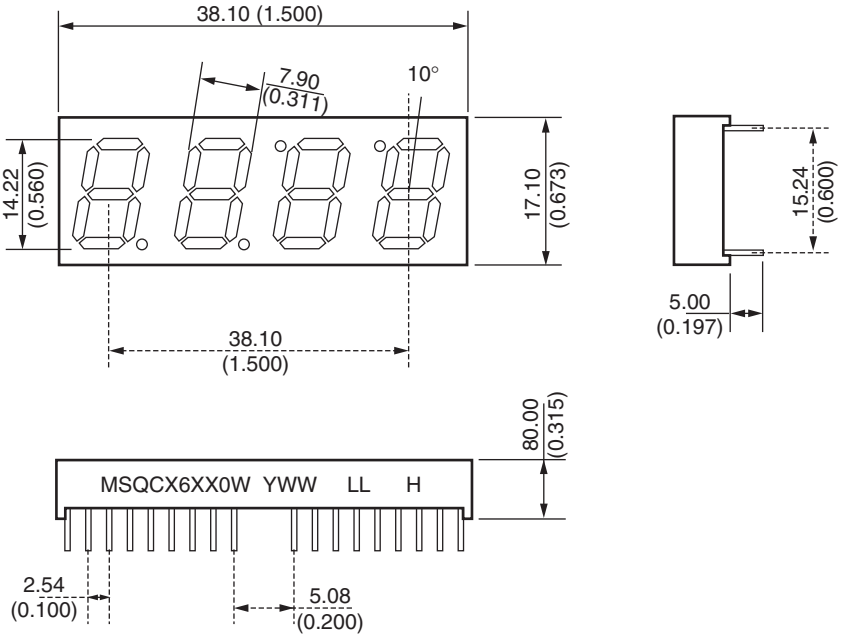
FAIRCHILD
SEMICONDUCTOR®

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 ±0.25mm (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

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ABSOLUTE MAXIMUM RATINGS[1] (T_A = 25°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 = 10KHz, 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°C			
Lead soldering time (1/16 inch from standoffs)	5 seconds @ 230°C			

ELECTRO-OPTICAL CHARACTERISTICS[1] (T_A = 25°C, unless otherwise specified)

Part Number Parameter	MSQC6110C MSQC6140C	MSQC6410C MSQC6440C	MSQC6910C MSQC6910C	Units	Test Condition
Luminous intensity[2] (I_V)					
Minimum (Standard Current)	300	800	900	µcd	I_F = 20mA
Typical (Standard Current)	700	2000	2200	µcd	I_F = 20mA
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 = 20mA
Maximum (Standard Current)	2.60	2.80	2.80	V	I_F = 20mA
Typical (Low Current)	Not Available				
Maximum (Low Current)	Not Available				
Peak Wavelength	697	565	635	nm	I_F = 20mA
Dominant Wavelength	700	569	627	nm	I_F = 20mA
Spectral Line 1/2 Width	90	30	45	nm	I_F = 10mA
Reverse B[3]. Voltage (V_R)	5	5	5	V	I_R = 100µA

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

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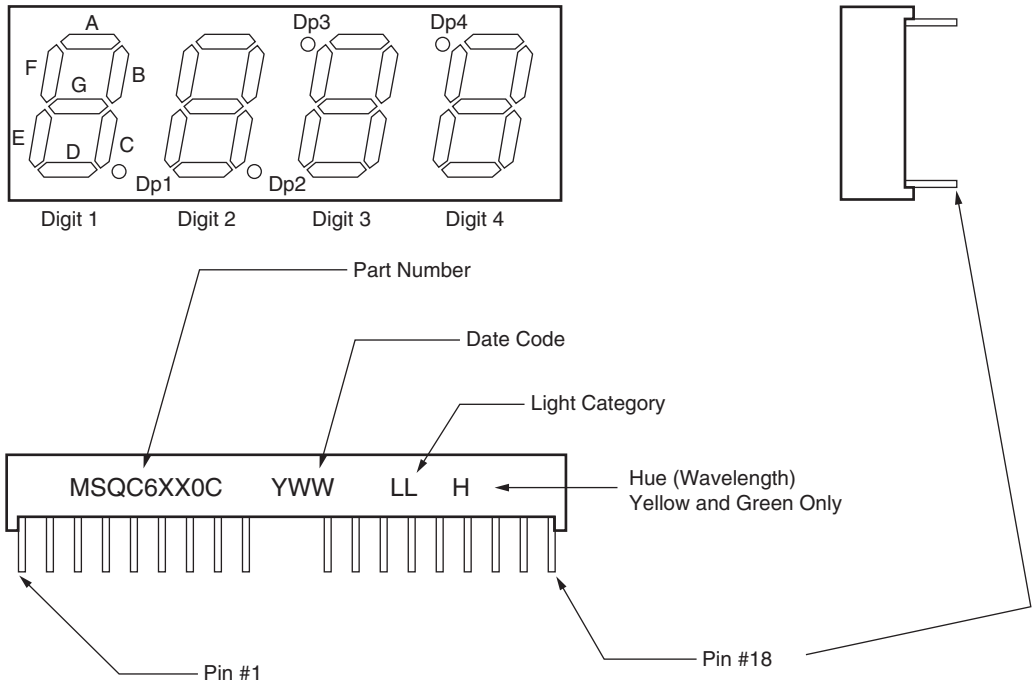
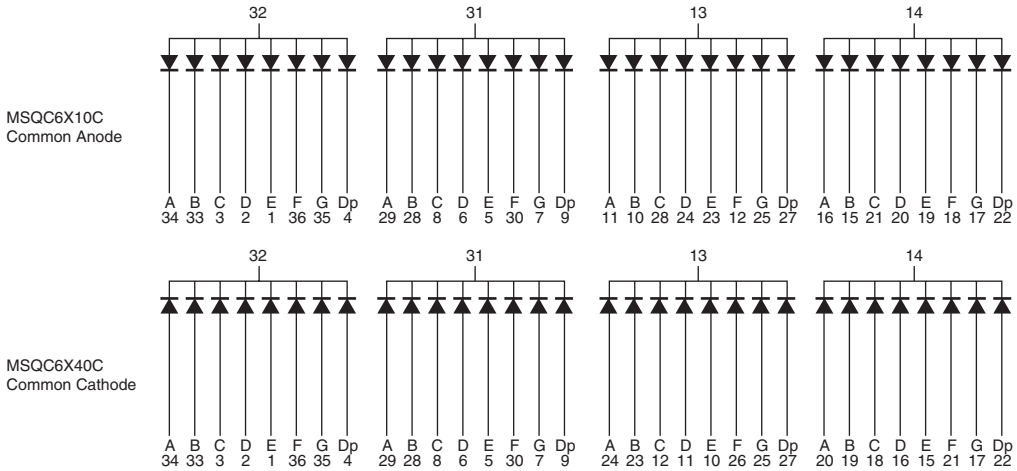
PIN ORIENTATION, SEGMENT IDENTIFICATION, AND PRODUCT MARKING



SCHEMATICS



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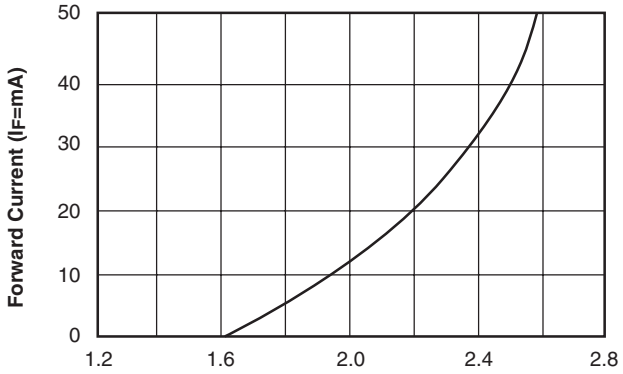
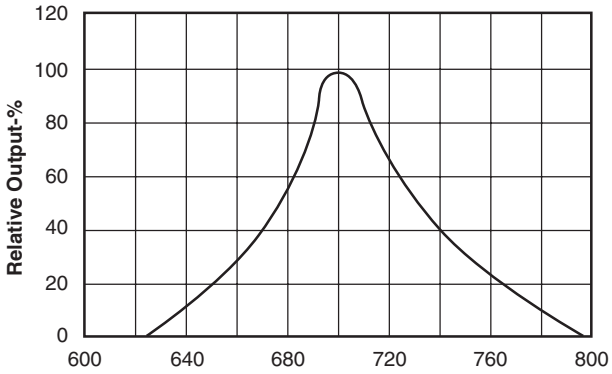
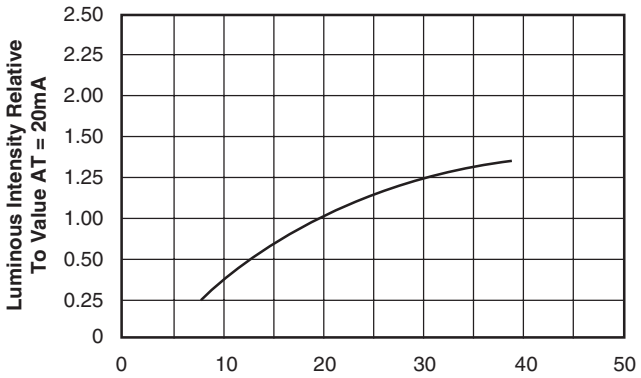
GRAPHICAL DATA Bright Red (T_A = 25°C, unless otherwise specified)



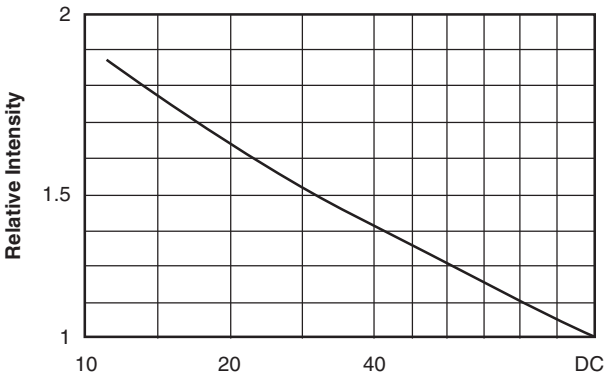
Forward Voltage (V_F) - Volts
Fig. 1 Forward Current vs. Forward Voltage



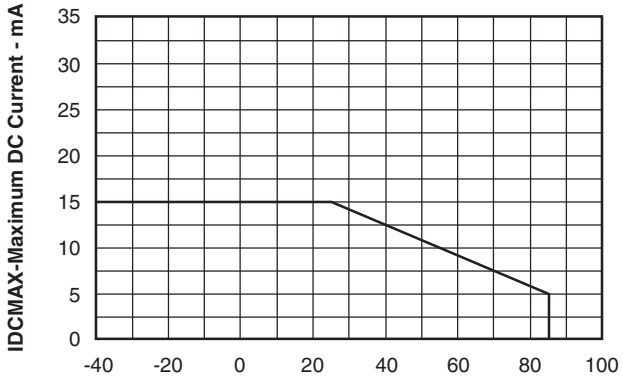
Wavelength (λ)-nm
Fig. 2 Spectral Response



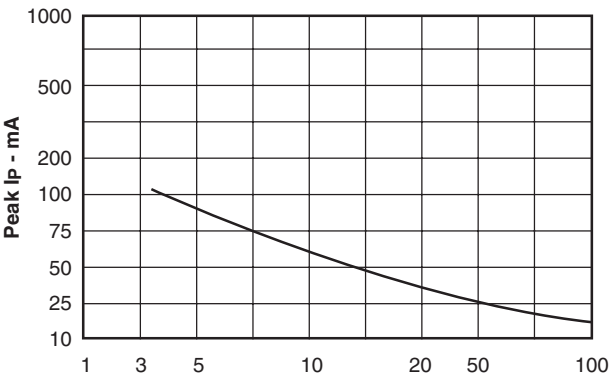
I_F - Forward Current - mA
Fig. 3 Relative Luminous Intensity vs. Forward Current



Duty Cycle % Per Segment
(Average I_F = 10mA)
Fig. 5 Luminous Intensity vs. Duty Cycle



T_A AMBIENT TEMPERATURE °C
Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature



Duty Cycle %
Fig. 6 Max Peak Current vs. Duty Cycle %
(Refresh Rate f=1 KHz)

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GRAPHICAL DATA Green (T_A = 25°C, unless otherwise specified)

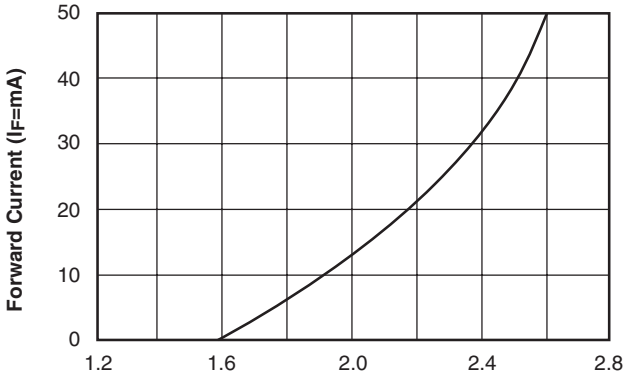

Fig. 1 Forward Current vs. Forward Voltage

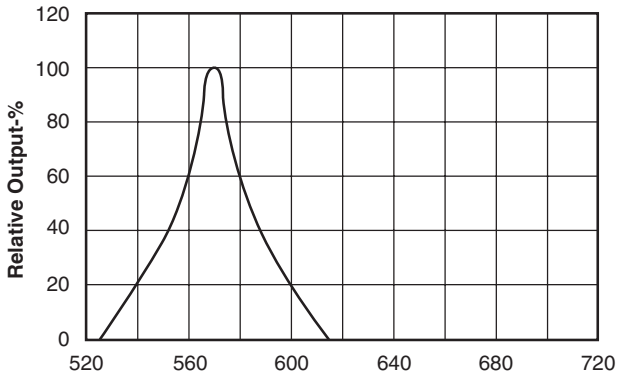

Fig. 2 Spectral Response

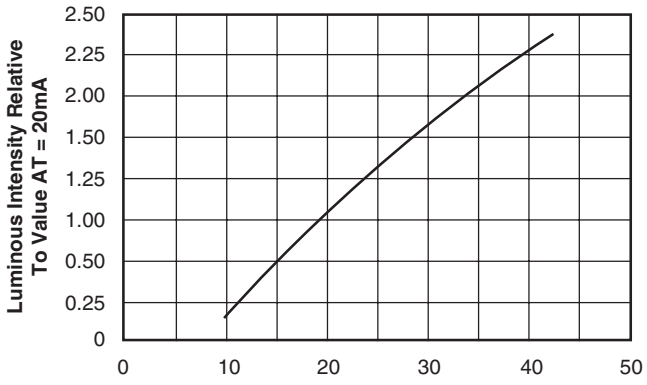

Fig. 3 Relative Luminous Intensity vs. Forward Current

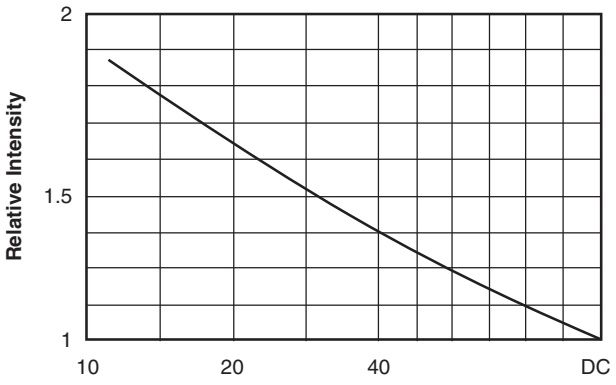

Fig. 5 Luminous Intensity vs. Duty Cycle

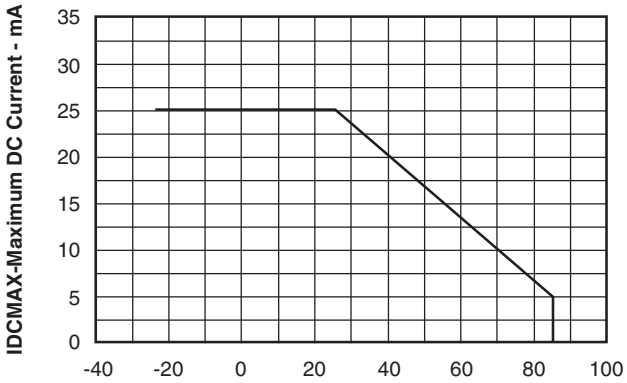

Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

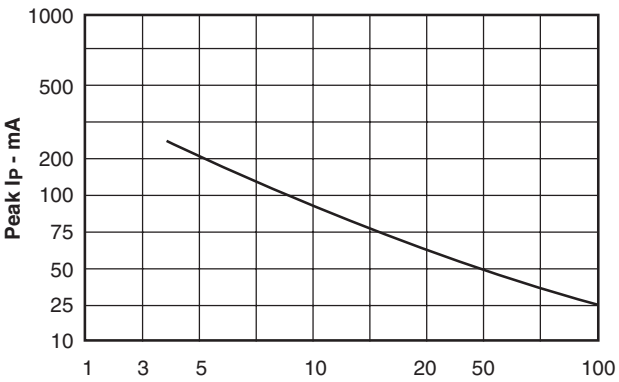

Fig. 6 Max Peak Current vs. Duty Cycle %
(Refresh Rate f=1 KHz)

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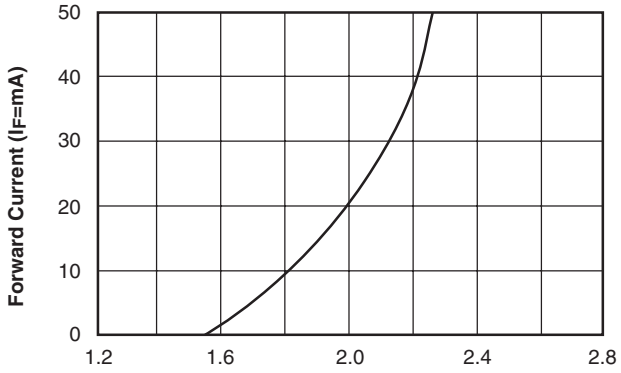
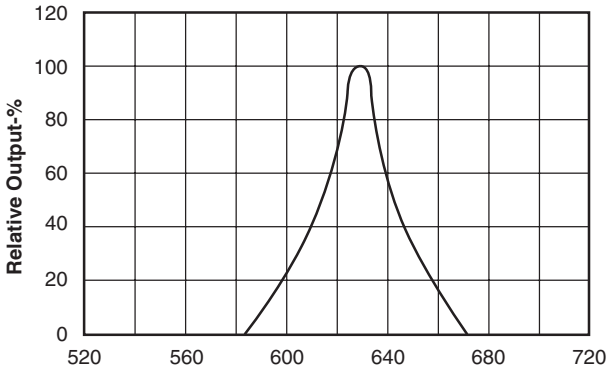
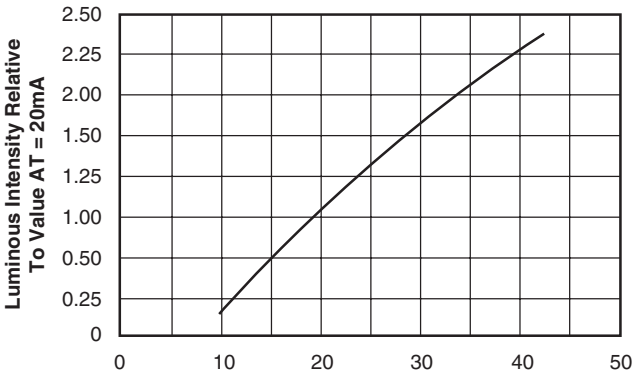
GRAPHICAL DATA High Efficiency Red (T_A = 25°C, unless otherwise specified)



Forward Voltage (V_F) - Volts
Fig. 1 Forward Current vs. Forward Voltage



Wavelength (λ)-nm
Fig. 2 Spectral Response



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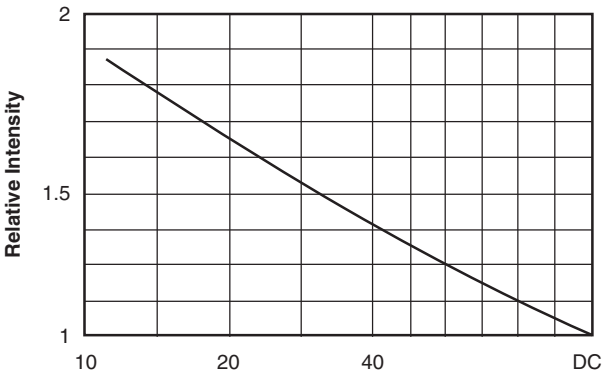
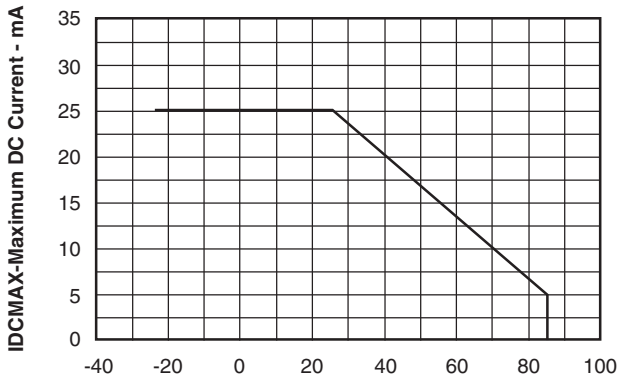
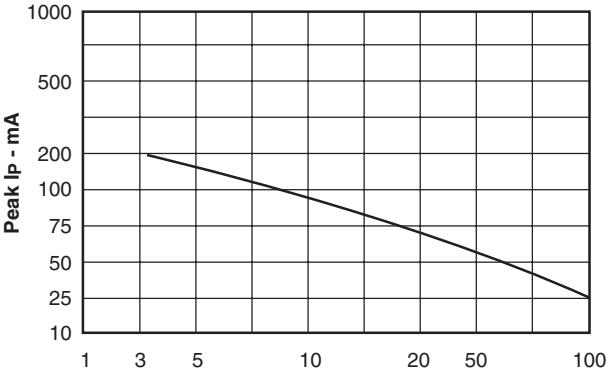


Duty Cycle % Per Segment
(Average I_F = 10mA)
Fig. 5 Luminous Intensity vs. Duty Cycle



T_A AMBIENT TEMPERATURE °C
Fig. 4 Maximum Allowable DC Current per Segment vs.
a Function of Ambient Temperature



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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.

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