FAIRCHILD SEMICONDUCTOR®

September 2005

MSQC6112C, MSQC6142C, MSQC6912C, MSQC6942C, MSQC6412C, MSQC6442C
14mm (0.56 inch) Four Digit Multiplex Clock Stick Display

Bright Red: MSQC6112C
MSQC6142C
High Efficiency Red: MSQC6912C
MSQC6942C
Green: MSQC6412C
MSQC6442C

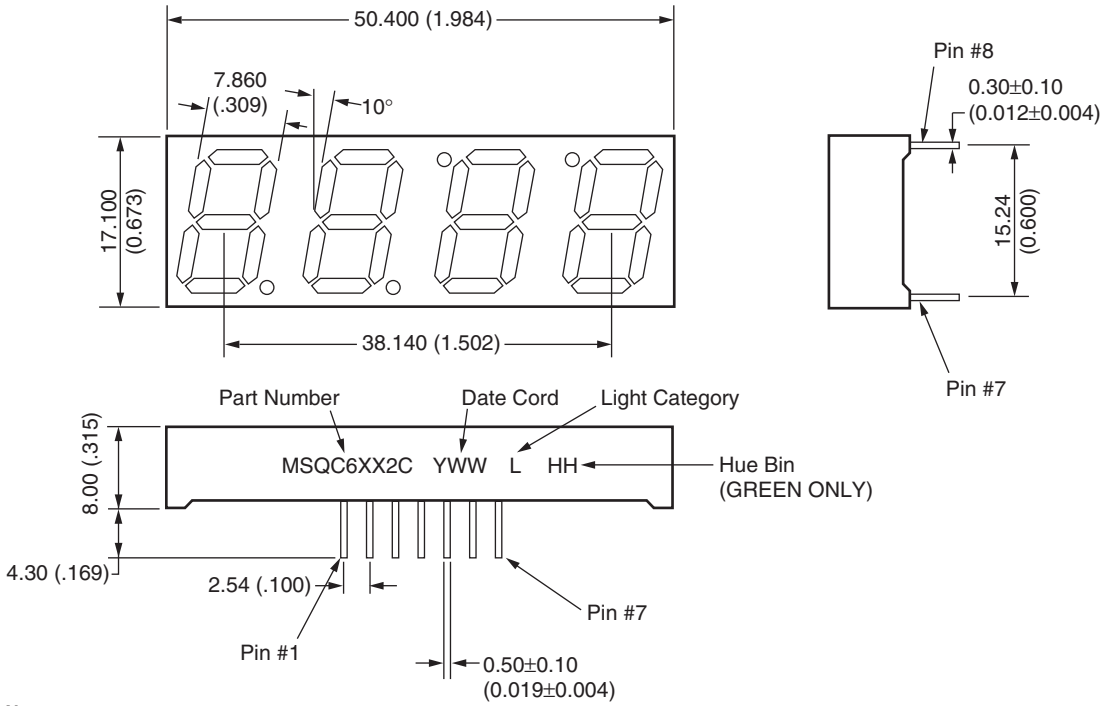
Features

- Bright Bold Segments
- Common Anode/Cathode
- Low Power Consumption
- Low Current Capability
- High Performance
- High Reliability

Applications

- Appliances
- Automotive
- Instrumentation
- Process Control

Package Dimensions



Notes:

- Dimensions are in mm (inches)
- Tolerances are ±0.25mm (0.010") unless otherwise stated.

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 segements
MSQC6942C	H.E.R.	Clock Display, Common Cathode, gray face, neutral segments

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

Absolute Maximum Ratings[1] (T_A = 25°C, unless otherwise specified)

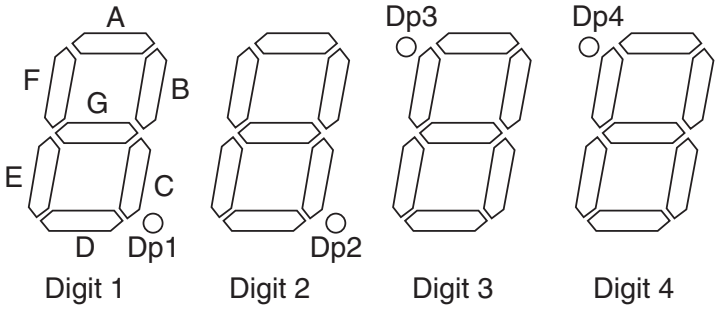
Part Number Parameter	MSQC6112C MSQC6142C	MSQC6412C MSQC6442C	MSQC6912C MSQC6942C	Units
Continuous Forward Current (each segment)	15	25	25	mA
Peak Forward Current (F = 10KHz, D/F = 1/10)	60	90	90	mA
Power Dissipation (P_D)	40	70	70	mW
*Derate Linearly from 25°C	0.17	0.33	0.33	mW
Reverse Voltage per Die			5 Volts	
Operating and Storage Temperature Range			-40°C to +85°C	
Lead soldering time (1/16 inch from standoffs)			5 seconds @ 230°C	

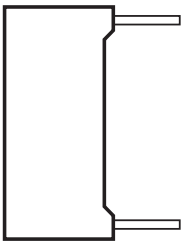
Electro-Optical Characteristics[1] (T_A = 25°C, unless otherwise specified)

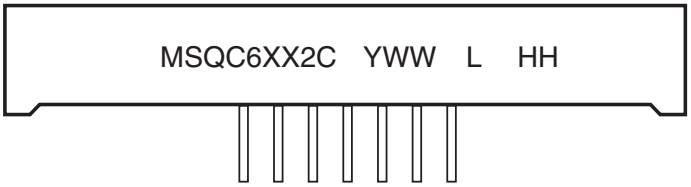
Part Number Parameter	MSQC6112C MSQC6142C	MSQC6412C MSQC6442C	MSQC6912C MSQC6912C	Units	Test Condition
Luminous intensity[2] (I_V)					
Minimum (Standard Current)	300	800	800	µcd	I_F = 10mA
Typical (Standard Current)	700	2400	2000	µcd	I_F = 10mA
Minimum (Low Current)	Not Available				
Typical (Low Current)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

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

Pin Orientation, Segment Identification, and Product Marking

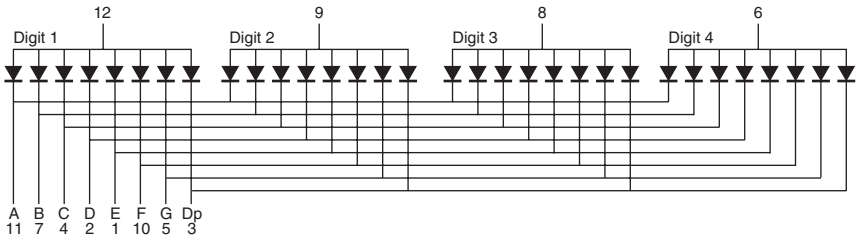




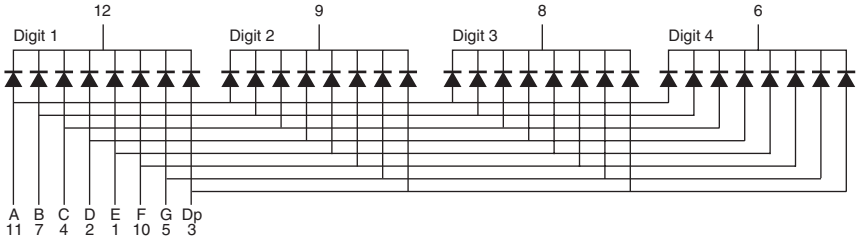


Schematics

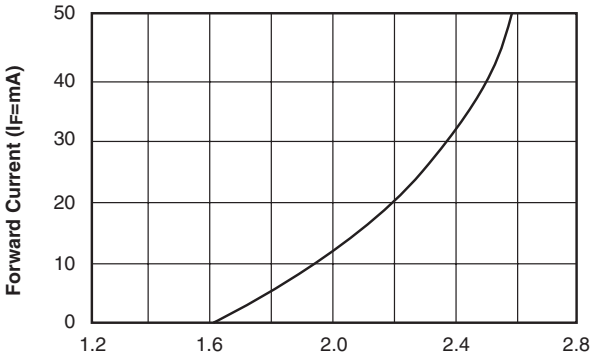
MSQC6X10C
(Common Anode)



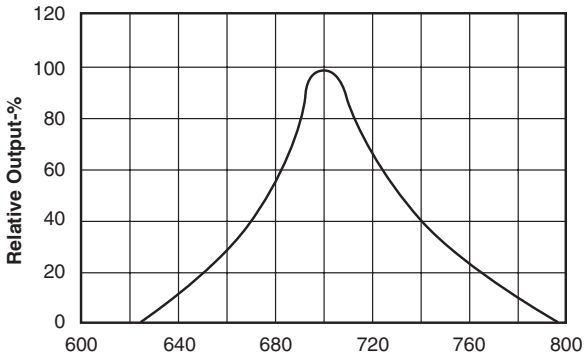
MSQC6X40C
(Common Cathode)



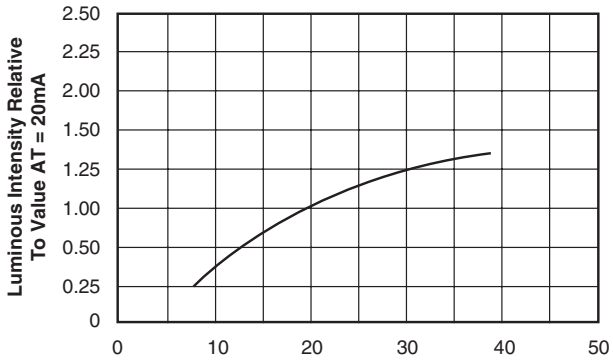
Graphical Data Bright Red (T_A = 25°C, unless otherwise specified)



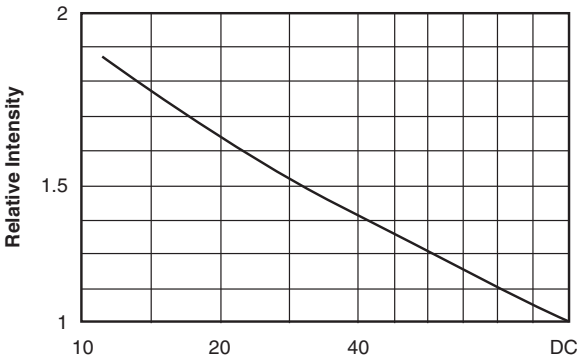
Forward Voltage (V_F) - Volts
Fig. 1 Forward Current vs. Forward Voltage



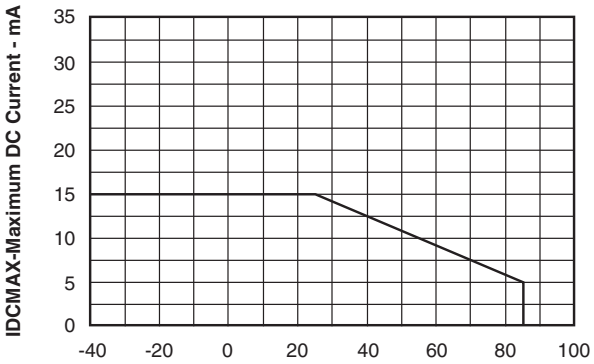
Wavelength (λ)-nm
Fig. 2 Spectral Response



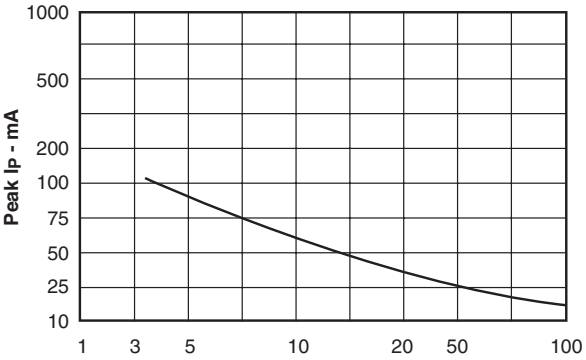
I_F - Forward Current - mA
Fig. 3 Relative Luminous Intensity vs. Forward Current



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)

Graphical Data Green (TA = 25°C, unless otherwise specified)

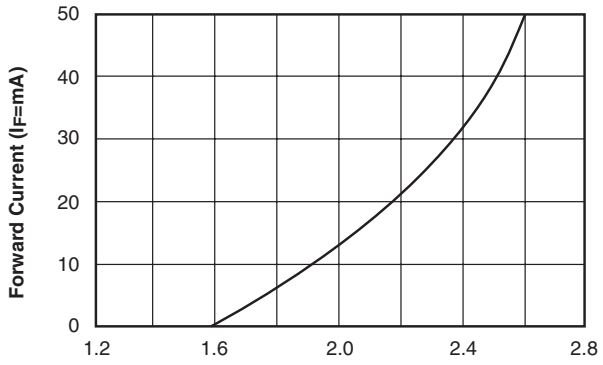


Fig. 1 Forward Current vs. Forward Voltage

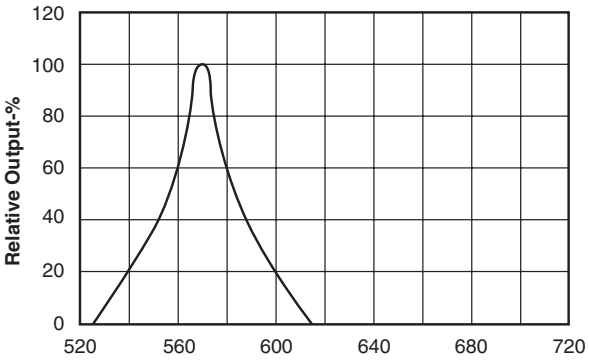


Fig. 2 Spectral Response

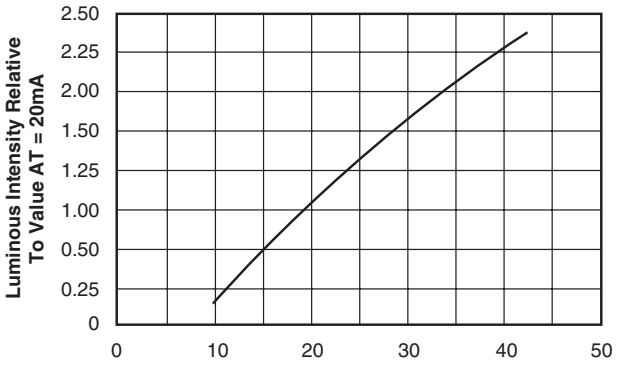


Fig. 3 Relative Luminous Intensity vs. Forward Current

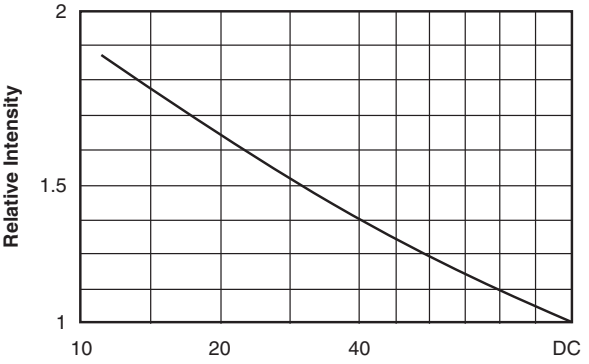


Fig. 5 Luminous Intensity vs. Duty Cycle

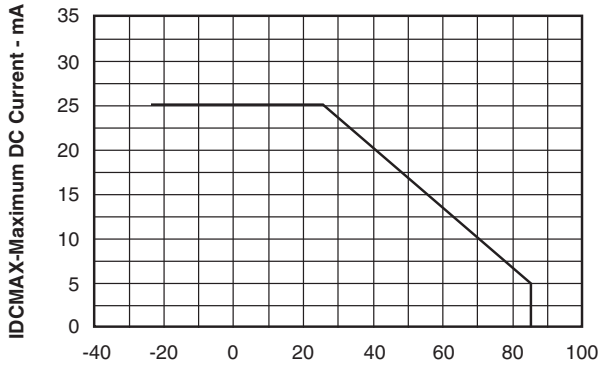


Fig. 4 Maximum Allowable DC Current per Segment vs. a Function of Ambient Temperature

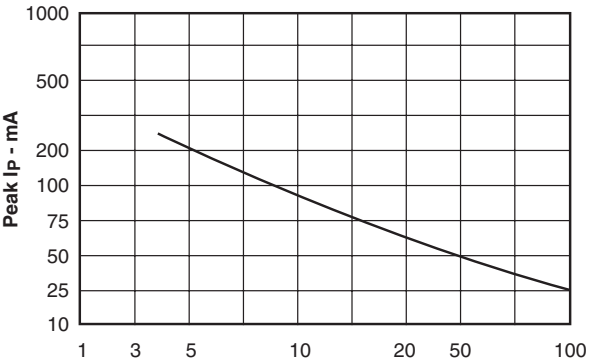
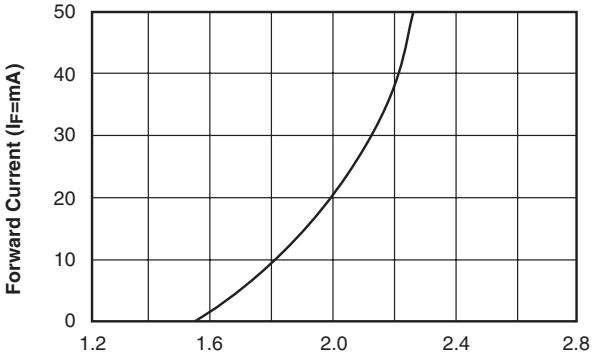
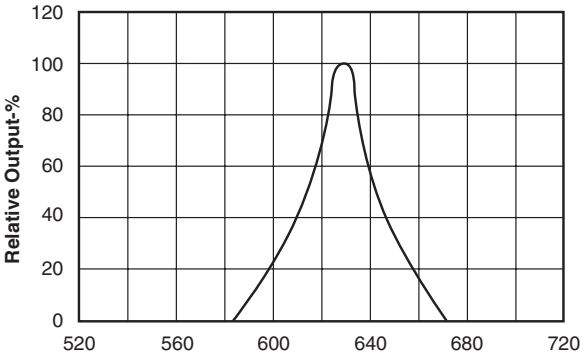


Fig. 6 Max Peak Current vs. Duty Cycle %
(Refresh Rate f=1 KHz)

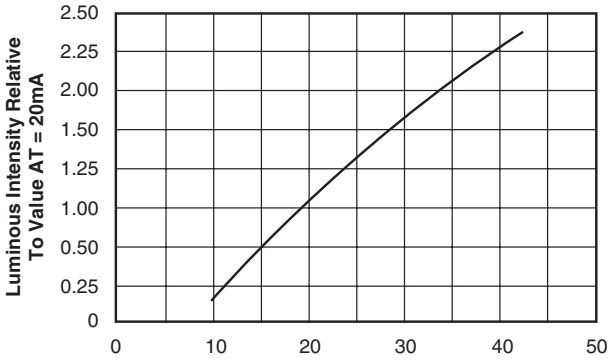
Graphical Data High Efficiency Red (T_A = 25°C, unless otherwise specified)



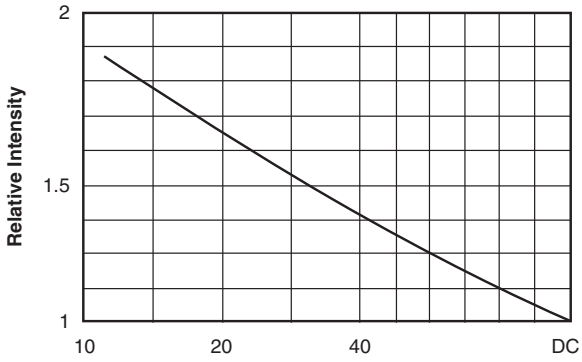
Forward Voltage (V_F) - Volts
Fig. 1 Forward Current vs. Forward Voltage



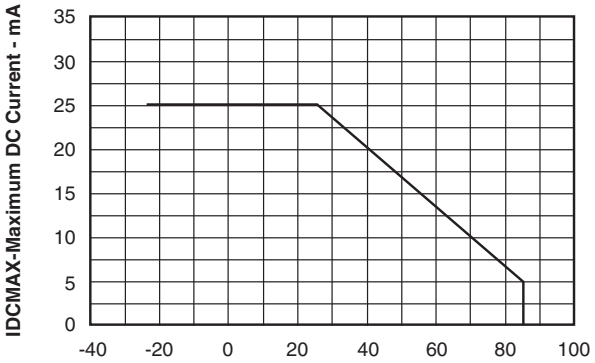
Wavelength (λ)-nm
Fig. 2 Spectral Response



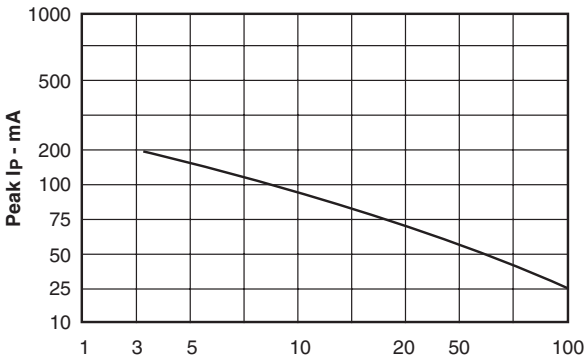
I_F - Forward Current - mA
Fig. 3 Relative Luminous Intensity vs. Forward Current



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



T_A AMBIT 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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QS™
QT Optoelectronics™
Quiet Series™
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2. A critical component is 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.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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