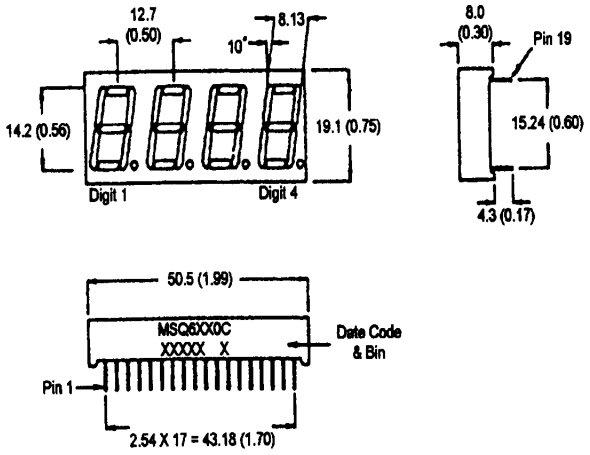
FAIRCHILD
SEMICONDUCTOR™

0.56 INCH (14.2 MM) FOUR DIGIT STICK DISPLAY

BRIGHT RED MSQ6110C, MSQ6140C
GREEN MSQ6410C, MSQ6440C
HIGH EFF. RED MSQ6910C, MSQ6940C

PACKAGE DIMENSIONS



FEATURES

- Easy to read digit
- Common anode or cathode
- Low power consumption
- Highly visible bold segments
- High brightness with high contrast
- White segments on a grey face for MSQ64X0C and MSQ61X0C.
- Red segments and red face for MSQ69X0C
- Directly compatible with integrated circuits
- Rugged plastic/epoxy construction

APPLICATIONS

- Digital readout displays
- Instrument panels

NOTES: Dimensions are in mm (inch).
All pins are 0.5 (0.02) diameter
Tolerances are ± 0.25 (0.1) unless otherwise noted.

MODEL NUMBERS

Part number	Color	Description
MSQ6110C	Bright Red	Common Anode; right hand decimal
MSQ6140C	Bright Red	Common Cathode; right hand decimal
MSQ6410C	Green	Common Anode; right hand decimal
MSQ6440C	Green	Common Cathode; right hand decimal
MSQ6910C	High Efficiency Red	Common Anode; right hand decimal
MSQ6940C	High Efficiency Red	Common Cathode; right hand decimal

(For other color options, contact your local area Sales Office)

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ABSOLUTE MAXIMUM RATING (T_A=25°C unless otherwise specified)

Part number	B.Red MSQ 6110C 6140C	Green MSQ 6410C 6440C	High Eff. Red MSQ 6910C 6940C	Unit
Continuous forward current (I_f) Per Segment	15	30	30	mA
Peak forward current per die (I_f) (at f = 10.0 KHz, Duty factor = 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/°C

Reverse voltage per dice.....5V

Operating and Storage temperature range.....- 25°C to +85°C

Lead soldering time (at 1/16 inch from the bottom of lamp).....5 seconds @ 230°C

ELECTRO - OPTICAL CHARACTERISTICS (T_A = 25°C unless otherwise specified)

Part number	Bright Red MSQ 6110C 6140C	Green MSQ 6410C 6440C	High Eff. Red MSQ 6910C 6940C	Test Condition
Luminous intensity (ucd)				
minimum	300	800	900	I_F = 20mA
typical	700	2200	2200	I_F = 20mA
Forward voltage (V_F)				
typical	2.1	2.1	2.0	I_F = 20mA
maximum	2.6	2.8	2.8	
Peak wavelength (nm)	697	570	635	I_F = 20mA
Spectral line half width (nm)	90	30	45	I_F = 20mA
Reverse breakdown voltage (V_R)	5	5	5	I_R =100uA

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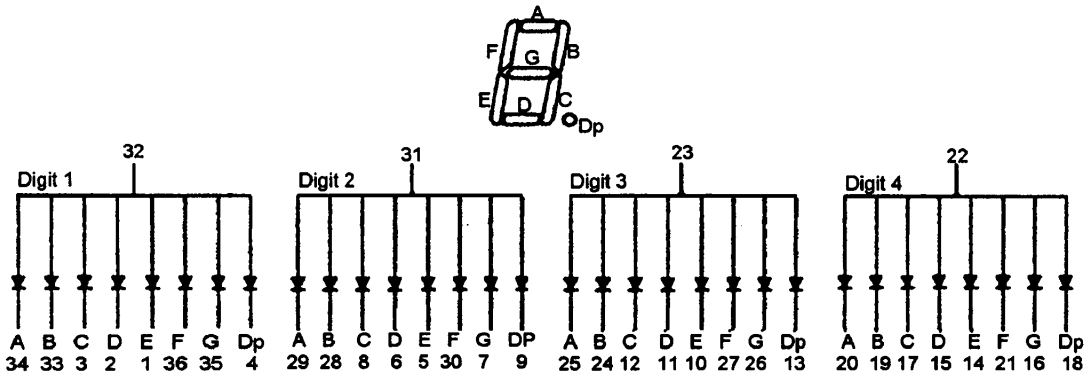
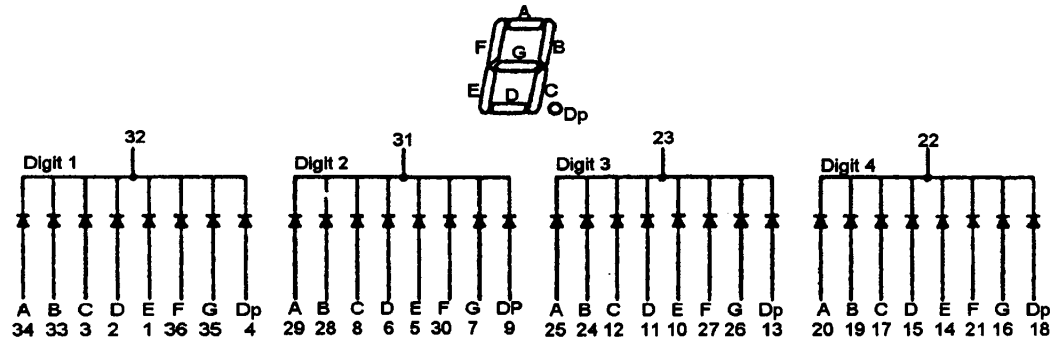
PINOUT

MSQ6X10C - Common Anode



MSQ6X40C - Common Cathode



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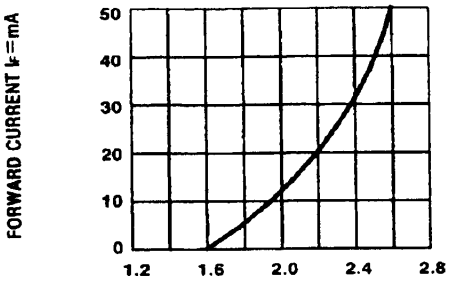
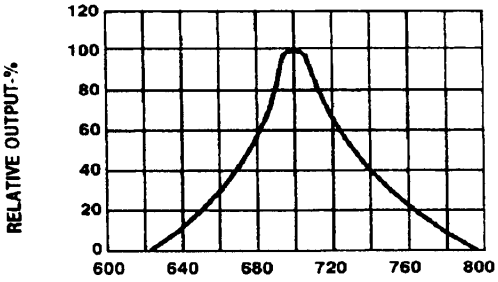
GRAPHICAL DATA - Bright Red (T_A = 25°C unless otherwise specified)



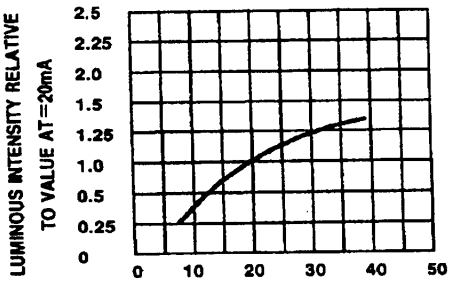
FORWARD VOLTAGE (V_F)-VOLTS

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



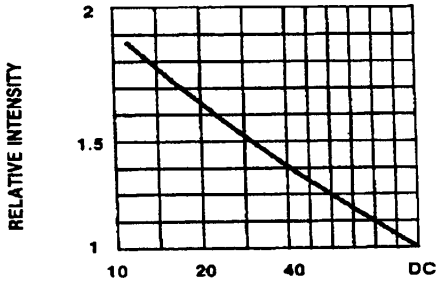
WAVELENGTH (λ)-nm

Fig.2 SPECTRAL RESPONSE



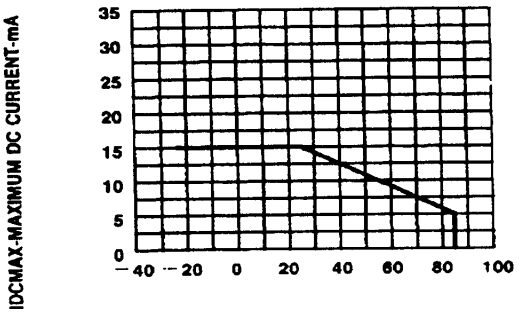
I_F-FORWARD CURRENT-mA

Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



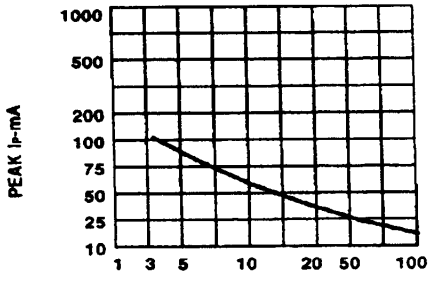
DUTY CYCLE % PER SEGMENT (AVERAGE I_F=10mA)

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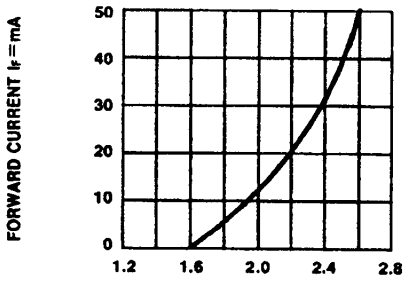
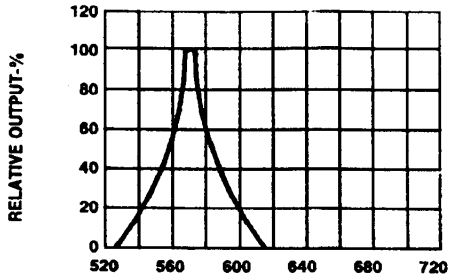
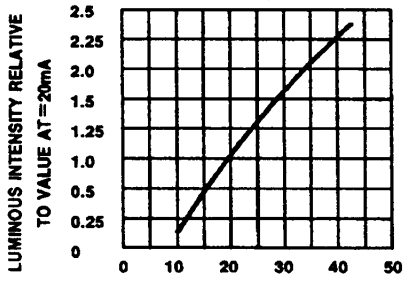
GRAPHICAL DATA - Green (T_A = 25°C unless otherwise specified)



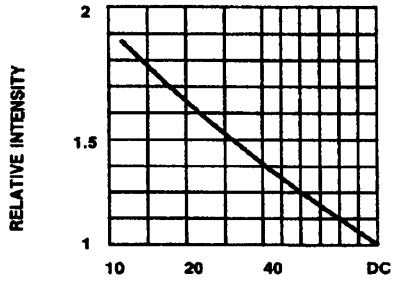
FORWARD VOLTAGE (VF)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



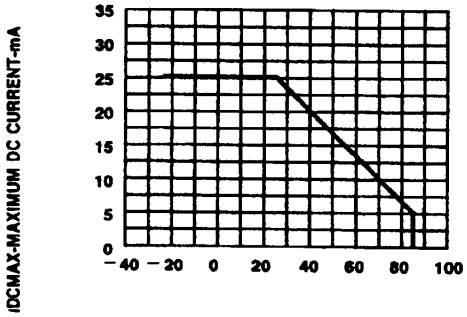
WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



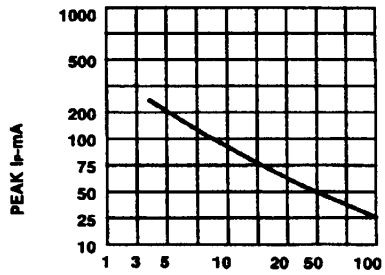
IF-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



DUTY CYCLE % PER SEGMENT (AVERAGE IF=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



TA AMBIENT TEMPERATURE °C
Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT CS. A FUNCTION OF AMBIENT TEMPERATURE.



DUTY CYCLE %
Fig. 6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)

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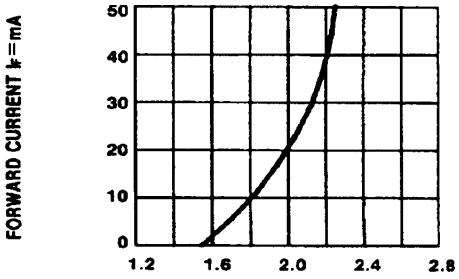
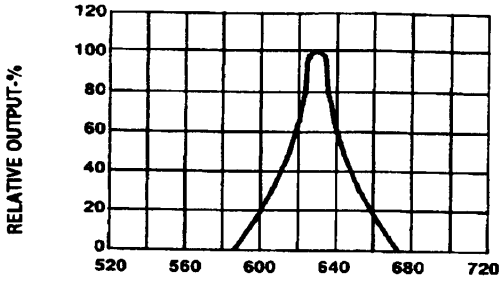
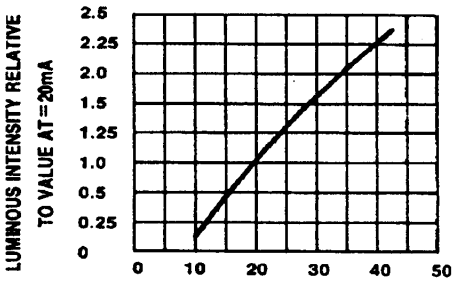
GRAPHICAL DATA - High Efficiency Red (T_A = 25°C unless otherwise specified)



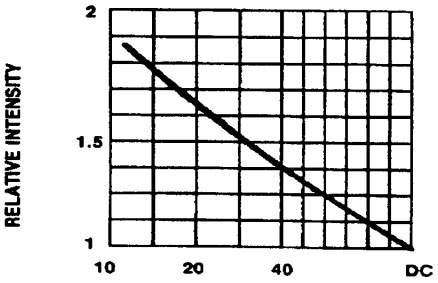
FORWARD VOLTAGE (V_F)-VOLTS
Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



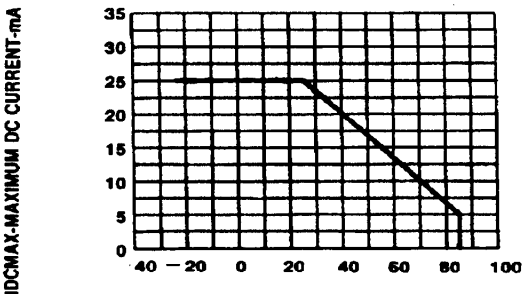
WAVELENGTH (λ)-nm
Fig.2 SPECTRAL RESPONSE



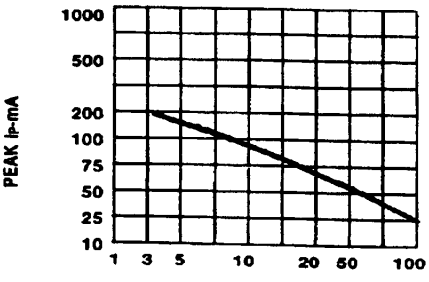
I_F-FORWARD CURRENT-mA
Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



DUTY CYCLE % PER SEGMENT
(AVERAGE I_F=10mA)
Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



T_A 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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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.