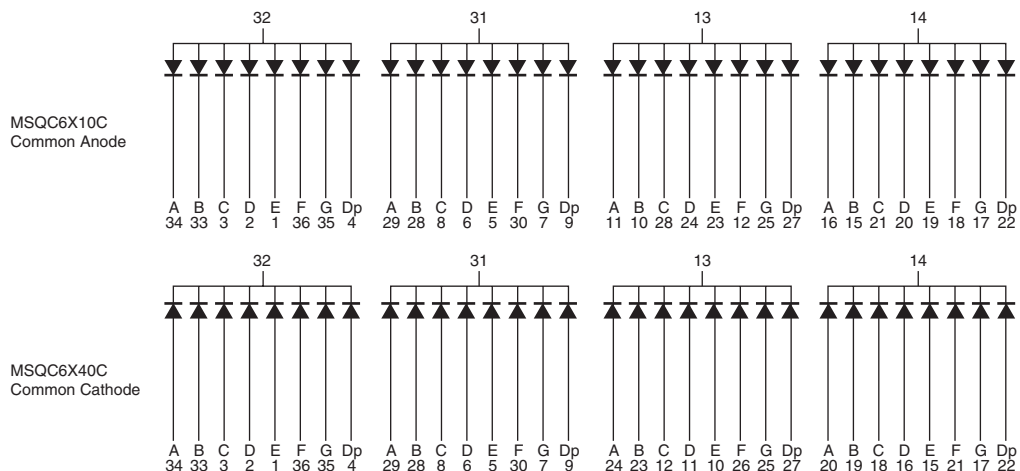
(3) B = breakdown

Bright Red MSQC6110C, MSQC6140C
High Efficiency Red MSQC6910C, MSQC6940C
Green MSQC6410C, MSQC6440C

PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



SCHEMATICS



Bright Red MSQC6110C, MSQC6140C
High Efficiency Red MSQC6910C, MSQC6940C
Green MSQC6410C, MSQC6440C

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

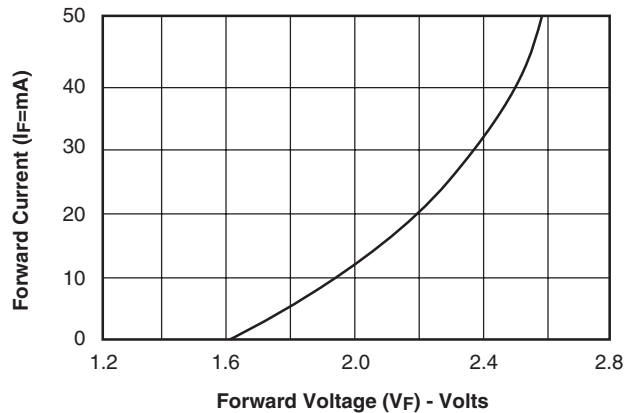


Fig. 1 Forward Current vs. Forward Voltage

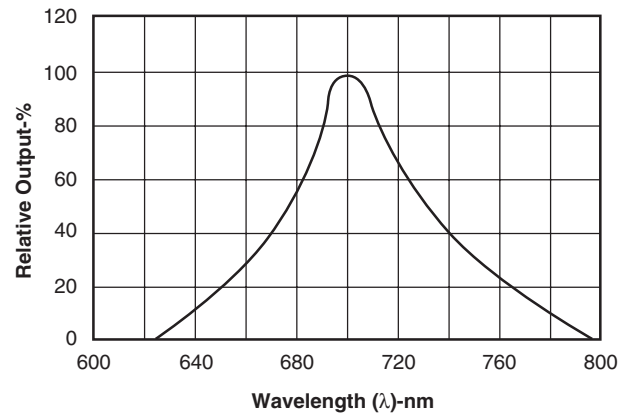


Fig. 2 Spectral Response

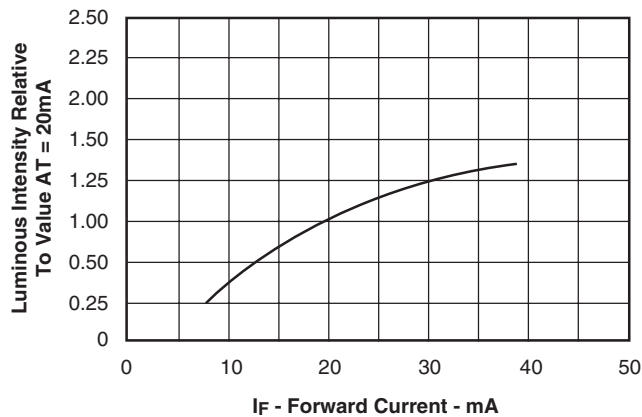


Fig. 3 Relative Luminous Intensity vs. Forward Current

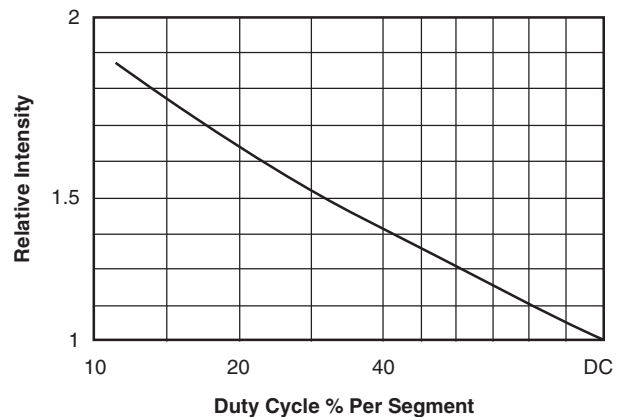


Fig. 5 Luminous Intensity vs. Duty Cycle

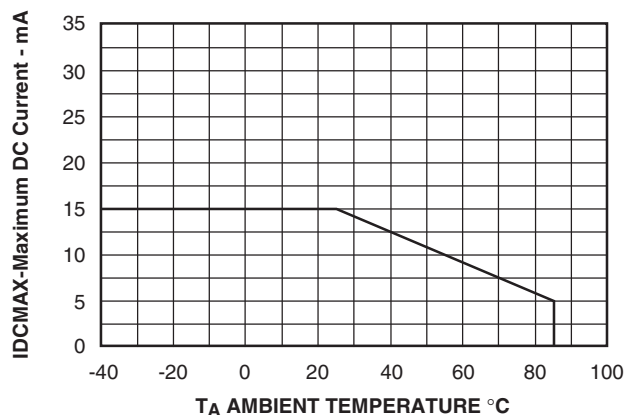


Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

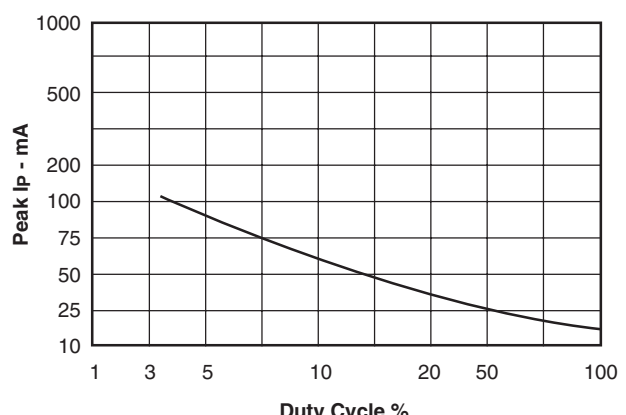


Fig. 6 Max Peak Current vs. Duty Cycle % (Refresh Rate $f=1\text{ KHz}$)

Bright Red MSQC6110C, MSQC6140C
High Efficiency Red MSQC6910C, MSQC6940C
Green MSQC6410C, MSQC6440C

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

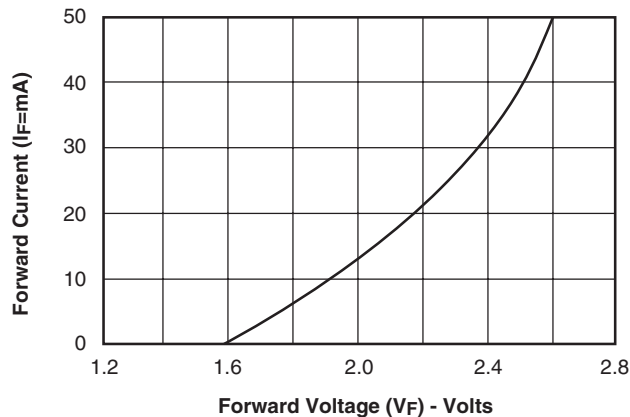


Fig. 1 Forward Current vs. Forward Voltage

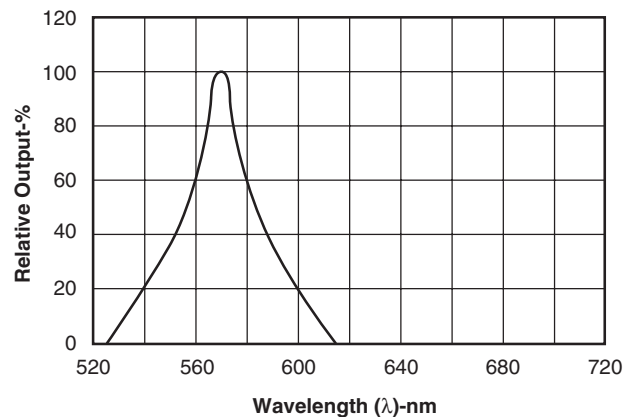


Fig. 2 Spectral Response

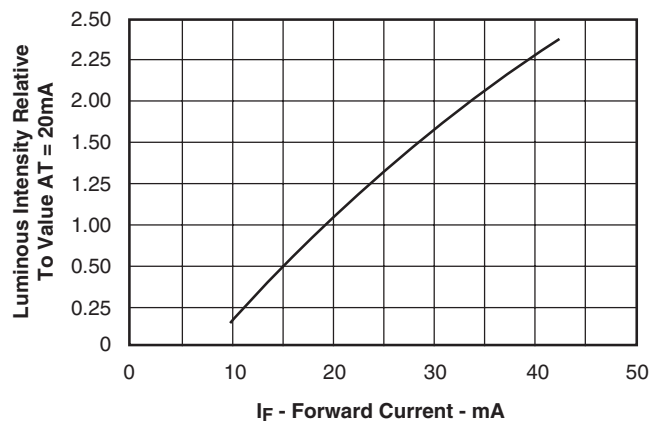


Fig. 3 Relative Luminous Intensity vs. Forward Current

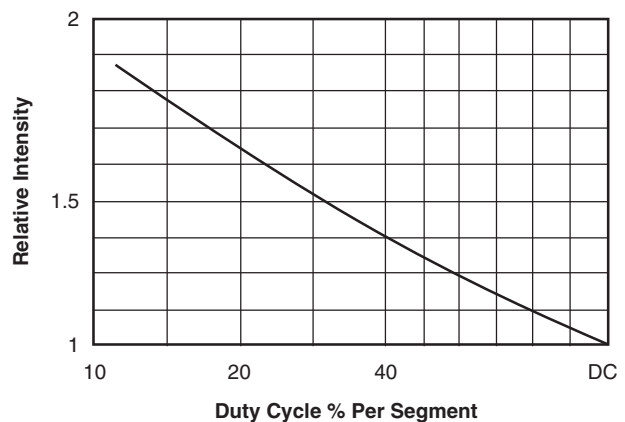


Fig. 5 Luminous Intensity vs. Duty Cycle

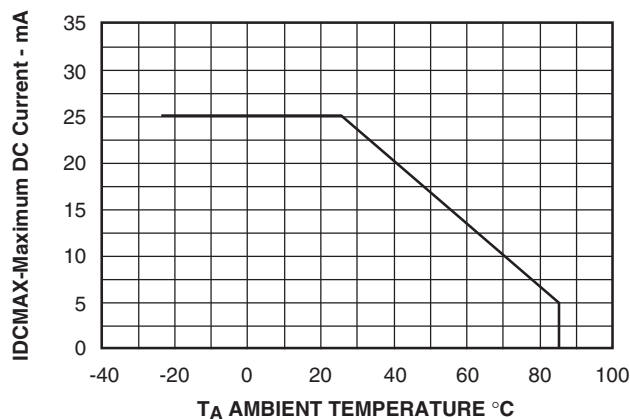


Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

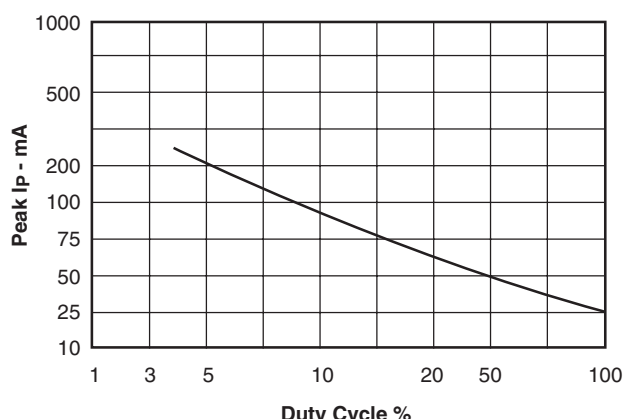


Fig. 6 Max Peak Current vs. Duty Cycle % (Refresh Rate $f = 1\text{ KHz}$)

Bright Red MSQC6110C, MSQC6140C
High Efficiency Red MSQC6910C, MSQC6940C
Green MSQC6410C, MSQC6440C

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

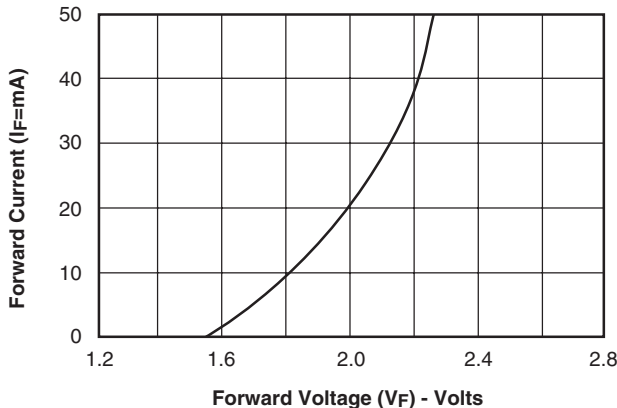


Fig. 1 Forward Current vs. Forward Voltage

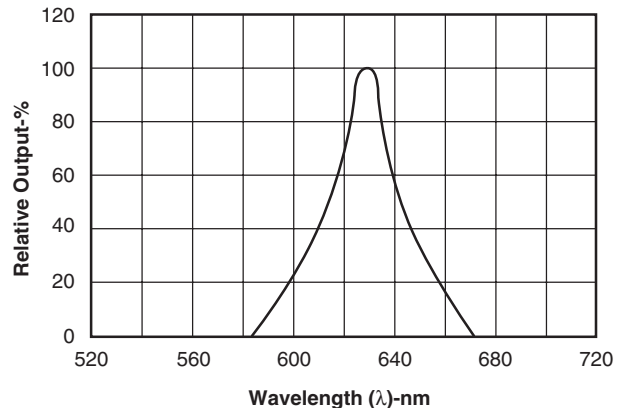


Fig. 2 Spectral Response

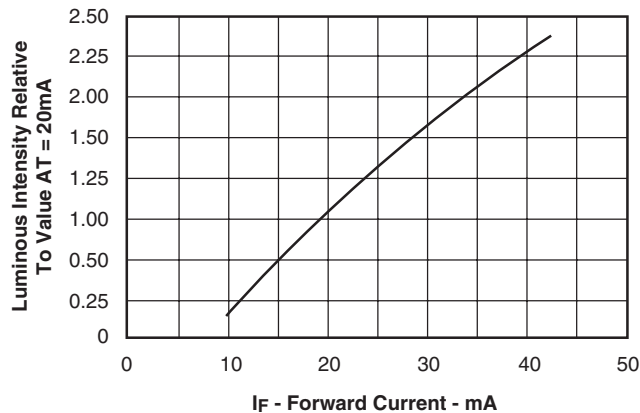


Fig. 3 Relative Luminous Intensity vs. Forward Current

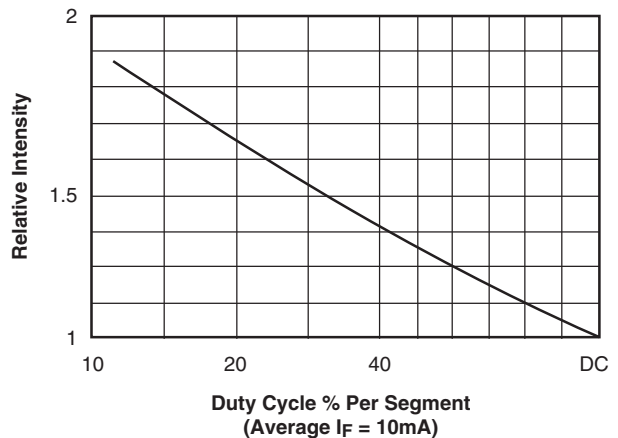


Fig. 5 Luminous Intensity vs. Duty Cycle

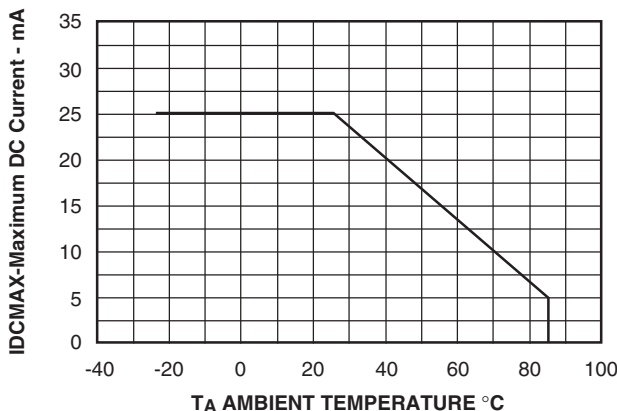


Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

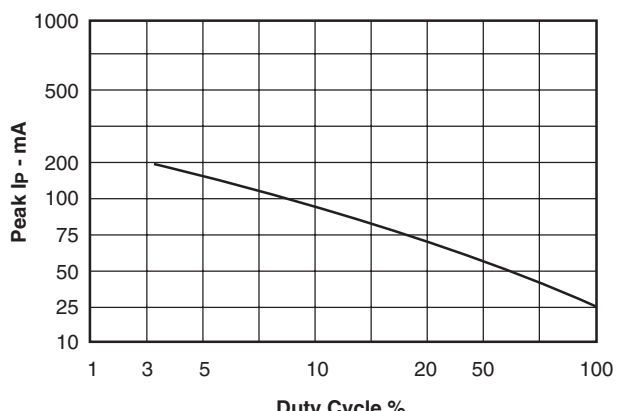


Fig. 6 Max Peak Current vs. Duty Cycle % (Refresh Rate $f=1\text{ KHz}$)

Bright Red MSQC6110C, MSQC6140C High Efficiency Red MSQC6910C, MSQC6940C Green MSQC6410C, MSQC6440C

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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.